European Commission

Information Society and Media

Directorate-General

POPSIS

Pricing Of Public Sector Information Study

Models of Supply and Charging
for Public Sector Information (ABC)

Final Report

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1 Executive summary

The public sector collects, creates, produces and disseminates a wide variety of information ranging from legal and administrative information, business and economic data, to geographic and meteorological information. Public sector information (PSI) constitutes a valuable raw material which can be re-used by third parties in added-value information products and services.

This **Pricing of PSI Study (POPSIS)** has assessed different **models of supply and charging for PSI** and their effects through the analysis of 21 case studies. The cases cover a wide range of public sector bodies (PSBs) and different PSI sectors (meteorological data, geographical data, business registries and others) across Europe.

The study examined the charging practices of 21 PSBs. These practices range from zero and marginal cost models to partial and full cost-recovery regimes. As laid out in the chart below, the case study analysis focuses on the effects of PSI charging models on the downstream market, PSI re-users and end-users and impacts on the PSB itself.

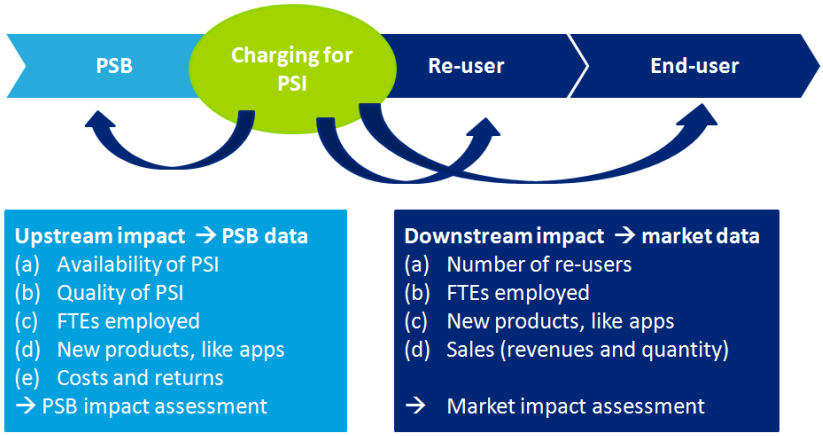

Figure 1: Upstream and downstream effects of PSI charging models

The study also identifies the main obstacles and enablers to effect change in PSI charging.

(a) Main findings from the PSI charging case studies

The case studies show a **clear trend towards lowering charges and/or facilitating re-use** (16 out of the 21 cases). Some PSBs only charge for commercial re-use and allow non-commercial re-use either against reduced fees (seven out of 21 cases) or for free (nine out of 21 cases). In almost all cases, PSBs allow free access to their PSI (i.e., viewing without copying). In some cases, free access has been the forerunner of a more flexible re-use regime.

In those case studies where cost-recovery regimes are applied, **the calculation basis for determining PSI re-use charges appears to be weak**. In discussions with interviewees, the PSBs' concerned were mostly unable to explain the basis for their PSI cost allocation. In some cases, the setting of charges seems to be oriented towards filling budgetary gaps

rather than being geared to the cost-oriented tariff-setting required under the PSI Directive 2003/98/EC.

In all the case studies, the **PSI re-use revenues of PSBs** range from **relatively small to extremely small** when compared to the total budget of the PSB concerned. In half of the cases, these revenues constitute less than 1% of the PSBs' entire budget.

Based on their own raw data, the number of **PSBs that exploit added-value products is limited** (seven out of 21 cases) **and** appears to be **decreasing over time**.

(b) Downstream effects of lowered charges

In those cases where PSBs moved to marginal and zero cost charging or cost-recovery that is limited to re-use facilitation costs only, the **number of re-users increased by between 1,000% and 10,000%**.

Lowering charges may **attract new types of re-users, in particular SMEs**. This also applies to cases where the price cuts have been less significant (or even absent), but where **special pricing schemes for SMEs** were introduced.

(c) Upstream effects of lowered charges

All case studies where PSBs have lowered their prices demonstrate that demand volumes expand strongly (there have been increases of up to 7,000%). In some cases, **PSI sales revenues** can **remain stable or even increase after drastic price cuts** due to the growing demand. Of course, once charges are zero, revenues are also zero.

Costs appear to increase very little: in fact, they may eventually decrease if the volumes of re-use grow significantly. Once re-use facilitation processes are properly organized, they become sub-routines within the PSB. To a large extent, they become embedded in the PSB's public task-funded activities at no extra cost.

Zero cost pricing has the additional advantage that **transaction costs decrease** significantly. This decrease applies not only to administrative costs, such as invoicing, but also to costs related to the monitoring of compliance with license arrangements.

Several PSBs have reported that **intensified ties with re-users** may lead to **improved data quality and process efficiency** since any deficiencies in the data are promptly flagged up and reported back to the PSB. Hence, when the interest in data quality is shared, quality control is partly outsourced.

(d) Obstacles to change

A large majority of PSBs interviewed do not seem to have fundamental objections to lowering charges. Yet, **PSBs that rely on sales revenues from PSI** and their own value-added products appear to be stuck in a situation of **deadlock**: although they are sympathetic to lowering charges and allowing more data re-use, their dependency on sales revenues compels them to protect their current revenue streams when there is no other sustainable alternative income stream available.

Such an **alternative income stream** can often only be provided by the Treasury, since the benefits from lowered charges are often concentrated in the form of increased tax gains. Thus, the **power to enable change** does **not necessarily** lie **with the Ministry willing to support the move**, let alone with the PSB concerned.

Further barriers to change relate to **statutory provisions imposing cost-recovery schemes**, the **legacy of old re-use regimes**, and the sheer **difficulty of changing existing practices**.

In addition, in several cases, **incumbent re-users** with considerable interests in the preservation of the status quo are trying to prevent PSBs from lowering charges in order to keep barriers to entry high. Some re-users are reported as **lobbying** actively and sometimes even **litigating to prevent PSBs from adopting lower charges**.

(e) Enablers of change

Change appears to be brought about both bottom-up and top-down.

In the cases of **bottom-up change**, PSBs that moved towards lower charges were often driven by the notion that **making data available and serving re-users** is part of their **core public task**. In many cases, the momentum was driven by inspired leaders in the PSBs who took action within the limitations of the existing framework. In most cases, where the movement was bottom-up, the business case was made upfront to **justify the reason for change**. The costs, the benefits and the financing of the transition process had to be shown clearly. Quite often, interviewees acknowledged that, ultimately, there was often a significant 'leap of faith'. However, the rationale for making such a leap was often harnessed after two aspects of potential **efficiency and effectiveness** were made clear: the fractional contribution of the re-use revenues and the gains to be achieved.

In other cases, the need for change was imposed **top-down** either through a clear political decision or occasionally by a policy move made by another PSB that possessed the same data. In these cases, the PSB's negotiating position was somewhat different. Often, the PSB managed to obtain a form of **compensation for its drop in income**: this was particularly the case where the revenues from its own exploitation were of some significance and entailed a reorganization process.

(f) Conclusions

The case study analysis indicates that the **potential benefits** of lowered charges for PSI re-use **can be high**. Lowered charges can lead to more economic activity, market dynamism, innovation and employment. They may also entail efficiency gains for the PSBs.

The **potential costs** of lowering PSI charges **appear to be low**. Unless zero cost pricing is applied, the price mechanism may actually increase the revenues rather than lowering them. The costs of a transition to lower PSI charges appear to be relatively low. This is because, to a large extent, the knowledge and infrastructure needed by the PSBs already exist. The main effort lies in an adjustment of processes and mindsets to serve PSI re-users most effectively.

2 Introduction

This chapter explains the way in which the report is laid out and the background to the study.

2.1 Contours of study objectives ABC

This document is the final report of the POPSIS study objectives ABC on different models of supply and charging for Public Sector Information (PSI) and their socio-economic effects. The table below provides a brief overview of the POPSIS study objectives ABC.

Table 1: Overview of the study objectives ABC

Objective	Details
A	An analysis of PSBs in the EU that have **changed** their **charging policy** vis-à-vis PSI. The purpose is to assess the impact of that change of policy on information producers and re-users.
B	An analysis of PSBs in three EU Member States that implement **cost-recovery policies**. The purpose is to assess the impacts of those policies on information producers and re-users.
C	An expansion of the case studies to research, **assess** and draw **conclusions** based on six specific domains of information: • Cost-benefit analysis; • Changes to data quality and availability; • Future costs; • Degree of competition in the market; • Expected levels of innovation; • Wider global experience of these trends.

This report is structured as follows:

Firstly, the introduction in chapter 2 sets out the approach and the background policy information relevant to the POPSIS study.

Secondly, chapter 3 details all the different tools that were included in the POPSIS study methodology.

Thirdly, chapter 4 lays out the analysis of the objectives ABC, including the analysis of the 21 case studies, main conclusions and trends observed.

Fourthly, the annex consisting of chapters 5 to 9 includes a number of relevant materials including:

- The 21 validated case studies;
- An overview of the quantitative case study findings;

- Bibliography;
- Case study protocol;
- List of interviewees.

2.2 Background to the study

This study is based on a number of general developments that are taking place currently in the field of PSI re-use in Europe. PSI is increasingly acknowledged to be a driving European resource for new information products and services. The question of which charging model is applied by PSBs is key, and it remains politically sensitive due to its potential budgetary impact on the PSB concerned. More evidence with regard to the effects of the different charging models applied is sought by the PSBs, policy-makers, and the European Commission. This study will feed into this debate by providing facts and figures to stakeholders to supply evidence on the various advantages and disadvantages of different PSI charging regimes. This report is based on evidence gathered from 21 in-depth case studies of PSBs across Europe.

PSI is increasingly acknowledged as a driving European resource for new information products and services

PSBs collect, create, produce and disseminate a wide variety of information: this ranges from legal and administrative information, business and economic data, to cadastral and meteorological information. The advent of new information and communication technologies (ICTs) enables governments to act as key players in the knowledge-based society as a result of their wide diffusion of PSI. PSI is a valuable 'raw material' which can be re-used by third parties in added-value information products and services.[1]

Over the last years there is an increased positive engagement in PSI on the part of policy-makers and a willingness to make PSI more widely available and re-usable in Europe. For example, the United Kingdom (UK)'s initiative on opening up government data – www.data.gov.uk – was a first important milestone. It has been followed by a succession of other initiatives at European Union (EU), national, regional and sectoral levels. For instance, at municipal level, the cities of Berlin, London and Rennes have decided to open up their PSI to developers. This move was supported by the *Visby*[2] and *Malmö Ministerial Declarations*[3] and the *Digital Agenda for Europe*[4]. These documents clearly recognize the economic potential of PSI re-use, notably with regard to the development of content markets, and call on Member States to make data freely accessible in open machine-readable formats in order to benefit entrepreneurship, research and transparency.

[1] Cf. European Commission (2009): *Re-use of Public Sector Information – Review of Directive 2003/98/EC*, COM(2009) 212 final and SEC(2009) 597.
[2] Creating impact for an eUnion 2015 – The Visby Declaration, 10 November 2009.
[3] Ministerial Declaration on eGovernment, 18 November 2009.
[4] European Commission (2010): *A Digital Agenda for Europe*, COM(2010) 245 final/2.

Charging for PSI by PSBs is key, but politically sensitive due to its potential budgetary impact

Even before the adoption of the PSI Directive,[5] there was a lengthy debate between re-users, PSBs, policy-makers and academia, about what model of supply and charging for PSI would facilitate its greatest re-use and maximize its social and economic value. This discussion was sparked by the landmark studies of Peter Weiss[6]. In the latter half of the last decade, the debate was intensified considerably by the publication of a large number of studies and reports (most prominently: Nilsen (2007), OECD (2008), Newbery (2008), Pettifer (2008), Pollock (2009), Uhlir (2009) and Pénin (2011)). Most of these reports conclude that either zero cost charging or a marginal cost regime for certain sets of PSI result in social and economic benefits which may outweigh the immediate short-term financial benefits attained by cost-recovery strategies.[7]

There is still an ongoing and controversial debate regarding the manner in which PSBs should make their information publicly available. It includes whether it is appropriate to implement cost-recovery policies and to use PSI as an income-generating source. Some writers argue that charging either no or marginal costs for PSI has the result of social and economic benefits that far exceed the immediate financial benefits gained by cost-recovery strategies. Others question the permanent sustainability of a scheme providing PSI at no or marginal prices when the costs of creating and maintaining quality PSI can be substantial (and thus require additional public funding).[8]

The sensitivity of the issue of charging for re-use is also reflected in the European Commission 2010 public consultation on the PSI Directive[9] which produced a considerable number of responses (n=585). The public consultation results acknowledge that a majority of respondents disagrees with cost-recovery policies and strongly agrees with the free provision of PSI for non-commercial re-use. However, there is no clear preference of the respondents for a single form of charging model. The figure below indicates the responses to the 2010 public consultation on the PSI Directive with regard to charging.

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[5] Directive 2003/98/EC of the European Parliament and of the Council of 17 November 2003 on the re-use of public sector information, OJ L 345, pp. 90-96.

[6] Weiss (2002): *Borders in Cyberspace: Conflicting Public Sector Information Policies, U. S. Department of Commerce and their Economic Impacts NOAA,National Weather Service*.

[7] Cf. inter alia: Weiss (2002): *Borders in Cyberspace: Conflicting Public Sector Information Policies*; Nilsen (2007): *Economic theory as it applies to statistics Canada: a review of literature*; OECD (2008): *Recommendation of the Council for Enhanced Access and More Effective Use of Public Sector Information*; Newbery et. al. (2008): *Models of Public Sector Information Provision via Trading Funds*; Paul F. Uhlir (2009): *The Socioeconomic Effects of Public Sector Information on Digital Networks*; Pettifer (2009): *PSI in European Meteorology – an unfulfilled potential*; Pollock (2009): *The Economics of Public Sector Information*; Pénin et.al (2011): *La valorisation des informations du secteur public (ISP): un modèle économique de tarification optimal*.

[8] Cf. European Commission (2009): *Re-use of Public Sector Information – Review of Directive 2003/98/EC – Staff working paper*, SEC(2009) 597, p. 19.

[9] Cf. European Commission (2011): *Results of the online consultation of stakeholders "Review of the PSI Directive"*, 67 pp.

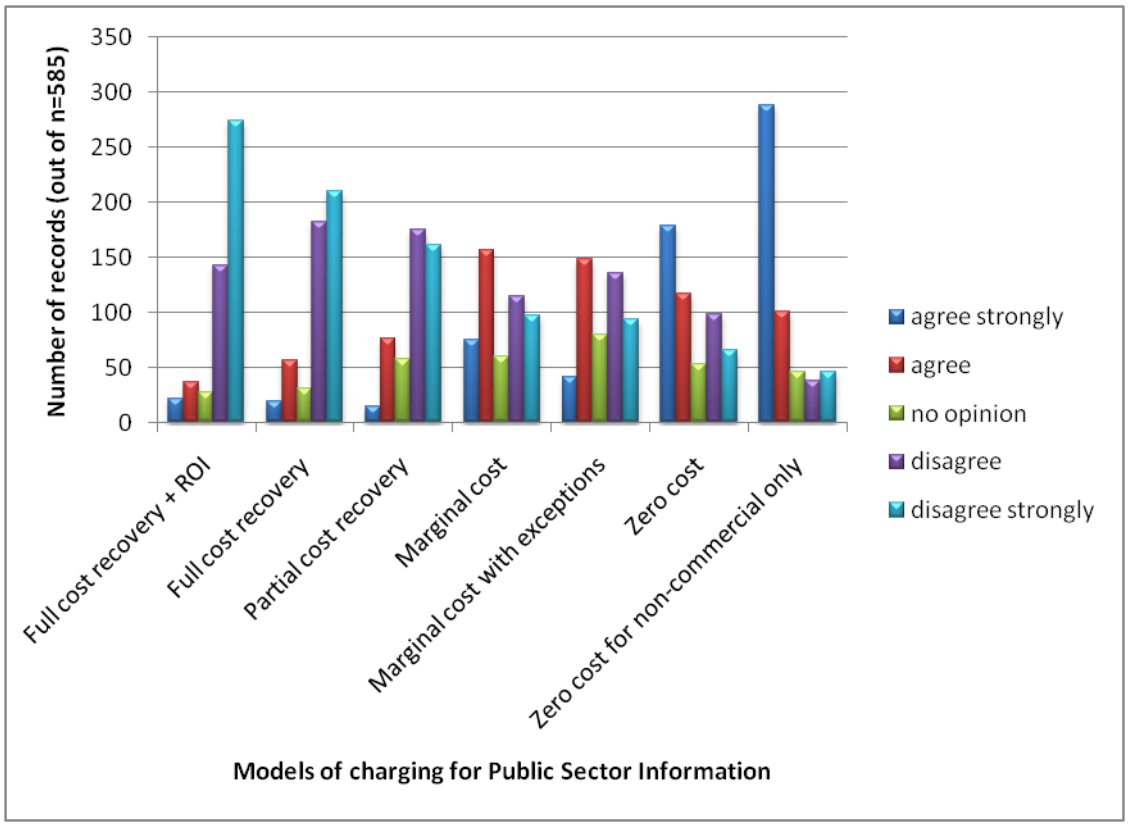


Figure 2: Responses to the European Commission public consultation on the PSI Directive (2010)

Current EU rules allow for cost-recovery, but favour marginal cost pricing

The EU-level regulatory framework – the PSI Directive 2003/98/EC – fosters marginal cost pricing regimes for PSI although it also allows PSBs to fully recover their costs (including making a reasonable return on investment (ROI)). Indeed, recital 14 of the PSI Directive encourages Member States to stimulate their PSBs to make documents available at charges that do not exceed the marginal costs for reproduction and dissemination of the documents. However, article 6 gives PSBs the right to charge for their PSI, thereby generating an income that should not exceed the cost of collection, production, reproduction and dissemination, together with a reasonable ROI. The more general competition law framework under the Treaty on the Functioning of the European Union (TFEU) appears not to limit this position further (with the exception that a PSB's charging conduct could be regarded as a clear abuse of a position of dominance).

Increasing numbers of open data portal initiatives, popularity of apps contests and exponential growth of apps market

The Open Data Movement and the increasing number of initiatives of data.gov portals illustrate the public interest in PSI re-use. The apps market (including the PSI-based apps) is growing exponentially (it is expected to reach 35 billion US dollars in 2015). The success of apps contests (in terms of the numbers of entries and votes) indicate both the market and social benefits of free data re-use. In addition, the opening up of data stocks that are currently not available to re-users may further increase the existing benefits.

More evidence on impact of charging is sought by the European Commission

After the first review of the PSI Directive, undertaken in 2009, the European Commission concluded that more evidence on the impact, effects and application of the Directive was to be gathered (including the effects of charging). A second review of the Directive is to take place in 2012. There is an enhanced interest in this matter which is driven by increasingly active re-users, the widely emerging Open Data movement, the growth in data.gov portals and the political acknowledgement of the socio-economic potential of PSI. In order to obtain more evidence on the impact of the various models of supply and charging for PSI, the European Commission commissioned the present study.

POPSIS supports the debate through the provision of evidence

This study aims to support the general debate and to provide evidence that can add to possible further European and national policy measures on PSI charging models. It reports on 21 in-depth PSB-based case studies across Europe. The case studies were undertaken by looking at the different charging models operated by PSBs with the intention of associating the models with their effects on the value chain. The models range from zero cost and partial cost-recovery to market pricing.

Typically, the value chain effects relate to both downstream and upstream indicators. The downstream indicators include the number of re-users, intensity of usage, level of innovation, sectoral turnover, employment and tax returns. The impacts of changes to the charging models also affect the PSBs providing the data. These changes include data quality, data availability, the development of internal cost structures and financing models.

The study's focus was on those sectors where PSI is an essential element or a substantial proportion of the value proposition. The cases explored include PSBs in the meteorological sector, the geographic information sector and the business information sector. The decision was made not to attempt to investigate cases that covered the entirety of the European territory. Rather, emphasis was placed on examining PSBs in those Member States which have potentially substantial re-use markets, and PSBs where policy changes on PSI re-use have taken place in recent times. The data produced by the case study evidence is both quantitative and qualitative.

3 Methodology

This section explains the methodological approach used to investigate the POPSIS objectives ABC. It also outlines how the five different study objectives – ABCDE – are interrelated.

The approach to undertake the study objectives ABC consisted of four steps:

1. Set the conceptual framework governing the study;
2. Select the case studies (POPSIS objectives A and B);
3. Conduct case studies and draft case study reports (POPSIS objectives A and B);
4. Analyze findings case studies and draft final report (POPSIS objective C).

Figure 3: Study approach

These four steps are described in detail in the sub-sections below.

3.1 Step 1: Drafting the conceptual framework

First of all, to create a common basis for the various POPSIS objectives a conceptual framework was drafted that served to guide all the activities undertaken throughout the study.

This framework is based on the notion that in essence the study has five interrelated objectives. Each are based on an input-output relationship: what are the patterns in the value chain and what is the impact if a change in one of the determining factors takes place. This relates, in particular, to the prices that PSBs are charging to re-users (POPSIS objectives AB), and how they enhance the availability and accessibility through centralised portals (POPSIS objective E). These patterns and this impact are measured on the basis of value chain indicators (POPSIS objective C) that are both downstream and upstream. The downstream indicators include various apps (POPSIS objective D).

The figure below illustrates this input-output relationship. The green oval reflects the input (charging and availability) and the blue arrows and boxes show the output (upstream and downstream effects).[10] The information gathered in each case study allows for comparisons to be made across countries and PSI sectors.

[10] Inspiration for the listing of these indicators was obtained from the work done by the European Commission in the framework of the Working Group 'Public Information Economic Indicators'. The group selected indicators for specific sectors (Address Information, Cadastral Information, Meteorological Information) which were described in Part 1 of the Report 'Public Sector Information Economic Indicators & Economic case study on charging models', facilitated by Chris Corbin (21 August 2010, INFSO/E4 JP(2009)D/141680).

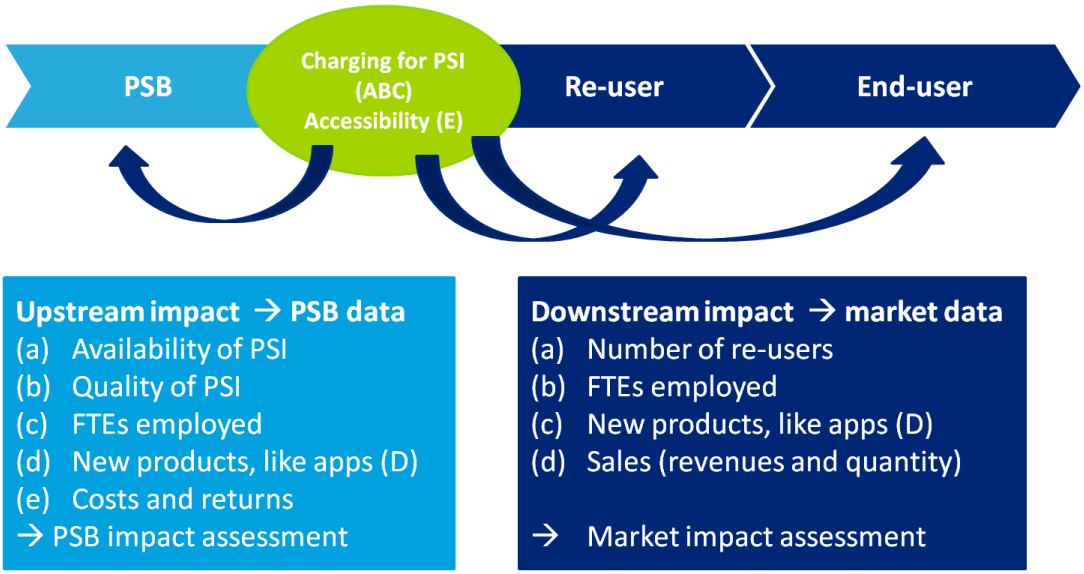


Figure 4: The five POPSIS objectives (ABCDE) displayed in the broader context of the study

The conceptual framework also defines the concept of a case study. Case studies form the core and basis of the study's Interim and Final Report. A case study provides solid evidence on the socio-economic impact of a pricing policy by a PSB both downstream and upstream. It is based on pre- and post-interview desk research and interviews with stakeholders, in particular (a) the PSB applying the pricing policy (b) re-users of that PSI and, where necessary and possible, (c) policy-makers of influence to that PSB and (d) others. All case studies are described according to the structure of a designated template.

Each case study has been selected, carried out and quality controlled by using a POPSIS case study protocol. This protocol is included as an annex to this report. This quality control mechanism has ensured a harmonized approach to the reporting which is handled using a uniform structure. This is:

1. Key message;
2. Key economic indicators;
3. Introduction;
4. Organization, governmental structure, tasks, PSI portal;
5. Budget, costs, revenues;
6. Re-use policy and pricing;
7. Impacts of the re-use policy;
8. Final observations;
9. Key sources.

Distinction between A and B cases

The study's terms of reference distinguished between case studies on PSBs that have changed their charging policy towards marginal or zero costing and those that are implementing cost-recovery policies. The first type essentially charges zero costs or only those costs incurred that are equal to the marginal costs for supplying the information to re-users. The second type charges prices to re-users equal to average long-run costs. The text box below describes the various charging regimes that have been described in the academic literature and which were therefore used in the study.

Charging models applied in this study
The 2009 Cambridge study[11] was based on three charging regimes. The POPSIS study team adopted these definitions. However, it added a further subcategory of definition: 're-use facilitation cost-recovery'.

Profit-maximization
"Setting a price to maximize profit given the demand faced by the PSB. Where the product being supplied does not face competition then this will naturally result in monopoly pricing."

Cost-recovery
"Setting a price equal to average long-run costs (including, for example, all fixed costs related to data production)."

The charging policy whereby only the costs related to the facilitation of re-use are charged ('**re-use facilitation cost-recovery'**) is part of the cost-recovery model, but is at the very low end of the spectrum. It only includes costs that can truly be allocated to the re-users, for instance, the salary costs of the help desk. Thus, this approach does not imply that any costs are incurred in the framework of the public task or own re-use activities by the PSB itself.

Marginal costs and zero costs
"Setting a price equal to the short run marginal cost of supplying data", that is, the cost of supplying data to an extra user. When considering digital data, this cost is essentially zero and marginal cost and zero cost pricing are identical.

It became quickly apparent to the POPSIS study team that, if the definitions laid down by the Cambridge study were to be followed literally, very few PSBs in Europe have actually shifted to a genuine marginal or zero cost pricing regime. Indeed, quite a number of PSBs that have moved towards a much more liberal charging regime still charge costs equal to those incurred for the facilitation of re-use. According to the Cambridge study definitions, such PSBs would not qualify as applying a marginal cost (or zero cost) model.

Nevertheless, the POPSIS study team has included such PSBs as A cases. This has been done because the study team considers that this kind of cost model represents the marginal costing model advocated under the Directive and thus supports the intention of the PSI Directive.

3.2 Step 2: Selecting the appropriate case studies

The next step in the study concerned the selection of the case studies. A selection framework was drafted and interviews with sectoral experts and the European Commission were conducted.

[11] Pollock (2009): *The Economics of Public Sector Information*.

3.2.1 The selection framework

The selection framework consists of a set of framework conditions and two resulting drop-out criteria.

First and foremost, some framework conditions were observed.

a. Under the terms of reference the study was to focus on those PSI domains that have by far the largest economic impact (based on findings from the MEPSIR (2006) and the MICUS (2009) studies): meteorological information, business registers information, geographical information and legal information. This set of PSI domains was extended to include some specifically interesting cases.

b. Since the characteristics of PSI domains and the markets differ so fundamentally, selecting cases in different countries but in the same domain was intended to allow for comparisons to be made between countries.

Two-drop out criteria were applied in the selection process:

a. *Whether the case studies have value as a specific illustration.* Under POPSIS objective A, PSB cases were selected that have changed their charging policy on PSI in the direction of marginal or zero cost pricing. For objective B of the study, cases were selected that were clearly representative of cost-recovery or market pricing models.

b. *Availability of reliable and relevant data, at both a primary and secondary level.* A case study was to be selected only if the appropriate persons, in the PSB and among the re-users concerned, were willing to participate in an interview. This availability of interviewees was seen as enabling the POPSIS study team to really delve into the case in depth and to gather additional and reliable data. The resulting data would allow for the cross-testing and appropriate quality control of findings.

The figure below provides an overview of the case study selection framework.

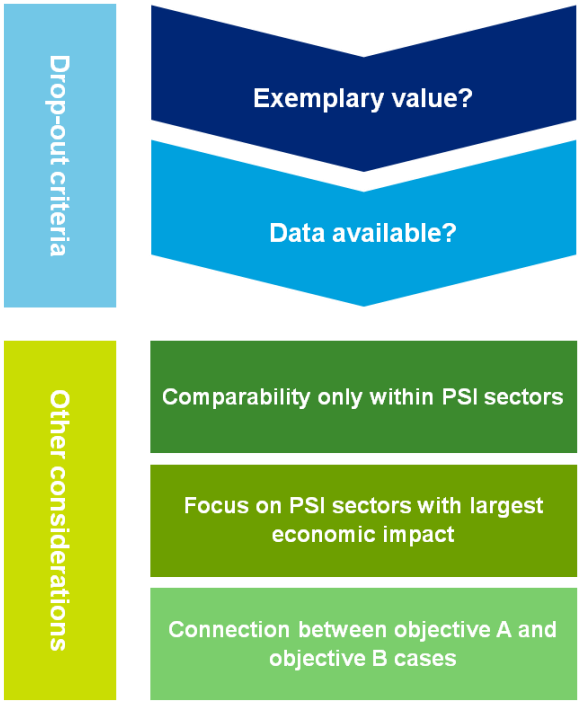


Figure 5: POPSIS case study selection framework for objectives A and B

3.2.2 Interviews with sectoral experts and support from the EC

Bearing this selection framework in mind, a series of interviews was held with sectoral experts who had a cross-border overview and a cross-border network. As a result, the POPSIS study team was provided with a number of leads to potentially interesting case studies.

Table 2: Sectoral experts interviewed to select the case studies

PSI stakeholders contacted in the inception phase of the study	
General	• Séverin Naudet – France (Director Etatlab) • Danielle Bourlange – France (Deputy Chief Executive APIE) • Kristof de Meulder – France (Project Manager APIE) • Daniel Dietrich – Germany (Director Open Data Network Deutschland e.V.) • Martin Fornefeld – Germany (CEO MICUS Management Consulting) • Kees Keuzenkamp – Netherlands (Deputy director Innovation and Information policy of the public sector, Ministry of the Interior and Kingdom relations) • Rolf Nordqvist – Sweden (Director at Bisnode AS and chair PSI Alliance) • Paul Uhlir – US (Director NAS)

Meteorological PSI	• Ton Donker – the Netherlands (former head of licensing department KNMI) • Harry Otten – the Netherlands (CEO MeteoConsult) • Anton Eliassen – Norway (chair of the ECOMET Council and Director of the Norwegian meteorological institute) • Richard Pettifer – UK (former secretary PRIMET)
Business register PSI	• Nikolaus Futter - Austria (Director Compass-Verlag GmbH) • Gerard Knoop – the Netherlands (former CEO of the Dutch Association of Chambers of Commerce)
Geographic PSI	• Peter A. Hecker – Germany (Director Geokomm) • Derek Earnshaw – UK (EuroGeographics) • Sallie White – UK (EuroGeographics) • Michael Nicholson – UK (CEO Intelligent Addressing)
Other PSI	• Jean Cherbonnier – France (Director NAVX) • Denis Berthault – France (vice president GFII, LexisNexis).

Study team members participated in several key PSI community events in order to meet relevant stakeholders and to present the study (its objectives, approach, set-up and planning). The events attended included: (1) the ePSIplatform conference 'Open data: apps for everyone? Opportunities and challenges in the re-use of public sector information' in Berlin, Germany (17 and 18 February 2011), (2) the LAPSI conference in Münster, Germany (27 and 28 January 2011) and (3) the 'Open Data Meet Up' organized by the Dutch Ministry of Economic Affairs in the Hague, the Netherlands (11 April 2011). At these three events, further suggestions were received with regard to the kinds of potential case studies to be covered by the study.

The following case studies were finally selected. The table below orders the cases according to the type of PSB involved: whether it is, for example, a business register, or it deals with geographic information or meteorological information or handles other kinds of information such as fuel prices or legal or statistical information. The list starts with business registers and ends with statistical information. The case study acronyms introduced in this table are used to identify all the case studies in this POPSIS ABC findings report.

Table 3: Case studies overview

Country	Public sector body (PSB)	Acronym	Sector
IT	Italian Chambers of Commerce	Infocamere	Business register
NL	Kamer van Koophandel	KvK	Business register
UK	UK Companies House	Companies House	Business register
AT	Bundesamt für Eich- und Vermessungswesen	BEV	Geographic information
DE	Bundesamt für Kartographie und Geodäsie	BKG	Geographic information

DE	Senatverwaltung für Stadtentwicklung Berlin	SenStadt	Geographic information
DK	Danish Enterprise and Construction Authority	DECA	Geographic information
ES	IGN-CENIG	IGN-CENIG	Geographic information
ES	Oficina del catastro	Spanish Cadastre	Geographic information
FR	DGFiP	French Cadastre	Geographic information
IT	Italian Cadastre Agency	Italian Cadastre	Geographic information
NL	Dutch Cadastre	Dutch Cadastre	Geographic information
UK	UK Ordnance Survey	Ordnance Survey	Geographic information
DE	Deutscher Wetterdienst	DWD	Meteorological information
NL	Royal Dutch Meteorological Institute	KNMI	Meteorological information
NO	Norwegian Met Office	Met.no	Meteorological information
SI	Slovenian Met Office	ARSO	Meteorological information
ES	CENDOJ	CENDOJ	Legal information
FR	DILA	DILA	Legal information
FR	SIRCOM / APIE	SIRCOM	Fuel prices information
DE	Statistisches Bundesamt	DeStatis	Statistical information

The following table presents the 21 case studies undertaken according to their POPSIS study objective – whether this is objective A or objective B.

The distinction between the A and B cases is not always clear cut. For instance, several PSBs that have modified their pricing policy towards marginal or zero cost pricing still apply a partial cost-recovery regime for certain groups of re-users (e.g. ARSO, BEV, DECA, DILA, IGN-CNIG, French Cadastre, KNMI and Ordnance Survey). Furthermore, some PSBs that are categorized under POPSIS objective B are making efforts to improve the conditions for re-use gradually, including the free provision of certain datasets (e.g. CENDOJ and DWD).

Table 4: Case study overview by POPSIS study objective

	POPSIS objective A: Changed charging policy	POPSIS objective B: Cost-recovery policy
Business registers		• IT: Infocamere • NL: KvK • UK: Companies House
Geographic information	• AT: BEV • DK: DECA • ES: IGN-CNIG • ES: Spanish Cadastre • FR: French Cadastre • UK: Ordnance Survey	• DE: SenStadt • DE: BKG • IT: Italian Cadastre • NL: Dutch Cadastre
Meteorological information	• NL: KNMI • NO: Met.no • SI: ARSO	• DE: DWD
Other PSI domains	• DE: DeStatis • FR: DILA	• FR: SIRCOM • ES: CENDOJ

3.3 Step 3: Conducting the case studies

Performing the case studies entailed three steps:

1. Drafting and applying the case study protocol;
2. Conducting the interviews and carrying out desk research;
3. Reporting, validating and performing quality control.

3.3.1 Drafting and applying the case study protocol

Having selected the case studies, a case study protocol was drafted and applied. The protocol provided a solid methodological tool and ensured that there was a harmonized and coordinated approach to carrying out the case studies. The case study protocol is attached in the annex to this report.

3.3.2 Conducting the interviews and carrying out desk research

Based on the case study protocol, the stakeholders involved in the selected case study were contacted. Typically, these stakeholders were representatives of the PSBs (in particular those involved in the facilitation of re-use activities), representatives of re-users of the PSI of that PSB (typically sales directors and product developers) and where appropriate and/or needed policy-makers related with the PSB concerned. Talking to these various stakeholders allowed the study team to cross-check data. A list of interviewees is presented in the annex to this report.

In order to allow for proper preparation for the interview on the part of the interviewees, an information package was sent out which was an excerpt from the study protocol. In particular an introductory note, which referred to the tailored questionnaire, enabled the persons approached to make sure that the appropriate people were available for the

interview. It also served as a checklist for the study team members carrying out the interviews to ensure all the necessary topics were covered.

In anticipation of the interviews, desk research was carried out. The main sources for this desk-based research were:

- Annual reports;
- Explanations concerning the PSI charging regime;
- Experiences concerning changes in the PSI charging regime;
- PSI licensing agreements;
- PSI price lists;
- Available applications and service offerings based on PSI.

Furthermore, information was extracted from research already done in the field of PSI charging regimes and PSB case studies. In particular, the studies were:

- PIRA (2000) – Commercial exploitation of Europe's Public Sector Information
- HELM et al. (2006) – MEPSIR
- OECD (2006) – Digital Broadband Content: Public Sector Information and Content
- OFT (2006) – The commercial use of public information (CUPI)
- Corbin (2007) – Public Sector Information – Financial impact of the PSI Directive: Pricing and Charging
- MICUS (2008) – Chancen für Geschäftsmodelle deutscher Unternehmen im europäischen und globalen Geoinformationsmarkt
- Newbery et al. (2008) – Models of Public Sector Information Provision via Trading Funds
- COM(2009) 212 final and the corresponding staff working paper
- MICUS (2009) – Assessment of the Re-use of Public Sector Information (PSI) in the Geographical Information, Meteorological Information and Legal Information Sectors
- Pollock (2009) – The Economics of Public Sector Information
- Corbin (2010) – Public Sector Information: Economic Indicators & Economic case study on charging models
- MICUS (2010) – Die Europäische Gesetzgebung als Motor für das deutsche Geo-Business
- RSO (2010) – eGovernment Pilots
- BETA (2011) – The reuse of PSI – An economic optimal pricing model
- EC public consultation on the revision of the PSI Directive (2011)
- Material on the EPSI Platform.

The complete POPSIS bibliography in the annex contains an overview of relevant publications used.

3.3.3 Reporting and performing quality control

As a result of the information gathered through the interviews and the desk research, a draft case study was drawn up based on the case study template (it is Annex 2 of the case study protocol). The draft case study was returned to the interviewees to allow for quality control. Following eventual feedback, the case study was amended, validated by the PSB and finalized.

The topic list and elaborated checklist allowed the POPSIS study leader to perform various quality control measures. Where necessary, the draft case studies were passed back to the individual team member to carry out additional research. This process ultimately resulted in 21 case study reports.

3.4 Step 4: Analyzing the findings of case studies and drafting the final report

Based on the 21 case study reports, a draft final report was drafted. In order to validate both the study findings and methodology, a meeting was held which brought together a number of key experts. The meeting enabled the experts to offer their input on the draft final report findings. As a result of this meeting, written feedback and other feedback from the European Commission, the study's final report was finalized.

3.5 Developing a common vocabulary

From the outset, ensuring that the study team members used a shared vocabulary was considered to be a crucial element of the study. The study team produced a basic glossary of terms and their generally accepted meanings (e.g. based on definitions extracted from the PSI Directive). These terms were applied throughout the duration of the study. They formed part of the study protocol and were included as an annex to all the invitation letters sent out to interviewees.

The terms used in the study glossary are listed below.

Table 5: POPSIS glossary

Public sector body (PSB)	"A State, regional or local authorities, bodies governed by public law and associations formed by one or several such authorities or one or several such bodies governed by public law." (Art. 2(1) Directive 2003/98/EC)
Public sector information (PSI)	"[E]xisting documents (holding content, whatever its medium and any part of such content) held by PSBs of the EU Member States." (Art. 1(1) j-o 2(3) Directive 2003/98/EC)
Public task	Setting the scope of the public task (and its financing) is a political decision taken at national level (and not at European level). In determining the public task, the study team applies the following independent criteria: PSI is produced under the public task if: a. Legal regime – the PSI is the result of the legal regime under which the PSB works. Example: all Constitutions assign the task of producing court decisions to national courts, hence their case law is produced under the public task and falls under the PSI Directive. b. Core business – the production/processing/distribution of the PSI falls under the core responsibility of the PSB. Example: the sole reason for setting up the Dutch Chamber of Commerce was to maintain the Dutch business registers, hence those registers are

	produced under the public task and fall under the PSI Directive. c. Public interest – there is a strong public interest involved in the production/processing/distribution of the PSI concerned, whereby society at large benefits (and the benefits do not accrue to just a small group of people). Example: maintaining the quality of cadastral data is key as, otherwise, there would be even higher risks involved in buying property (i.e., the buyer might risk paying money to a person other than the real property owner). Therefore, producing cadastral information is done under the public task and falls under the PSI Directive. d. Market failure – without the engagement of the government, the PSI would not be produced because the market would not be able or willing to perform this task. Example: the private sector cannot afford to build and launch the weather satellites required to gather meteorological data. Therefore, the National Meteorological Service undertakes these activities which are regarded as falling under the public task. Thus the output falls under the PSI Directive.
Raw data	All data that are generated by a PSB directly from exercising its public task. Thus, any data (and its value) that are added outside the framework of the public task are excluded.
Re-use	Any use of PSI outside the public task including use by the PSBs themselves (including the PSB that has produced the PSI under its public task). "Use by persons or legal entities of documents held by public sector bodies, for commercial or non-commercial purposes other than the initial purpose within the public task for which the documents were produced. Exchange of documents between public sector bodies purely in pursuit of their public tasks does not constitute re-use." (Art. 2(4) Directive 2003/98/EC)
PSI charging model: ***Profit-maximization***	"Setting a price to maximize profit given the demand faced by the PSB. Where the product being supplied does not face competition then this will naturally result in monopoly pricing." (Cambridge Report 2008)
PSI charging model: ***Cost-recovery***	"Setting a price equal to average long-run costs (including, for example, all fixed costs related to data production)." (Cambridge Report 2008)
PSI charging model: ***Partial cost-recovery***	Setting a price lower than average long-run costs and higher than the marginal cost of supplying data. Sub-category: ***Re-use facilitation cost-recovery*** Setting a price equal to average long-run re-use facilitation costs.

	Re-use facilitation costs correspond to all additional costs incurred by a PSB to enable and facilitate re-use of PSI. These costs notably include costs for data transfer to re-users (such as servers), anonymization, data re-formatting for re-users and re-user helpdesks. The collection and processing of the data within the public task is not included in the re-use facilitation costs.
PSI charging model: ***Marginal cost***	"Setting a price equal to the marginal cost of supplying data (that is, simply the cost of actually transmitting the data to someone)." (Cambridge Report 2008) The digital nature of many forms of PSI implies marginal costs of approximately zero.
PSI charging model: ***Zero cost***	"Setting a price equal to zero." (Cambridge Report 2008)

4 Models for supply and charging for PSI

This chapter lays out the analysis of the different models for supply and charging for PSI, including the principal findings from the 21 case studies, main conclusions and trends observed. It is structured as follows:

Section 4.1 provides a comprehensive cross-analysis of the 21 case studies undertaken in the POPSIS study accompanied by a series of snapshots. First, an aggregated overview of the effects of different PSI charging policies at a general level is provided (sub-section 4.1.1). Then, the effects are analyzed more specifically at the level of the PSI domains, namely geographical information, meteorological information, business register information and other forms of information (sub-section 4.1.2). Finally, the specific economic effects of lowered PSI re-use charges are analyzed (sub-section 4.1.3). As a short digression, section 4.1.4 presents PSI charging policies and their effects in the US and Australia that allows some comparisons to be made with the European context. Sub-section 4.1.5 offers some concluding remarks.

Section 4.2 looks at the reasons, enablers and obstacles for policy change with regard to PSI charging models. First, the obstacles to PSI pricing policy change are analyzed (sub-section 4.2.1). Then, elements that may help to overcome any obstacles to policy change are discussed (sub-section 4.2.2). A number of "What if?" scenarios are also explored. Sub-section 4.2.3 offers a number of concluding observations.

4.1 Case studies and the effects

The various effects of the PSI charging policies are investigated here.

4.1.1 Overall picture of the effects of charging policies

The PSI re-use market is in a state of flux. Therefore, this sub-section first looks at the general trends and movements in the downstream market structure. As a second step, the main general observations from the 21 POPSIS case studies with regard to the effects of PSI charging policies are presented. Sub-section 4.1.2 then takes a closer look at the individual case studies clustered by PSI sectors.

(1) Market structure and economic effects

Distinction between high-end and low-end markets

First of all, it is essential to make a distinction between what can be considered the 'high-end market' and the 'low-end market', as the visible effects of both differ fundamentally.

The high-end market typically consists of re-users that provide their PSI-based services to professional clients. Substantial value is added by re-users serving the needs of specific clients. The re-users are largely knowledge-driven. Their revenue comes from a set of consumers. A typical example is a meteorological company that provides very detailed weather forecasts to oil rigs, based on its own high-tech forecast models. The high-end market services are highly targeted, the number of clients is relatively low and yet the value of each transaction is high.

The low-end market has different features. In the low-end market, the re-users are typically content-driven. The value-added is rather low. The business model of these re-users is based on their reach to large volumes of consumers (who are generally non-professional customers) who use high traffic web services and apps on mobile applications. Typically, these re-users merely mash up the PSI with other free content and integrate it into services. A typical example of such a re-user is a provider of 'of the moment' content: this re-user provides the latest details on traffic, expected rain showers (through moving radar images) and news headlines. The re-users' revenues come from third-party advertisements.

The table and figure below compare these two fundamentally different markets.[12]

Table 6: High-end compared to low-end market re-users

Aspect	High-end market re-user	Low end-market re-user
Role of PSI in service delivered	Core	Part of a service
Value-added to PSI	High, based on strong knowhow	Low to zero
Type of clients	Professional	Consumers
Number of clients	Low	Very high
Business model	Targeted tailor-made services with high added-value (high price, low quantity)	Standardized end-user services with low added-value (low or zero price, high quantity)

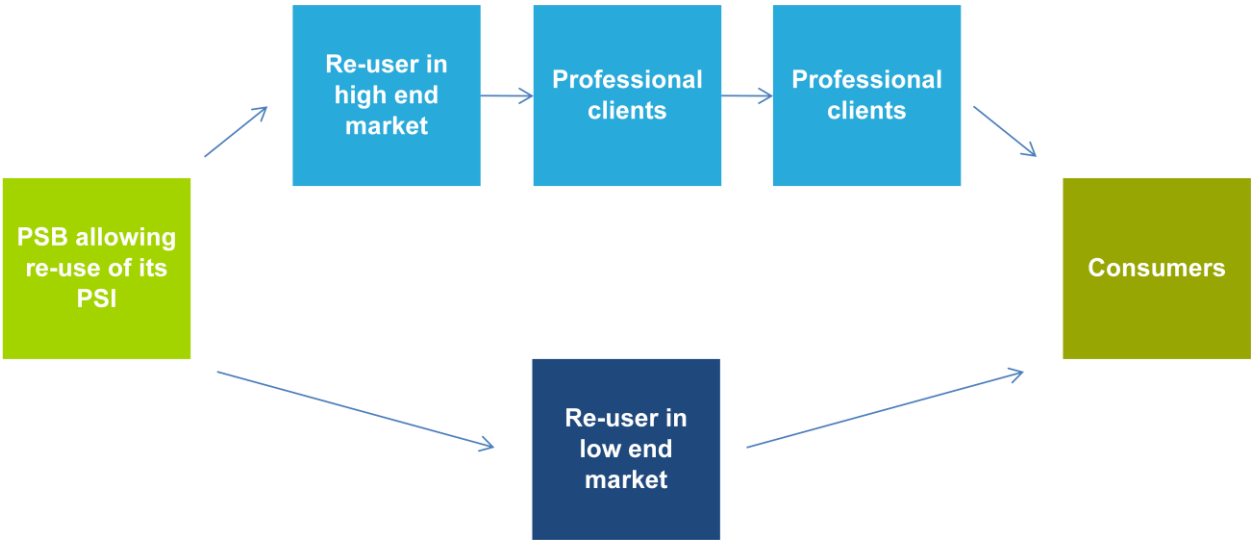


Figure 6: High-end and low-end re-use markets

The low-end market generates large consumer surplus and indirect economic benefits

Typically, discussions around the benefits of PSI re-use identify two types of outcomes: direct economic benefits that stem from growth and jobs in the re-use sectors, and indirect

[12] Both the MEPSIR and the 2006 OECD study make the same distinction. The OECD study refers to PSI knowledge (the high-end market) and PSI content (the low-end market). OECD, Working Party on the Information Economy, *Digital Broadband Content: Public Sector Information and Content,* 2006, pp. 10-17 and MEPSIR, *Measuring European Public Sector Information Resources, Final Report of Study on Exploitation of public sector information – benchmarking of EU framework conditions,* pp. 45-47 (2006).

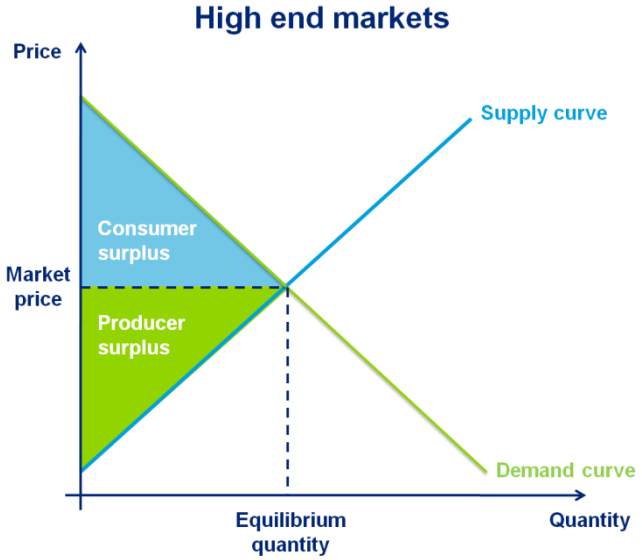
social benefits related to transparency and increased accountability. Following te Velde (2009)[13], the POPSIS study team argues that this polarization ignores an important component: indirect economic benefits that apply to society as a whole. Overlooking this benefit by focusing purely on the market size of re-use could lead to inappropriate decision-making, in particular if the decision-makers fail to consider the possible consumer surplus. In this case, the term 'consumer' refers to the end-users of PSI, including both business and consumer markets.

In fact, the market size of re-users could be reduced by lowering prices of PSI. Highly priced PSI creates barriers to entry for new players, thereby limiting competition between re-users, and keeping prices artificially high. High revenues for re-users could reflect market inefficiencies, so that end-users are forced to pay high prices for services that add little value to raw PSI. In this case, lowering the price of PSI would decrease the market size of the re-use market. However, it could transfer benefits to end-users in terms of consumer surplus.

Consumer surplus in high-end and low-end PSI markets

In economics, the consumer surplus is defined as the monetary gain obtained by consumers when they are able to purchase a product or service for a price that is less than the highest price that they would be willing to pay. Conversely, the producer surplus is the amount that producers benefit by selling at a market price that is higher than the least price at which they would be willing to sell.

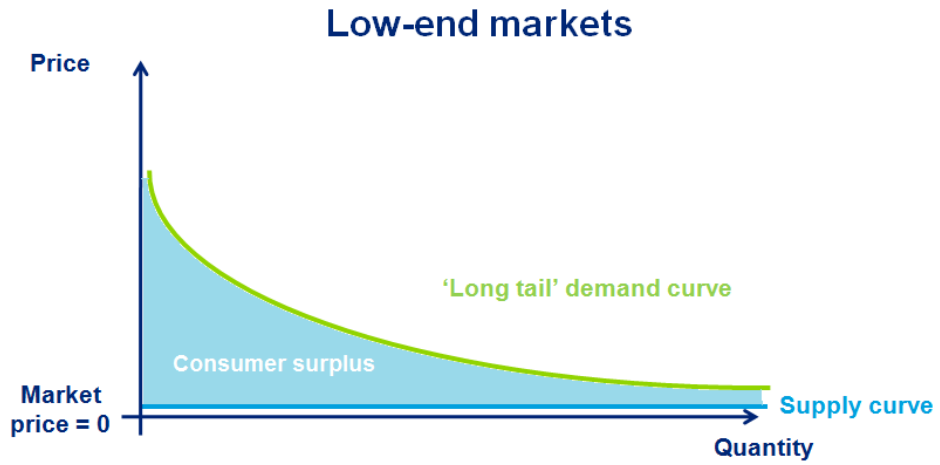
The graph below provides a simplified representation of a high-end PSI market. The high-end market re-users ('producers') sell their products at market prices to professional clients ('consumers'). This 'classical' market situation generates both a consumer and a producer surplus.



[13] Cf. te Velde, R. (2009): *Public Sector Information: Why Bother?*, in: Uhlir, P. (2009), *The Socioeconomic Effects of Public Sector Information on Digital Networks: Toward a Better Understanding of Different Access and Reuse Policies: Workshop Summary*, pp. 25-28.

If the PSB that is providing PSI to the re-users in this high-end market were to lower its PSI raw data prices, it would have the effect of shifting the producers' supply curve downwards: the price for input decreases. Typically, the market price in the high-end market would decrease and the equilibrium quantity and consumer surplus would increase.

A reduction of PSI raw data prices by the PSB may also trigger the creation of a new low-end PSI market with other market players: on the one hand, there are low-end market re-users ('producers') with new business models and, on the other hand, end-consumers ('consumers'). The graph below provides a simplified illustration of a PSI low-end market.



Indeed, the reduction of PSI raw data prices reduces barriers to entry for new types of re-users, thus allowing the entrance of low-end re-users. The low-end market re-users have a different business model than re-users in the high-end market. Typically, they generate their income from advertising revenues rather than from sales of services. In order to maximize the revenues from advertising, they need to maximize the number of users ('consumers') of their services, i.e. the audience. Therefore, low-end market re-users provide their services free of charge (or at very low prices) via the internet or mobile apps. Even though this low-end market does not generate any or little turnover from sales, it may yet produce a significant consumer surplus.

The argument about consumer surplus is particularly valid in the context of information-based services which are mostly web-based. Much information is available on the web for free, and consumers are accustomed not to pay for it. Prices do not reflect the value of information. A recent study by McKinsey (2011),[14] based on a survey of consumer 'willingness to pay', attribute to the internet an annual consumer surplus of about 100 billion EUR worldwide.

A number of observations about the value of data and consumer surplus follow.

Firstly, it is possible that the wider economic impact and consumer surplus of PSI are not fully captured in very dynamic environments where prices and direct revenues do not

[14] McKinsey Global Institute (2011): *Internet matters: The Net's sweeping impact on growth, jobs, and prosperity*, 56 pp.

reflect economic value. This study confirms the importance of accounting not only for direct sales revenues, but also for the larger consumer surplus. For instance, the increased availability of raw data and value-added data provided for free by PSBs has in some cases (such as that of the Italian Cadastre) reduced the market of re-users. It appears that some of the services that were most affected were simply 're-publishing' basic information with very little added-value and high mark-ups. The consumer surplus was therefore limited. Release of raw data and value-added data by the PSB increased consumer surplus while reducing the market for re-users. While this is not conclusive evidence to illustrate that reduced markets may increase consumer surplus, it does show that market size by itself is not a sign of economic efficiency and societal welfare.

Secondly, apps such as Metro Paris have provided a one-off direct revenue of 400K EUR to developers. If a conservative estimate of one hour saved in transport times is allotted per year to each app user (who earns an average wage of 20 EUR per hour), a total savings of 8 million EUR can be calculated. In this case, the consumer surplus each year is 20 times higher than the one-off direct revenue for a re-user.

Similarly, te Velde (2009)[15] points out how raw low-resolution datasets from the Dutch Meteorological Office are used by a web service to provide real-time images of the sky that enable users to avoid rain showers when cycling. While this service is free, it provides substantial consumer surplus to its final users in terms of the value that can be attributed to 'not getting wet' while cycling home.

Thirdly, several interviewees confirmed that the greatest economic benefit was expected from the overall economic efficiency. For example, the dataset that is downloaded most often from the Basque Country's data.gov portal is the calendar of public holidays by city. This is particularly used by companies in order to plan their internal work organization: as the data are released for free, the direct impact is nil. However, the simple fact that this is one of the most downloaded datasets is an index of its usefulness. This economic efficiency impact is not captured by a PSI re-use market impact.

It is certainly challenging to quantify these kinds of economic benefits as has been done in other contexts, such as the US Clean Air Act.[16] One of the main challenges, in the case of PSI, is that the re-use of PSI is often unpredictable. It therefore limits the possibility to capture and model intangibles very precisely. What is certain is that:

- Consumer surplus and indirect economic impacts are substantial, and are often far higher than the direct revenues and jobs created;
- There is a potential trade-off between re-users' revenues and consumer surplus;
- Not taking consumer surplus and indirect impact into account would lead to a misrepresentation of the actual economic impact of any PSI pricing modification.

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[15] Cf. te Velde, R. (2009): *Public Sector Information: Why Bother?*, in: Uhlir, P. (2009), *The Socioeconomic Effects of Public Sector Information on Digital Networks: Toward a Better Understanding of Different Access and Reuse Policies: Workshop Summary*, pp. 25-28.

[16] Cf. http://www.epa.gov/air/caa/.

Greatest economic impact is only visible in the medium-term to long-term

Firstly, when considering the direct economic impact in terms of re-use growth, a medium-term or long-term view should be taken. Simply lowering PSI pricing does not lead automatically to growth of the re-use market. It is well recognized that innovation is not linear but systemic, and flourishes when different systemic components are in place. Reducing the cost of PSI is one component that removes a barrier to innovation, but it is not a sufficient factor on its own.

Secondly, even when innovative services are launched, they are not by definition profitable in the short-term. One of the most successful apps, MyCityWay, has been downloaded 40 million times but has not become profitable: instead, venture capitalists are investing millions of US dollars in the application in order to keep it growing, while a sustainable business model has yet to be defined. There is yet another example of how the early availability of public facilities can enable disruptive innovation even after a long time span. On a related matter, Tim O'Reilly provocatively stated that "Ronald Reagan is the father of Foursquare", attributing the recent success of the game-based app to the early liberalization of global positioning satellite (GPS) data in the 1980s. Focusing on only short-term impact would reflect the attitude of a short-sighted venture capitalist who might concentrate solely on an early exit strategy rather than on the pursuit of long-term growth.

Thirdly, disruptive innovation is unpredictable and non-linear: it has to reach a certain critical mass before it occurs, and it is far from evenly distributed among the different players involved. The distribution of downloads and revenues from the most successful apps follows a power-law distribution: some apps are exceptionally successful, generating millions of downloads and revenues, while the vast majority are unsuccessful. Some datasets are downloaded far more than others: the most downloaded dataset on the data.gov portal has been downloaded three times the amount of the second, which is double the third and so on. Similarly, the impact of pricing changes should not be expected to be linear and directly proportional to re-use increase: it is far more likely that a certain critical mass of data has to become available before substantial impacts are visible. In this sense, a piecemeal approach to PSI pricing based on market conditions could prove to be inappropriate in terms of any desire to stimulate the emergence of innovative services.

(2) Observations from the case studies on effects of PSI charging policies

Movement in the value chain

Both high-end and low-end markets have been explored in the 21 POPSIS case studies.

There are two trends. In a large majority of the case studies, especially in low-end markets, PSBs reassess their public task, take a step forward in the value chain and start to deliver their content directly to consumers. However, in yet another trend, PSBs drop the distinction between serving low-end and high-end markets, and stop any differentiation between commercial and non-commercial re-use. These PSBs simply open up all PSI both in raw data format (such as alphanumerical readings of weather stations) and translated formats (for example, weather forecasts) for any users that would like to avail themselves of the data. Examples of this second approach include the Norwegian Meteorological Office and the Spanish Cadastre cases.

There is a clear trend to lower charges

The case studies show a clear trend towards lowering charges and/or facilitating re-use by commercial and/or non-commercial re-users (in 16 out of the 21 case studies). This change took place largely within the last decade, mostly since 2005. The table below indicates those PSBs which are currently undertaking the largest shifts in changing their approach:

Table 7: Largest price cuts of PSBs under scope

Case study	% cut of re-use charges
Met.no	100% price cut
Destatis	100% price cut
Spanish Cadastre	100% price cut
BEV	Up to 97 % price cuts
French Cadastre	Up to 97% price cuts
ARSO	95% (to be implemented) price cuts
KNMI	80% price cut

Free access in almost all cases

Almost all the case studies show that over the last years PSBs have moved to providing free access to citizens (i.e. viewing, not downloading). In this sense, free access seems to act as the forerunner of a more liberal re-use regime. Examples include the IGN-CNIG and Spanish Cadastre cases.

Free non-commercial re-use

There are a quite a number of case studies that appear to be in an 'in between' situation, where non-commercial re-use is allowed against zero costs (and there is a charge only for commercial re-use). This is, for instance, at least partially applied in seven cases that fall under the scope of this study: BKG, CENDOJ, DWD, DILA, IGN-CNIG, SenStadt, and the Slovenian Met Office.

Lowered charges often accompanied by further re-use facilitation measures

In those cases where PSBs have shifted to a lower charging regime, this movement is often accompanied by further policy measures to facilitate re-use. Such measures include the clarification of intellectual property rights, the reduction of administrative burden for licensing and invoicing (e.g. online one-click-licenses and e-payment) and the decision of the PSB to no longer provide its own added-value products on the market. The three most prominent cases that illustrate this trend are Destatis, KNMI and the Spanish Cadastre.

Charging regimes often appear to lack a basis

In those case studies where cost-recovery regimes are applied, the calculation basis for determining PSI re-use charges appears to be weak. The PSBs concerned were mostly unable to explain the basis for their PSI cost allocation. For example, they could not reply to such questions as: how many FTEs are in fact committed to re-use facilitation, what are the

distribution costs, what is the return on investment and what is the eventual mark up. In some cases, the setting of charges seems to be oriented towards filling budgetary gaps rather than the more cost-oriented tariff setting which is required under the PSI Directive 2003/98/EC. Furthermore, sometimes the charges for re-use have remained the same for many years, even though the number of re-users has changed significantly: two examples of such a situation include the CENDOJ and the Dutch Cadastre's topographical map.

Moreover, when examining charging regimes, some PSBs apply a unit price that is reasonable for a single unit, but not for the entire database. As a consequence, the total price of the full dataset is prohibitive. For instance, the full database of the CENDOJ would cost 3.4 M EUR, although one unit of data (i.e. a single sentence) could be affordable at 1.5 EUR. The same circumstance is applied to the former charging regime of the French Cadastre in which the entire digital map would have cost a re-user 5.7 M EUR (whereas the price of a single map was 9.5 EUR). Therefore, despite interest on the part of re-users, no whole dataset was ever bought from the cadastre.

No or lower charging turns into outcome rather than input

Conversely, those PSBs that have established a re-use policy based on re-use facilitation charges are fully able to allocate the costs precisely. They have implemented mechanisms that allow for regular review of charging – quite often in the form of informal meetings with their re-users (examples include BEV, DECA and KNMI). In these cases, charging has become a consequence rather than an instrument.

No or lower charging as an instrument to stimulate market entry

Interestingly, some case studies demonstrate the use of variable pricing regimes such as 'pay per use' or 'percentage of turnover generated by PSI' without high fixed price elements. These regimes have led to increased re-use and facilitate new entrance of re-users, notably SMEs. The DILA case demonstrates this, since it plans to introduce a pay per use pricing scheme which will enable small potential re-users to benefit: this means that they are no longer obliged to buy a license for the full dataset if they do not need to do so. This approach lowers entry barriers, and allows for customized data purchase. Other relevant case examples are: CENDOJ (pay per use), DWD (SME rebates), German geo-information PSBs (turnover-related fees) and IGN-CNIG (turnover-related fees).

Buienradar service enters market due to lowered KNMI PSI charges

As a consequence of the price cuts by the Dutch Meteorological Office KNMI, a new re-user entered the market and launched an innovative service under the name 'Rainfall Radar' (Buienradar). Anyone can use the service to determine whether it is going to rain in the current location over the next few hours. This service is provided completely free of charge. It generated around 300 million hits per year throughout Europe in 2010. Attracted by this high traffic, the service has been of keen interest to advertisers and is paid for through advertising revenues.

StormGeo goes international due to lowered ECMWF PSI charges

The shortcomings of the Norwegian (re-use) policy on meteo data before 2007 stimulated StormGeo to revise its strategy on running its own mid-ranking and fine-scale model simulations. As a result, it could benefit from the changes in the ECMWF re-use policy: re-use prices were lowered by over 60% (in 2002 the full dataset cost 365,000 EUR whereas by the end of 2004 the charges were 140,000 EUR). As a consequence, the quality of model data was enhanced. This allowed StormGeo to compete with former national meteorological offices in other parts of Europe and led to an increase in business and employment by 300% and 200% respectively.

Convoluted discussions hamper policy-making

During the course of the interviews performed in this study, it occasionally became apparent that knowledge was sometimes limited with regard to the application of the PSI Directive (including the proposed charging regimes). In particular, the public task – which demarcates the scope of the Directive to a large extent – and the concept of re-use were issues of some debate. This lack of clarity and inherent ambiguity does not contribute to clear policy-making or price-setting.

Cost-recovery percentages are relatively low

Interestingly, in all case studies, the PSI private sector re-use-related revenues of PSBs[17] range from relatively small to extremely small when compared to the full budget of the PSB concerned. The table below provides an overview of these cost-recovery ratios which it lists alphabetically according to the various business sectors: e.g. business register, geographic information, meteorological information and legal information.

The cost-recovery ratio is defined as follows:

$$Cost\ recovery\ ratio = \frac{Revenues\ from\ private\ sector\ PSI\ raw\ data\ sales}{Total\ budget\ of\ the\ PSB} * 100\%$$

Table 8: Cost-recovery ratios of the PSBs under scope

Country	Public sector body	Sector	Cost-recovery ratio
IT	Infocamere	Business register	31.31%
NL	KvK	Business register	19.50%
UK	Companies House	Business register	20.73%
AT	BEV	Geographic information	< 26.5%
DE	BKG	Geographic information	0.24%
DE	SenStadt	Geographic information	10.38%
DK	DECA	Geographic information	0.82%

[17] Where possible the cost-recovery ratio is calculated based on private sector re-use revenues only. However, in many cases PSBs do not distinguish between private and public sector PSI sales revenues. In these cases the cost-recovery ratio is calculated based on the total PSI sales revenues.

ES	IGN-CENIG	Geographic information	4.12%
ES	Spanish Cadastre	Geographic information	0.00%
FR	French cadastre	Geographic information	0.55%
IT	Italian cadastre	Geographic information	0.50%
NL	Dutch cadastre	Geographic information	6.57%
UK	Ordnance Survey	Geographic information	16.54%
DE	DWD	Meteorological information	0.93%
NL	KNMI	Meteorological information	0.45%
NO	Met.no	Meteorological information	0.00%
SI	ARSO	Meteorological information	6.00%
ES	CENDOJ	Legal information	16.67%
FR	DILA	Legal information	0.67%
FR	SIRCOM	Fuel prices information	15.91%
DE	DeStatis	Statistical information	0.11%

4.1.2 Overview of effects of charging policies in the 21 case studies

This sub-section presents the main figures and insights from the 21 POPSIS case studies. For the purposes of clarity, they have been clustered into the four different PSI domains that come under the study's scope: geographic information, meteorological information, business register information and other PSI sectors. In each of the PSI domain sub-sections, the corresponding POPSIS case studies are presented through a set of 'snapshots'. These snapshots are brief one-page descriptions of the case studies that contain three sets of information: their key figures, a profile, and key findings.

Geographic information

The following table provides an overview of the core figures from the PSBs under scope in the geographic information domain.

Table 9: Charging policies and their effects in the geo-information domain

Coun-try	Public sector body	Allowing re-use of raw data? Pricing policy Policy change (if any)	Providing added-value services?	Number of commer-cial re-users	Distinction between commercial and non-commercial licenses?	Number of FTEs involved in re-use facilitation	Revenue per re-use FTE
AT	BEV	Yes, partial cost-recovery. **Policy change: price cuts of up to 97%**	No	N/A	Yes, rebates for universities.	35	N/A
DE	BKG	Yes, partial cost-recovery.	No	181	Yes	11.5	6,956 EUR
DE	SenStadt	Yes, partial cost-recovery.	No	N/A	Yes	N/A	N/A

DK	DECA	Yes, limited to re-use facilitation costs. **Policy change: introduction of a re-use facilitation cost regime**	No	26	No	2	130,000 EUR
ES	IGN-CENIG	Yes, partial cost-recovery. **Policy change: free provision of PSI for non-commercial purposes**	No	40	Yes, non-commercial for free/marginal, commercial at cost-recovery.	42	50,000 EUR
ES	Spanish Cadastre	Yes, zero cost. **Policy change: introduction of a zero cost regime**	No	N/A	No	11	0 EUR
FR	French Cadastre	Yes, partial cost-recovery. **Policy change: price cuts of up to 97%**	No	N/A	No, in old pricing model; Yes, in new pricing model.	23	39,130 EUR
IT	Italian Cadastre	Yes, partial cost-recovery.	Yes, exception-ally on a partial cost-recovery basis	less than 100	Yes, free access for research institutes, public bodies, real estate intermediaries.	100	33,000 EUR
NL	Dutch Cadastre	Yes, partial cost-recovery.	Yes, 2.85 M EUR.	15	Yes	144	119,097 EUR
UK	Ordnance Survey	Yes, using market-based pricing. **Policy change: introduction of a 'freemium' model**	Yes, through some free products.	500 partners	Yes	155 in sales	135,483 EUR

Cost-recovery is the dominant model in the geo-information domain; only the Spanish Cadastre has moved to a zero cost model. However, only the Dutch Cadastre and Ordnance Survey reported that they are selling added-value-services (based on their own raw data).

The cost-recovery ratios – the amount of revenues obtained from charging for raw data to re-users as a percentage of the total budget of the organization – is insignificant for many PSBs in the geographic information sector. Four PSBs recover less than 1% of their total budget, and only two PSBs recover more than 10% (the largest recovery rate is a 16% recovery rate attained by the Ordnance Survey).

The average revenue per re-user, i.e. the charges per re-user, is relatively low, and does not exceed 5,000 EUR per year. Interestingly, the average revenue per re-use FTE seems to increase for those PSBs that have adopted a true re-use facilitation costs model. This

appears to be caused mainly by the low number of FTEs required, meaning that there are efficiency gains. It is possible that the lower charges do not lead to proportionally higher costs. In the geo-information sector, the number of re-users may also increase. Hence, there are two sets of benefits: the approach leads to both increased returns and lower costs.

The number of actual commercial re-users[18] is limited in those cases where the PSB is also active in the downstream market (e.g. the Dutch Cadastre). This seems to be caused in the main by the restricted re-use conditions, in particular in cases where intellectual property rights are withheld (these cases include the Dutch and Italian Cadastres). In Italy there are many ongoing conflicts and court cases over alleged added-value services provided by the PSB. In the case of the Italian Cadastre, prices have risen in conjunction with value-added services provided by the PSB, and re-users claim a 30% drop in revenues due to this.

On the other hand, all the PSBs surveyed in the geo-information sector that have undertaken a policy change to facilitate PSI re-use have experienced increasing demand and re-use of their PSI. For instance, in the case of DECA the number of re-users went up by 10,000% leading to a re-use market growth of 1,000% over eight years. The development of new re-use activities following price cuts generally leads to economic growth and more employment, which ultimately results in higher tax revenues. In the case of DECA, it is estimated that the tax gains exceed PSB investment by 400%.

The cases of BEV and the French Cadastre show that substantial (up to 97% in both cases) price reductions are also possible without any additional governmental funding: the increased demand volumes which can be triggered lowered prices may lead to stable or even increasing sales revenues. Indeed, BEV's lowered charges triggered demand increases of up to 7,000% for certain product groups. In total, BEV was able to increase its geo-PSI sales revenues by 46% in the four-year period after the pricing review.

Snapshots of the six case studies undertaken in the geographic information domain are presented. These snapshots permit a quick understanding of the main findings of each case study. The full case study reports are presented in the annex to this report. The table below provides a legend for the case study snapshots.

[18] Those re-users for whom the PSI re-used constitutes one of the main elements of a new product.

Table 10: Legend for the data in the case study snapshots

Indicator	Year of measurement
Yearly budget of the PSB in EUR	This is the total budget of the entire legal entity of the PSB as demonstrated in the annual accounts.
# of FTEs entire PSB	The number of all Full Time Equivalents (FTEs) employed by the PSB.
Assessment # FTEs inside PSB working on facilitation of re-use	The number of Full Time Equivalents (FTEs) that are dedicated to the facilitation of third-party re-use of its PSI (raw data), based on assessments from the PSB.
Assessment revenues PSB from (private sector) re-use in EUR[19]	The revenues in Euro received by the PSB from third-party re-use facilitation of its PSI (raw data) are based on assessments from the PSB and re-users. This figure aims to capture 'real re-use'. This expression refers to those re-users that obtain the PSI as an essential source for creating their added-value on top of the PSI. It refers to large commercial re-users who buy large datasets. Hence, it does not include compulsory re-use (e.g. a civil notary requesting an extract from the cadastre to write a deed) or insignificant re-use (a lawyer obtaining a single extract from a chamber of commerce while doing due diligence).
Assessment cost-recovery ratio from private sector re-use	= [(Revenues PSB from private sector re-use in EUR) / (Yearly budget of the PSB in EUR)] * 100%.
Average revenue PSB per FTE working on facilitation of re-use	= (Revenues PSB from private sector re-use in EUR) / (# FTEs inside PSB working on facilitation of re-use).

Each snapshot contains the key figures, key findings and a profile of the PSB under scope.

[19] Where possible the cost recovery ratio is calculated based on private sector re-use revenues only. However, in many cases PSBs do not distinguish between private and public sector PSI sales revenues. In these cases the cost-recovery ratio is calculated based on the total PSI sales revenues.

Bundesamt für Eich- und Vermessungswesen (BEV)

Geographic PSI – POPSIS Objective A

Key figures

Indicator	**2010**
Yearly budget of the PSB in EUR	85 M EUR
Number of FTEs entire PSB	1,275
Assessment # FTEs inside PSB working on facilitation of re-use	N/A
Assessment revenues PSB from private sector re-use in EUR	N/A
Assessment cost-recovery ratio from private sector re-use	N/A
Average revenue PSB per FTE working on facilitation of re-use	N/A

Profile

- The Austrian Federal Office of Metrology and Surveying (Bundesamt *für Eich- und Vermessungswesen* – BEV) is in charge of surveying and mapping and the Austrian Cadastre.
- BEV is a subordinated public sector body of the Austrian Federal Ministry for Economy, Family and Youth (*Bundesministerium für Wirtschaft, Familie und Jugend*).
- BEV is the main provider of geographic PSI in Austria.

Key findings

- In 2006, the Austrian Federal Office of Metrology and Surveying adopted a simplified and more market-oriented PSI pricing approach with drastic price cuts of up to 97% within strict budget constraints (there was no additional governmental funding). The new model was reviewed and amended in 2008 and 2010.
- Prices are now calculated based on regular benchmarking exercises that take into account the PSI market value, prices applied by foreign PSBs for comparable datasets, re-use business conditions, budgetary constraints from the federal government, and the costs of data production and re-use facilitation.
- The reduced prices for PSI and the introduction of a PSI web portal have led to a substantial increase in the number of datasets sold. During 2007, the sales for many BEV PSI products rose significantly: a 200%–1,500% increase for cartographic products, 7,000% for digital orthophotos, 250% for the digital cadastral maps, 250% for the digital elevation mode, 1,000% for the digital landscape model, and a 100% increase in external-use licenses. The bulk of this additional demand came from Austrian SMEs. Many new re-use business activities, mainly involving SMEs, have evolved since the implementation of the new model.
- As a result, the total revenues from BEV's geo-PSI sales could be increased by 46% from 2004 to 2009. Without additional governmental funding, BEV could improve the situation for re-use business and secure a wider use of its public data.
- In 2011, five years after the introduction of the new pricing model, the number of purchase orders has stabilized after a period of strong growth following the implementation of the new model. The number of registered customers on the PSI web portal and the number of external licenses are, however, still increasing. Re-use businesses are now also evolving outside of the typical geo-information market, for example in fields such as geo-marketing or location-based services. There is also an increasing demand from international customers.

Bundesamt für Kartographie und Geodäsie (BKG)

Geographic PSI – POPSIS Objective B

Key figures

Indicator	**2010**
Yearly budget of the PSB in EUR	33.8 M EUR
Number of FTEs entire PSB	254
Assessment # FTEs inside PSB working on facilitation of re-use	11.5
Assessment revenues PSB from private sector re-use in EUR	0.08 M EUR
Assessment cost-recovery ratio from private sector re-use	0.24 %
Average revenue PSB per FTE working on facilitation of re-use	6,957 EUR

Profile

- In Germany, most official surveying and mapping responsibilities are allocated to the 16 *Länder* – not to the federal level. At federal level, the Federal Agency for Cartography and Geodesy (*Bundesamt für Kartographie und Geodäsie* – BKG), placed under the authority of the Federal Ministry of the Interior (*Bundesministerium des Innern*), is the main geo-information PSB.
- In cooperation with the *Länder*, BKG fulfils a coordinating role in terms of data harmonization among the PSBs in charge of geo-information at the *Länder* level. It ensures the provision of aggregated geographic PSI to public administrations at the federal level.
- BKG's data service *GeoDatenZentrum* (GDZ) is one of the three national distribution centres (*zentrale Vertriebsstellen*) for geo-information in Germany. On behalf of the *Länder,* who produce and own the data, BKG distributes geo-topographic data and digital ortho-photos to re-users that want to acquire data from at least two *Länder*.

Key findings

- BKG illustrates the case that revenues from PSI sales may be negligibly small (80,000 EUR in 2010) when compared to the total budget of the PSB (33.8 M EUR in 2010).
- When BKG has proposed to provide at least some datasets free of charge, this has not been accepted. The reasons included budgetary constraints at federal level, established budgetary principles such as benefit taxation (*Äquivalenzprinzip*) that would need to be reviewed, and possible conflicts with the *Länder* which provide BKG with PSI but also sell the data themselves. BKG underlined that it is a purely political decision whether BKG is allowed to provide its data free of charge. BKG cannot take such a decision itself.
- In 2008, the German federal government declared that it considers that all fees for the provision of geo-information should be determined by the re-use facilitation costs (*Bereitstellungskosten*) only.[20] Yet, as the federal level is not the principal holder of geographic PSI in Germany, its influence on pricing is rather limited. The *Länder,* which produce and own the bulk of German geo-information (including most of the PSI provided by BKG), are independent in their pricing decisions and currently do not seem to be willing to give up this competence.
- Most public and private actors agree that the strong federalism in the German public geo-information production – causing the fragmentation of data stocks and pricing policies – is *the* core problem which needs to be tackled in order to fully reap the benefits of a growing geographic PSI re-use sector. For instance, GEOkomm, a re-user interest group, calls the federalism a 'fiasco for business' and argues in favour of centralization at federal level.

[20] Bundesregierung (2008): „Zweiter Bericht der Bundesregierung über die Fortschritte zur Entwicklung der verschiedenen Felder des Geoinformationswesens im nationalen, europäischen und internationalen Kontext", *Deutscher Bundestag Drucksache 16/10080*, p. 6.

Senatsverwaltung für Stadtentwicklung Berlin (SenStadt)

Geographic PSI – POPSIS Objective B

Key figures

Indicator	**2010**
Yearly budget of the PSB in EUR	9.1 M EUR
Number of FTEs entire PSB	120
Assessment # FTEs inside PSB working on facilitation of re-use	N/A
Assessment revenues PSB from private sector re-use in EUR	0.945 M EUR
Assessment cost-recovery ratio from private sector re-use	10.38 %
Average revenue PSB per FTE working on facilitation of re-use	N/A

Profile

- The department for geo-information of the *Senatsverwaltung für Stadtentwicklung Berlin* (SenStadt) is the PSB in charge of mapping and surveying in the *Land* Berlin. It is fully integrated in the administration of the *Land*.
- SenStadt operates a partial cost-recovery pricing model for its geo-information in order to meet revenue targets set down in the Budget Law of the *Land* Berlin, and to transpose the AdV pricing guidelines to the regulations of *Land* Berlin.
- The pricing model enables SenStadt to recover approximately 10% of its total costs. The model applies to private re-users and to re-users of authorities which do not belong to the *Land* Berlin. Public authorities of the *Land* Berlin receive PSI free of charge for use within the public task.

Key findings

- The case of SenStadt provides an example of the political and budgetary context that determines the pricing policy of many geographic-PSI-holding public sector bodies in Germany. Many PSBs act under pressure from finance ministries, parliaments and politicians who see geographic PSI as a public asset that needs to be exploited in order to improve the financial situation of their commune or *Land* or to reduce the taxpayers' burden.
- Most PSBs in Germany – including SenStadt – are not free to decide on their PSI pricing policy and target sales revenues. These decisions are mostly taken by finance ministries and the parliaments which vote on the budgets. Yet, according to GEOkomm, a re-user interest group, the German geo-information business faces difficulties in obtaining political support when it fights for lower PSI prices.
- The AdV pricing guidelines applied by SenStadt provide an interesting scheme where the prices of the PSI are determined according to the re-user's turn-over (*Umsatzerlösbeteiligung*). This scheme helps SMEs and innovative start-ups to enter the market by reducing their business risks significantly in comparison to fixed price systems. Indeed, where no turnover is generated, no fees have to be paid. On the other hand, a successful product also benefits the PSI-holding PSB. When companies do not want to reveal their business model to public authorities, they can choose to pay a flat fee.

Danish Enterprise and Construction Authority (DECA)

Geographic PSI – POPSIS Objective A

Key figures

Indicator	**2010**
Yearly budget of the PSB in EUR	31.6 M EUR
Number of FTEs entire PSB	257
Assessment # FTEs inside PSB working on facilitation of re-use	0.5
Assessment revenues PSB from private sector re-use in EUR	0.26 M EUR
Assessment cost-recovery ratio from private sector re-use	0.6%
Average revenue PSB per FTE working on facilitation of re-use	0.52 M EUR

Profile

- The Danish Enterprise and Construction Authority (*Erhvervs- og Byggestyrelsen* or *DECA*) is a department of the Danish Ministry of Economic and Business Affairs. It is responsible for Danish enterprise and construction policy.
- In 2002 the political decision was taken to establish a central database of all Danish addresses. This policy change was driven by public task ambitions and by distinguishing between the public sector investment and subsequent exploitation of the facility created, allocating the costs to those that benefit, thus freeing the PSB to rely on cost recovery above the re-use facilitation cost level.
- An open network of distributors was established, that can acquire the address data against re-use facilitation costs and without any re-use limitations.

Key findings

- A centrally-run system of address data is not only of vital importance for the proper execution of the public task (such as emergency services, taxation departments and the monitoring and control of safety regulations), it also represents an unprecedented source for the private sector to develop and distribute digital products and services where location is a key element.
- By including the future potential returns (in the form of increased economic activities by the private sector) in the equation when setting up and financing the database, the maximization of re-use potential (by the private sector) became a purpose in itself, preventing the PSB to become reliant on own re-use incomes and allowing to maximize the multiplier effects downstream.
- The policy change ultimately significantly contributed to:
  - A value creation downstream of approximately 57 M EUR;
  - An increase in FTEs employed by re-users by 800 – 1,000 %;
  - An increase in turnover of re-users of around 1,000%;
  - PSB savings of around 5 M EUR, against an investment of around 3 M EUR;
  - An increase in corporate tax gains of around 14 M EUR;
  - A return of PSB investment of around 470%.
- The case illustrates that increased tax returns on the boosted turnover of first- and second-tier re-users downstream in the value chain largely exceed the investments made by the public sector: the establishment of a central database of addresses supported by a re-use policy which only charges minimal re-use facilitation costs and consequently boosts economic activities further down the value chain, has financed the more effective performance of the public task. The PSB has managed to create a self-propelling multiplier that is available to re-users.

IGN-CNIG (IGN-CNIG)

Geographic PSI – POPSIS Objective A

Key figures

Indicator	**2009**
Yearly budget of the PSB in EUR	52 M EUR
Number of FTEs entire PSB	761
Assessment # FTEs inside PSB working on facilitation of re-use	42
Assessment revenues PSB from private sector re-use in EUR	2.1 M EUR
Assessment cost-recovery ratio from private sector re-use	4 %
Average revenue PSB per FTE working on facilitation of re-use	50,000 EUR

Profile

- The *Instituto Geográfico Nacional* belongs to the Ministry of Public Works and Transportation. Its main activities are cartography, geodesy, photogrammetry, remote sensing, geographic information systems and the national Seismic Network, Geophysics and Astronomy.
- The *Centro Nacional de Información Geográfica* (CNIG) is an autonomous body linked to the IGN. Its goal is to produce, develop and distribute geographic works and publications, including dissemination and commercialization of the products and services from the IGN.

Key findings

- CNIG-IGN has advanced well over the last decade in providing increased access to geographical information for free to re-users for non-commercial purposes (or marginal cost if copying is provided) while implementing a pro re-user commercial policy.
- The effect is a remarkable increase in the number and type of re-users. For instance, re-users buying the PSI have increased from about 10 large companies purchasing the PSI for both commercial and non-commercial purchases (i.e. prior to 2008 when all the PSI was for sale) to a situation today in which over 40 re-users purchase the information for commercial purposes (the majority of them are SMEs) and hundreds of thousands of re-users do so for non-commercial purposes.
- Between 2008 and February 2010, there have been about 165,257 non-commercial requests from 37,417 users (only 2% of these are marginal costs request). Commercialization used to be based on high prices. Only a few major players could afford the initial investment and became re-users. Now prices are based on individual negotiations with the re-users.
- In terms of its revenues, the CNIG-IGN has experienced a steady decrease in product sales since 2004, given that an increasing number of users can access them for free online instead of purchasing them. However, this is compensated by the fact that, over the same period, the centre has experienced a similar increase in services sales. There is now a much larger number of commercial re-users than before and revenues that come from marginal costs applied to re-users. There have been 3,325 requests to pay marginal costs since March 2008, compared to 168,582 total requests (so only about 2% of all requests have a non-commercial purpose).
- Since the download centre service is in place, the centre has also experienced a very high demand from non-commercial users and re-users. For instance, between 2008 and February 2010, there were about 165,257 requests from 37,417 users. There is an increase in terms of visits and usage: since only October 2010, the volume of data services and users has doubled.

Oficina del catastro (Spanish Cadastre)

Geographic PSI – POPSIS Objective A

Key figures

Indicator	**2011**
Yearly budget of the PSB in EUR	109 M EUR
Number of FTEs entire PSB	2,874
Assessment # FTEs inside PSB working on facilitation of re-use	11
Assessment revenues PSB from private sector re-use in EUR	0 EUR
Assessment cost-recovery ratio from private sector re-use	0 %
Average revenue PSB per FTE working on facilitation of re-use	0 EUR

Profile

- The office of the Spanish Cadastre comes under the umbrella of the Spanish Tax Office. It receives 100% of its funding through the general state budget to meet its public task of collecting and publishing the cadastral information of the Spanish territory (the only exceptions are for the Navarra and Basque Country regions).
- One key feature distinguishes the Spanish Cadastre from many other European cadastres: it also collects information for tax purposes. It has evolved from being a government tax collection and a real estate security service to being a socially valuable tool since these data are used in an increasing number of application and new services.
- In 2010, the cadastre has implemented a zero cost policy. Prior to the policy change, however, the Spanish cadastre was selling the PSI at a high fee and using an outdated model which required several transactions. As a result, very few companies used the model and relatively few revenues came from it (about 343,000 EUR in 2008).

Key findings

- The Spanish Cadastre is a pioneer organization in its facilitation of access and re-use of its PSI for free for both commercial and non-commercial purposes. It has evolved from being a government tax collection and a real estate security service to being a socially valuable tool since this data is used in an increasing number of application and new services. This approach has led progressively to a huge success in demand for the data, with millions of visits and requests to download the cadastre's PSI.
- Since April 2011, re-users benefit from a for free licensing-based mass download service. During its first two weeks of operation, it already experienced high levels of demand and data volumes. The weekly volume of alphanumeric data downloads has increased in only one week by 1,900%, from 67 to 1,203, and the total number of downloads of digital maps by 800%, from 275 to 2,101. The total downloads have increased by nearly 1,000% from 342 to over 3,300.
- Geographic information, and especially cadastral information, is being used to develop many new products associated with a large variety of activities. The cadastral information is increasingly in demand by businesses and citizens for many uses. They include, among others, fleet management, market analysis, site location, geo-postal services, and infrastructure design and management.
- Before the re-users' license service started, the cadastre already had some very remarkable positive effects from the high demand of users accessing and consulting its electronic office. Over 4.5 M digital certifications were provided online per year (compared to about 180,000 offline), with over 20.8 M visits to the electronic online office and over 64.7 M consultations.

DGFiP (French Cadastre)

Geographic PSI – POPSIS Objective A

Key figures

Indicator	**2010**
Yearly budget of the PSB in EUR	162.5 M EUR
Number of FTEs entire PSB	3,250
Assessment # FTEs inside PSB working on facilitation of re-use	23
Assessment revenues PSB from private sector re-use in EUR	0.9 M EUR
Assessment cost-recovery ratio from private sector re-use	0.6 %
Average revenue PSB per FTE working on facilitation of re-use	39,130 EUR

Profile

- The French Cadastre is managed by the Directorate General of Public Finance (*Direction Générale des Finances Publiques* – DGFiP) at the Ministry of the Budget, Public Accounts and Reform (*Ministère du Budget, des Comptes Publics, de la Fonction Publique et de la réforme de l'Etat*).
- Since October 2008, the digitized cadastral map can be viewed without charge on the www.cadastre.gouv.fr website. For the re-use of cadastral maps, a partial cost-recovery model with a single price of 9.50 EUR per A0 map has been implemented.
- In collaboration with the Agency for the Intangible Assets of the State (*Agence du patrimoine immatériel de l'État* – APIE), DGFiP has recently developed a new charging model for the cadastral map with lower and degressive prices. The central aim is to attract new geo-business re-users. The new model was to be codified and implemented in French law by May 2011.

Key findings

- The case demonstrates that the high fees of the old pricing and licensing model have prevented commercial re-use businesses to evolve. Particularly, no value-added services based on DGFiP's cadastral PSI have been developed. The prices were based on the reproduction costs of paper and plastic maps and did not reflect the reduced costs of transmitting digital data. The prices were not market-oriented; they do not take into account the market value of the cadastral information and the willingness to pay of commercial re-users. For these reasons, no re-user has ever bought the entire cadastral map.
- Some of the large players in the geo-information business were very keen to obtain the cadastral map, but the price of 5.7 M EUR for the entire database inhibited them from developing a sustainable business model. The availability of a comparable product – the *BD Parcellaire* from IGN – at a price of approximately 300,000 EUR did not help the DGFiP to sell its PSI. This situation has led not only to lost opportunities vis-à-vis commercial re-use businesses but also represents lost PSI sales revenues for DGFiP.
- Recognizing the sub-optimality of this situation, DGFiP decided to review its pricing model substantially. In 2011, the French Cadastre was able to adopt a more market-oriented PSI pricing and licensing model with drastic price cuts of up to 97% while respecting a strict budgetary constraint, i.e. no additional governmental funding. The new prices better reflect the market value of the PSI, the re-use facilitation costs incurred and the competitive position vis-à-vis IGN's *BD Parcellaire*. It can be expected that some of the major geo-information companies will purchase the full cadastral map at the new price of 300,000 EUR.

Italian Cadastre Agency (Italian Cadastre)

Geographic PSI – POPSIS Objective B

Key figures

Indicator	**2010**
Yearly budget of the PSB in EUR	666 M EUR
Number of FTEs entire PSB	9,330
Assessment # FTEs inside PSB working on facilitation of re-use	100
Assessment revenues PSB from private sector re-use in EUR	3.3 M EUR
Assessment cost-recovery ratio from private sector re-use	0.5%
Average revenue PSB per FTE working on facilitation of re-use	33,000 EUR

Profile

- The Italian Agenzia del Territorio (AGTER) was set up as a result of the reform of the Ministry of Economy and Finance. It began operating on 1 January 2001.
- AGTER is now undergoing profound structural changes as cadastral activities in Italy are decentralized.
- Since 2004, digitalized cadastral data can be viewed, partially without charge, on the http://www.agenziaterritorio.it website.

Key findings

- The Italian Cadastre (AGTER) shows the rapid evolution and heated discussions stimulated by PSI re-use in Italy. Decisions over the pricing policy of PSI for re-use and value-added services are made in the Ministry of Economy and Finance, and regulated by strategic triennial agreements with AGTER. These agreements emphasize the need for AGTER to maximize revenues from PSI, and these revenues then go directly to the Ministry. There is no information available about how the pricing is established.
- Between 2005 and 2010, the Cadastre Agency has taken some decisions that have affected the market for the re-use of cadastral data, such as the introduction in 2005 of a re-user tax for each re-sale transaction; the provision of value-added services to end-users (banks) previously offered by re-users, combined with a price increase of 550% for raw data for re-use; the release of bulk raw data (*elenco soggetti*), a dataset previously re-sold with a margin by re-users; an increase of 20% of data costs for re-use; and the non-availability of bulk raw data for re-use on cadastral information.
- As a result of the cadastral pricing policy, re-users claim that the overall re-use market has declined substantially during the last years (a decline of about 40% between 2004 and 2010). It is suggested that this has had a detrimental effect on the possible launch of innovative services (re-users are mainly being innovative vis-à-vis their own internal processes so as to ensure that increases in the cost of PSI cost are not passed on to their customers).
- According to AGTER, this is simply due to an efficiency gain in the agency core business processes rather than a form of unfair competition due to its dominant position progressively acquired over the last seven years. At the same time, AGTER sees its intervention into the market as a stimulus for re-users to move forward and offer additional added-value services that it is not providing. It explains the decline in industry re-use revenues as being due to the fact that most of the services undertaken by re-users simply overcame inefficiencies in the cadastral services. In parallel, the definition of personalized value-added services as a core task of AGTER has been changing over the years.
- This controversial discussion has paved the way for approximately 44 court cases.

Dutch Cadastre (Dutch Cadastre)

Geographic PSI – POPSIS Objective B

Key figures

Indicator	**2010**
Yearly budget of the PSB in EUR	261 M EUR
Number of FTEs entire PSB	1,941
Assessment # FTEs inside PSB working on facilitation of re-use	144
Assessment revenues PSB from private sector re-use in EUR	17.15 M EUR
Assessment cost-recovery ratio from private sector re-use	6.57%
Average revenue PSB per FTE working on facilitation of re-use	0.119 M EUR

Profile

- Traditionally, the Dutch Cadastre maintains public registers recording who owns what rights to land and buildings in the Netherlands and their characteristics, guaranteeing legal certainty as to who owns what and specifying the precise location of property.
- Since 1994, the cadastre is a 'Non-Departmental Public Body' (ZBO). This regime created a certain distance between the PSB and the central government. Over the last decade, stimulated by the political climate in the 1990s, it has developed an entrepreneurial mindset, steadily expanding its activities and enhancing its position as the core PSB in the field of geographic information in the Netherlands.
- To a large extent, this expansion concerns activities which are regarded as authentic public task activities. However, the subsequent abundant availability of high-quality data – in particular the cadastral data sets – has also allowed the cadastre to develop products which, according to re-users, are in direct competition with those of the private sector.

Key findings

- The PSB's mandate to self-finance, combined with a relatively independent position towards the Ministry, has lead to a strong drive to expand its public position.
- Its reliance on its own commercial activities creates a natural tendency to protect these interests, leading up to tensions with re-users.
- Central to these discussions is the large discrepancy among the various interpretations of the definition of the public task of the cadastre. According to the cadastre, its public task is the equivalent of the tasks described in the statutory framework (which also mentions and allows for 'economic' activities). Conversely, re-users, put forward that the public task is not the equivalent of the statutory task and that market activities, in particular those where value is added to the PSI, are, by definition, outside the public task.
- The economic interests related to this issue are not insignificant: the part of the cadastre's income that is generated by non-public sector users (not having any statutory obligation to rely on the cadastral data) amounts to around 20.5 M EUR (2010), which accounts for over 6 % of the PSB's entire budget.
- Recently, the Dutch legislator has adopted new rules on economic activities of PSBs including their own sales of PSI. In this context, discussions are likely to become more prominent and may in fact serve as an interesting source of inspiration for the review of the PSI Directive.

UK Ordnance Survey (Ordnance Survey)

Geographic PSI – POPSIS Objective A

Key figures

Indicator	**2010**
Yearly budget of the PSB in EUR	128.9 M EUR
Number of FTEs entire PSB	1,292
Assessment # FTEs inside PSB working on facilitation of re-use	N/A
Assessment revenues PSB from private sector re-use in EUR	23 M EUR
Assessment cost-recovery ratio from private sector re-use	16.5%
Average revenue PSB per FTE working on facilitation of re-use	N/A

Profile

- Ordnance Survey is a non-ministerial government department and an Executive Agency responsible to the Secretary of State for Communities and Local Government.
- It operates as a Trading Fund under the Government Trading Funds Act 1973 and The Ordnance Survey Trading Fund Order 1999.

Key findings

- Ordnance Survey has developed considerably between 2010 and 2011 to accommodate the UK Transparency Agenda and to provide mapping and address information free through its OS OpenData service. As the OpenData products were launched fairly recently, their impact is relatively unknown but there is some initial evidence from re-users that more people are using the free data.
- Since April 2010, Ordnance Survey has provided three tiers of information and maps across four key product categories: topographic mapping, address locations, route networks and consumer mapping – this three-tier structure is described by Ordnance Survey as a 'freemium' model. The lowest tier provides the least-detailed information across all four product categories free. The middle tier provides more detailed information and users pay for access. The upper tier provides premium information at the most detailed level.
- Re-users suggest that the recent provision of free information has increased uptake by a variety of users. This, in turn, has led to an expansion in technical support by re-user organizations to use the free data by end-users. Re-users suggested this has also led to an increase in their own value-added services based on free information or associated mapping products.
- Ordnance Survey allows developers and re-users to access samples of all three tiers of information free to see if they can develop an app or service. Fees for commercial exploitation of subsequent developments, alone or in partnership with Ordnance Survey, are then agreed on the basis of the products used and likely usage levels.
- To encourage innovation of Ordnance Survey products and services, it established an Open Innovation programme called GeoVation. This provides seed funding and other support for sustainable business ventures based on geographical information.
- Ordnance Survey has approximately 200 developer partners and 1,250 direct commercial customers. In March 2011 there were 1,386 active web sites using the Ordnance Survey OpenSpace application programming interface (API).

Meteorological sector

The following table provides an overview of core figures from the PSBs in the meteorological information domain.

Table 11: Charging policies and their effects in the meteorological domain

Coun-try	Public sector body	Allowing re-use of raw data? Pricing regime Policy change (if any)	Providing added-value services?	Number of commer-cial re-users	Distinction between commercial and non-commercial licenses?	Number of FTEs involved in re-use facilitation	Revenue per re-use FTE
DE	DWD	Yes, partial cost-recovery.	Yes, but limited to certain sectors; 2 M EUR revenue from processed data, 5 M EUR from added-value services.	25	Yes, rebates for universities.	N/A	N/A
NL	KNMI	Yes, limited to re-use facilitation costs. **Policy change: introduction of a re-use facilitation cost regime**	No	50	Yes, universities get data at zero costs.	1.5	166,666 EUR
NO	Met.no	Yes, for free and anonymous. If re-user wants delivery guarantee: annual fee 5,750 EUR. **Policy change: introduction of a zero cost regime**	Yes, 3 M EUR (to former state companies in utility).	3,000 (40% outside Norway)	No	2	0 EUR
SI	ARSO	Yes, partial cost-recovery. **Policy change: introduction of a re-use facilitation cost regime (forthcoming)**	No	20	No	1	360,000 EUR

Met.no adopted a zero cost re-use model in 2007, the KNMI applied a re-use facilitation cost model as of 1999 and today the DWD applies a partial cost-recovery model and provides added-value services, whereas Slov.Met also applies partial cost-recovery but will soon shift to a re-use facilitation costs model.

The cost-recovery ratios for all meteorological PSBs are less than 1%. This even applies to the DWD that recovers 2 M EUR from its raw data sales (in addition to its recovery of 7 M EUR from processed data and added-value products). However, on its total budget of around 215 M EUR, this cost-recovery is fractional.

The percentage of re-use FTEs is also quite different. In the KNMI, the FTEs who work on re-use facilitation comprise only 0.3% of the entire workforce, whereas in the Slov.Met case the percentage is 3-4 times higher. Again, the difference between the cost-recovery ratio and the re-use FTE ratio may point to some inefficiency in the PSB whereby the two ratios do not contribute to the total budget proportionally.

In all case studies where policy changes to facilitate the re-use of PSI were undertaken, increasing demand and re-use of the PSI have been reported. For instance, the free provision of meteorological PSI in Norway and at prices limited to the re-use facilitation costs in the Netherlands has led to the emergence of strong private weather markets in these countries. The additional tax revenues of this economic activity are estimated to surpass the loss of PSI sales revenues. Besides these downstream effects, KNMI and Met.no have reported beneficial effects on their data quality and internal process efficiency. Indeed, through the intensified use, data deficiencies are flagged up and reported back to the PSBs. Furthermore, regular feed-back from re-users as well as contractual obligations from licensing agreements have led to more professionalism in the re-use facilitation activities and a continuous improvement of internal processes.

In the 2009 Oslo Declaration[21] on the data policy of EUMETNET members, the national meteorological services agreed to "progressively expand their set of 'essential' data and products made available on a free and unrestricted basis [as well as to progressively expand] their catalogue of data and products licensed for re-use by the private sector, under the PSI directive where applicable." Moreover, national meteorological services declare their ambition to "adapt their licensing conditions with the objective of delivering more information per price unit." While all the meteorological offices represented in the POPSIS study had followed through on this commitment to varying degrees, other European national meteorological services have not yet undertaken such steps. Some authors[22] take the view that high charging for meteorological information in many European countries is a lost opportunity for the economic development of the private meteorological sector in Europe. The 2009 MICUS study[23] outlines that "many re-users express their wish for an efficient system providing free meteorological data and unrestrictive licenses, as provided by the public authorities in the United States of America." The effects of the free provision of meteorological data in the United States of America (USA) is presented in the text box below.

[21] EUMETNET Oslo Declaration, 26-27 March 2009.
[22] Cf. for example Pettifer (2008): *PSI in European Meteorology – an unfulfilled potential*.
[23] MICUS (2009): *Assessment of the Re-use of Public Sector Information (PSI) in the Geographical Information, Meteorological Information and Legal Information Sectors*.

Zero cost provision of meteorological PSI in the USA stimulates economic activity[24]

"One prime example that demonstrates how U.S. federal information is promoting economic activity is information and data made available by the National Oceanic and Atmospheric Administration. The broad availability of data disseminated by NOAA, particularly weather information, stimulates economic activity and leads to the creation of value-added industries. Rodney Weiher, former Chief Economist at NOAA, noted that the agency adheres to the Circular A-130 guidelines, "set[ting] user fees at a level sufficient to recover the cost of dissemination but no higher, and, in particular, it does not charge prices to recover the capital costs." In 2008, Weiher wrote that NOAA real-time weather data supplied the private weather service industry with sales of over $700 million annually."

Snapshots of the four case studies undertaken in the meteorological information domain are presented. These snapshots permit a quick understanding of the main findings of each case study. The full case study reports are presented in the annex to this report.

[24] Cf. Vollmer (2011): *State of Play: Public Sector Information in the United States*, European Public Sector Information Platform Topic Report No. 25.

Deutscher Wetterdienst (DWD)

Meteorological PSI – POPSIS Objective B

Key figures

Indicator	**2010**
Yearly budget of the PSB in EUR	214.9 M EUR
Number of FTEs entire PSB	2,427
Assessment # FTEs inside PSB working on facilitation of re-use	N/A
Assessment revenues PSB from private sector re-use in EUR	2 M EUR
Assessment cost-recovery ratio from private sector re-use	0.93 %
Average revenue PSB per FTE working on facilitation of re-use	N/A

Profile

- Germany's National Meteorological Service, the *Deutscher Wetterdienst* (DWD), is a public sector body with partial legal capacity under the authority of the Federal Ministry of Transport, Building and Urban Development (BMVBS).
- DWD currently provides most of its PSI based on a pricing and licensing model that aims at partial cost-recovery. Yet, a significant and growing subset of DWD's PSI is provided free of charge to re-users on the DWD website and on an FTP server. Since 2003, DWD has significantly reduced its commercial activities. In particular, it has left the provision of customized weather services to the media entirely to the private sector.

Key findings

- This case study demonstrates how the German National Meteorological Service (DWD) has gradually shifted from a profit-oriented commercial strategy in the 1990s and early 2000s to a PSI strategy that re-focuses the PSB's operations on its core tasks, prohibits the operation in certain commercial areas such as the media sector, and provides an increasing amount of meteorological data free of charge to all types of re-users.
- The ongoing policy transition process has so far yielded a strong increase in PSI re-use. For instance, the number of users of the open FTP server tripled from 2,000 in 2008 to 6,000 in early 2011. From 2002 to 2007, DWD registered an increase in PSI sales revenues of nearly 50% for synoptic data, of nearly 75% for radar data and of nearly 25 % for numerical model data.
- At the same time, it has also attracted fierce opposition from some private meteorological service firms such as the Association of German Private Meteorological Service Providers (VDW), an interest group that concentrates its lobbying efforts on limiting the free provision of PSI by DWD. Indeed, VDW fears that free PSI (beyond primary and processed data) would undermine its members' business models.[25]
- It appears that commercial re-users that offer high value-added solutions do not oppose the free provision of PSI. Consequently, it can be argued that, once most commercial re-users adapt their business models to DWD's more open PSI policy by innovating and offering more value-added products and services, the opposition to free PSI may fall silent. For their part, commercial re-users will expect all PSI to be available free of charge or priced to recover the re-use facilitation costs only.

[25] VDW position papers are available on http://www.wetterverband.de/. See for example VDW (2010): *Der Wettbewerb auf dem Wettermarkt* or VDW (2009): *Der DWD im Wettbewerb mit privaten Wetterdienstleistern*.

Royal Dutch Meteorological Institute (KNMI)

Meteorological PSI – POPSIS Objective A

Key figures

Indicator	**2010**
Yearly budget of the PSB in EUR	56 M EUR
Number of FTEs entire PSB	430
Assessment # FTEs inside PSB working on facilitation of re-use	1,5
Assessment revenues PSB from private sector re-use in EUR	0.25 M EUR
Assessment cost-recovery ratio from private sector re-use	0.45%
Average revenue PSB per FTE working on facilitation of re-use	16,666 EUR

Profile

- The KNMI (the Royal Netherlands Meteorological Institute, *het Koninklijk Meteorlogisch Instituut*) was founded in 1854. From the outset, it has been the sole national PSB collecting and providing meteorological information in the Netherlands.
- In the early 1990s, under political pressure it was charged with establishing a commercial arm whose purpose was to recover part of the KNMI's costs from the market.
- Due to conflicts with re-users, in 1999, a firm political decision was taken which forced the KNMI to abandon all market activities to private sector players, to stimulate PSI re-use by the private sector and to sell off its commercial branch.
- By 2009 this policy change had been fully implemented and license costs were not charged anymore, leading to an 80% decrease in price for the full KNMI dataset.

Key findings

- The 1999 switch from full cost-recovery pricing to recovery of the re-use facilitation costs only and the abandonment of its own commercial activities likely contributed to:
  - An increase of the turnover of the private sector re-users by 400%;
  - A boost in re-user employment by 300%;
  - An increase of over 35 M EUR on corporate tax returns;
  - An increase of the level of professionalism within the KNMI and an improved data quality and service delivery;
  - The rise of new business models, offering free services to the public paid through advertising and innovative applications.
- In summary, the KNMI case features an example of a PSB that has taken the decision to (1) fully focus on its public task only and step out of any commercial activity, and (2) to adopt a pricing system whereby the costs for the facilitation of re-use are fully recovered by charging the re-users. As this decision was taken more than ten years ago, the subsequent economic effects, both upstream and downstream, are now distinctive and solid, providing clear evidence on potential effects of a liberal re-use regime.

Norwegian Meteorological Institute (Met.no)

Meteorological PSI – POPSIS Objective A

Key figures

Indicator	**2010**
Yearly budget of the PSB in EUR	58 M EUR
Number of FTEs entire PSB	425
Assessment # FTEs inside PSB working on facilitation of re-use	2
Assessment revenues PSB from private sector re-use in EUR	0
Assessment cost-recovery ratio from private sector re-use	0
Average revenue PSB per FTE working on facilitation of re-use	0

Profile

- Met.no is the national meteorological institute of Norway. Since 2007 it not only works on a zero cost basis (not distinguishing between access and re-use) for its own data. It also offers access to and re-use of a subset of meteorological data from other national meteorological offices for free (without imposing restrictions on the re-use of those data) through a well regarded portal: yr.no.
- This PSI policy is based on the institute's philosophy that withholding data for sale and to generate a minor addition to its own budget would not outweigh the huge societal benefits of opening up the data completely, for free for use and re-use.

Key findings

- This policy change was sparked by belief, commitment and thought leadership on the part of the PSB itself bottom-up rather than top-down. Based on sound socio-economic analysis, the business case was explainable, in particular at political level: it succeeded in bringing about an irreversible thrust to open up the data for both citizens and re-users.
- The case demonstrates the huge re-use potential. Indeed, since the policy change the following downstream developments have been observed:
  - The number of re-users grew by 3,000%: It shifted from around 100 to 3,000 unique re-users per week.
  - Increasingly, re-users come from outside of Norway. These foreign re-users appear to be SMEs integrating data with other content (in the media sector) and apps developers.
  - The increased tax returns (at least 100% increases) easily exceed the loss of income and the slight increase in uncovered re-use facilitation costs.
- Also, by actively disseminating all its information to the general public, the PSB has created a direct link with end-users. This not only has a powerful quality assurance function, but has also consolidated the policy's business case (and its public funding) and has protected it against currents that may want the reverse the financing model.
- In summary, the case demonstrates the huge potential effects of a change in PSI re-use policy as well as a PSB's strategy to initiate, harness and consolidate such a step, establishing a strong 'public sector business case', creating a line of defence against potential counter-movements in times of budget constraints of the central government.

Slovenian Met Office (ARSO)

Meteorological PSI – POPSIS Objective A

Key figures

Indicator	**2010**
Yearly budget of the PSB in EUR	6 Million EUR
Number of FTEs entire PSB	89
Assessment # FTEs inside PSB working on facilitation of re-use	1
Assessment revenues PSB from private sector re-use in EUR	0,36 M EUR
Assessment cost-recovery ratio from private sector re-use	6%
Average revenue PSB per FTE working on facilitation of re-use	36.000 EUR

Profile

- The Environment Agency of the Republic of Slovenia (ARSO) is a body of the Ministry of the Environment and Spatial Planning.
- The Meteorological Office (ARSO/Met.Office) is one of the six offices within the agency. The Meteorological Office performs the task of providing a national meteorological service. Additionally, it carries out analytical, research and other expert tasks. It provides meteorological observation and numerological data, and value-added forecast products such as meteorological forecasts.
- In 2009, the Slovenian Meteorological Office has introduced free electronic data at the beginning of 2009. Further, the PSB is in the process of moving from full cost-recovery pricing to a partial cost-recovery model (they total 20% of the total costs, with only up to 5% of that sum chargeable to a single re-user). This will result in a 95% decrease in the price of the data for which the PSB is awaiting the final approval from the Slovenian Government.

Key findings

- Since the introduction of free electronic data, the office did not experience any loss in revenues or incur any high costs (only the cost of the extension of the online portal). Nevertheless, the efficiency gains, due to free online access of XML data for small re-users, were significant. They have led to a decreased workload related to a reduction in numerous small written and email request from re-users.
- Further, the revenues from PSI sales and added-value services have not changed. Even the number of re-users has not altered, as the small number of re-users who previously paid for access to basic data have been replaced by new customers buying value-added services. These are largely new media companies.
- The release of free data has brought important benefits to end-users and small re-users. Several SMEs make use of the online data and offer very low value-added services (such as mobile apps and media forecasts). Some innovative services, such as mobile hail alerts and mobile weather applications, are now being offered by commercial companies and individual developers.
- It is currently difficult to foresee if forthcoming pricing change (to be approved by government) will have an impact on the market. For now, re-use in Slovenia is not widely recognized as a business opportunity. The meteorological PSI re-use sector in Slovenia is not mature at the present time, and is based on low value-added services.
- The case shows that, in smaller and as yet immature markets, the changes in pricing policy mostly benefit end-users and small re-users that produce low added-value services. The changes provide efficiency gains to the PSB without having an impact on its revenues.

Business registers

The following table provides an overview of core figures from the PSBs in the business register domain.

Table 12: Charging policies and their effects in the business register domain

Country	Public sector body	Allowing re-use of raw data? Pricing policy	Providing added-value services?	Number of commercial re-users	Distinction between commercial and non-commercial licenses?	Number of FTEs involved in re-use facilitation	Revenue per re-use FTE
IT	Infocamere	Yes, partial cost-recovery	Yes, processed data and services.	43	No	N/A	N/A
NL	KvK	Yes, partial cost-recovery	No	N/A	No	N/A	N/A
UK	Companies House	Yes, limited to re-use facilitation costs	No	N/A	No	N/A	N/A

Obtaining reliable figures on FTEs involved in the facilitation of re-use in the PSI domain turned out to be quite burdensome. Apparently, the PSBs do not make a distinction between data input (registration of businesses) and the output (provision of data). This also applies to the measurement of those revenues generated through the public task (e.g. provision of data to a lawyer checking the representation rights of a person in a company) and the revenues yielded through the sale of large amounts of data, either through the PSBs' own added-value products or selling raw data to re-users.

All the business registers surveyed operate cost-recovery regimes with relatively high PSI sales revenues and cost-recovery ratios. This goes against the patterns observed in other PSI sectors and can be explained by the specific financing structure of business registers. Typically, business registers do not receive any governmental funding. Rather, they rely on two income streams that correspond to their main activities: (1) fees for registration of businesses and (2) charges for the provision of business information. The two activities generally do not cross-subsidize each other.

In their report on models of PSI provision by UK trading funds[26], Pollock et al. suggest that "a change from an average cost to a marginal cost regime [by the UK Companies House] would be welfare improving". Furthermore, the authors suggest that the resulting drop in PSI sales revenues "could be covered by the registration side of [the PSB's] operations".

[26] Pollock, R., D. Newbery and L. Bently (2008), Models of Public Sector Information Provision via Trading Funds, BERR (commissioned by HM Treasury and BERR), pp. 67ff and p. 110.

Besides the PSI Directive 2003/98/EC, the pricing policies of business registers in the EU and EEA Member States are also regulated by European company law. Article 3 para 2 of the First Council Directive 68/151/EEC amended by Council Directive 2003/58/EC stipulates that a business register PSI should be provided "at a price not exceeding the administrative cost thereof". This article is stricter than Article 6 of the PSI Directive which gives PSBs the possibility to recover their costs as well as a reasonable return on investment. Meanwhile, the Capital Taxes Directive (Council Directive 69/335/EEC) and subsequent case law (notably ECJ case C-188/95) mean that registration fees cannot exceed the costs of the registration. Thus, a cross-subsidization of the data provision activities by the registration activities of business registers – as suggested by Pollock et al. – may not be compatible with existent European company law.

There are substantial price differences between different business registers in Europe. While the entire dataset of UK Companies House can be purchased for about 1,340 EUR, each of InfoCamere's re-users pays on average 720,000 EUR in licensing fees annually. Some business registers may therefore possess the possibility to better exploit the price mechanism, i.e. decrease their prices and still maintain as stable their level of revenue due to increased demand volumes.

Snapshots of the three case studies undertaken in the business register information domain are presented. These snapshots permit a quick understanding of the main findings of each case study. The full case study reports are presented in the annex to this report.

Italian Chambers of Commerce (Infocamere)

Business register PSI – POPSIS Objective B

Key figures

Indicator	**2010**
Yearly budget of the PSB in EUR	96 M EUR
Number of FTEs entire PSB	8,200
Assessment # FTEs inside PSB working on facilitation of re-use	N/A
Assessment revenues PSB from private sector re-use in EUR	30.6 M EUR
Assessment cost-recovery ratio from private sector re-use	31.3%
Average revenue PSB per FTE working on facilitation of re-use	N/A

Profile

- Through its company InfoCamere, the Italian Chambers of Commerce (consisting of more than 500 local, regional and other organizations) are required by Italian law to maintain a business register.
- The register holds details of more than six million companies (1.2 million limited companies, 1.2 million partnerships and 3.7 million individual companies).

Key findings

- A partial cost-recovery pricing model is applied by InfoCamere, and the prices of both raw and processed data are set by the Italian Ministry of Economic Development. No changes in prices or pricing model have occurred in the last few years. InfoCamere receives 31 M EUR per year from 43 re-users, for an average income of 720,000 Euros per user. This represents about-one-third of the revenues of InfoCamere.
- Raw data are available to re-users who are also known as 'distributors'. Having access to raw data as a distributor is not an option for every paying customer. The selection procedure is subject to a number of criteria, such as size and technological capability. The number of re-users has remained stable over time and is heavily concentrated: the top three to four distributors account for nearly 80% of the business intelligence information providers in Italy, a market which is estimated at between 500 to 1,000 M EUR.
- Overall, the size and structure of the market has remained stable in Italy (globally it is expected to grow at 4% CAGR), while InfoCamere revenues from PSI have slightly decreased in the last two years.
- Infocamere sells not only processed data as defined by Italian law but also value-added services, such as data visualization tools or iPhone apps, to end-users. According to the Italian Business Information Industry Association (ANCIC), this practice limits the development of third-party applications and services and represents a case of unfair competition. However, no case has ever been taken in court.
- The high prices of the business register data do not appear excessive to existing re-users, nevertheless, they could pose a significant barrier to entry for new players.

Dutch Chamber of Commerce (KvK)

Business register PSI – POPSIS Objective B

Key figures

Indicator	**2010**
Yearly budget of the PSB in EUR	240 M EUR
Number of FTEs entire PSB	1,946
Assessment # FTEs inside PSB working on facilitation of re-use	N/A
Assessment revenues PSB from private sector re-use in EUR	47.3 M EUR
Assessment cost-recovery ratio from private sector re-use	19.5 %
Average revenue PSB per FTE working on facilitation of re-use	N/A

Profile

- The responsibility of running the business register is largely allocated to the umbrella organization of the Chambers of Commerce – the Dutch Association of Chambers of Commerce (KvK NL).
- The current register holds details on over 2.2 million businesses, associations and foundations throughout the Netherlands. The Ministry of Economic Affairs, Agriculture and Innovation acts as the supervisor of the registry on the government's behalf.

Key findings

- The PSB is fully dependent on revenues from registrations and provision of its data. It does not receive any funding from the state budget.
- The KvK collects approximately 67.4 M EUR (about 56% of its total budget) from its registration activities (*de registraties)*, and 53.3 M EUR (about 44% of its total budget) from the provision of information from the register (*de verstrekkingen)*, to both governmental and private sector users.
- Based on the current policy principle set by the supervising Ministry, the KvK has to cover as much of its costs as possible from the income from the provision of data while the remaining proportion comes from registrations.
- Under this mandate, the KvK is facing some opposite trends that, nevertheless, operate in parallel:
  - Pressures to maintain the costs of registration at the current level or even lower than that level;
  - Signals that the Ministry is in the process of embracing the spirit of open data, so that it appears to want to stimulate PSI re-use (for free) of KvK data;
  - Recurrent political debates about direct marketers using the KvK data (company addresses in particular) for 'printed' materials, which results in privacy concerns, and questions about the legitimacy of the KvK in selling its data;
  - KvK's own downstream market activities, in particular those provided for free, that trigger disputes with re-users centred on how the public task can be demarcated.
- In summary, the KvK is an example of PSB caught in the 'own re-use income reliance trap'. In addition, the ability of the KvK to make changes to its charging policy is fairly limited: not only is it highly dependent on these incomes, but the Ministry is also very eager not to increase registration charges. Any move towards lowered re-use charges would therefore need to be initiated by the central government, rather than bottom up.

UK Companies House (Companies House)

Business register PSI – POPSIS Objective B

Key figures

Indicator	**2010**
Yearly budget of the PSB in EUR	74.9 M EUR
Number of FTEs entire PSB	1,063
Assessment # FTEs inside PSB working on facilitation of re-use	N/A
Assessment revenues PSB from private sector re-use in EUR	15.5 M EUR
Assessment cost-recovery ratio from private sector re-use	20.7%
Average revenue PSB per FTE working on facilitation of re-use	N/A

Profile

- Companies House became an Executive Agency on 3 October 1988 as part of the government's Next Steps initiative. The agency subsequently took on a range of delegated powers from the former Department of Trade and Industry. It started operating as a Trading Fund on 1 October 1991.
- Companies House operates on the basis of cost recovery.
- The register holds the details of more than two million limited companies registered in Great Britain. More than 300,000 new companies are incorporated each year.

Key findings

- Companies House provides a good example of a Trading Fund organization that has remained remarkably stable over a long period. Prices for products remained static between 2005 and 2010. Small reductions were introduced in April 2010; for example, the price of most bulk products decreased by 10%.
- The sale of data contributed 13.8 M GBP (20.8% of total income) in 2009/10. Bulk data sales (of large parts of the core database that are regularly updated) to companies such as Dun and Bradstreet (D&B) and Experian contributed about 1 M GBP (7.3%) to the dissemination income. 20,000 subscription account holders (mainly SMEs such as lawyers and accountants) contribute about 8 M GBP (58.0%) to dissemination income. The remaining 4.8 M GBP (34.8%) of dissemination is derived from one-off web users who search the website at the cost of 1 GBP per company. The costs directly associated with the sale and dissemination of data were 12.7 M GBP (19.0% of total expenditure).
- Companies House budgetary and pricing procedures are governed by a number of different factors. United Kingdom (UK) Trading Fund regulations state that year-on-year income should be sufficient to meet outgoings that are properly chargeable to the revenue account. Companies House fees are linked, as required by European Law and HM Treasury guidance, to the forecast cost of providing each service and also to the way in which Companies House customers access them. Companies make a payment to register their details when the company is established and annually thereafter to update details. The amended First Company Law Directive requires copies of company records to be made available to the public at a price not exceeding the "administrative cost" of producing them.

Other PSI domains

The following table provides an overview of core figures from the PSBs in other PSI domains which fell under the scope of this study.

Table 13: Charging policies and their effects in other PSI domains

Country	Public sector body	Allowing re-use of raw data? Pricing policy Policy change (if any)	Providing added-value services?	Number of commercial re-users	Distinction between commercial and non-commercial licenses?	Number of FTEs involved in re-use facilitation	Revenue per re-use FTE
ES	CENDOJ	Yes, partial cost-recovery.	Not outside its public task (anonymizing data, xml text treatment).	28	Yes, non-commercial for free in certain limits, commercial at cost-recovery	5	300,000 EUR
FR	DILA	Yes, limited to re-use facilitation costs. **Policy change: introduction of a re-use facilitation cost regime and free provision of data to citizens.**	No	Estimated at 100	Yes	N/A	N/A
FR	SIRCOM	Yes, partial cost-recovery	No	9	Yes	Estimated at 3	59,666 EUR
DE	DeStatis	Yes, zero cost. **Policy change: introduction of a zero cost regime**	Yes, exceptionally on a full cost-recovery basis.	64% of 3,100 standard/ premium accounts	Yes, rebates for universities	N/A	N/A

These PSBs and their PSI are quite diverse in type and, hence, comparisons are less obvious. Examples include the SIRCOM which provides French fuel prices, CENDOJ which covers all Spanish case law, the DILA on French legal content, and Destatis which deals with German statistical data.

Nevertheless, as with the other PSI domains, the cost-recovery rate is relatively low even if, in the cases of the CENDOJ and SIRCOM, it is above 10%. The charges charged by the CENDOJ appear to be relatively high when compared to all other cases, including those in other domains. Equally, the revenue per re-use involving FTEs is significantly higher. The CENDOJ has costs that are related to the anonymization of court sentences and their transfer into XML format that partly explain this observed difference.

Snapshots of the four case studies undertaken in other PSI domains (legal information, fuel prices information and statistical information) are presented. These snapshots permit a quick understanding of the main findings of each case study. The full case study reports are presented in the annex to this report.

CENDOJ (CENDOJ)

Legal PSI – POPSIS Objective B

Key figures

Indicator	**2010**
Yearly budget of the PSB in EUR	9 M EUR
Number of FTEs entire PSB	32
Assessment # FTEs inside PSB working on facilitation of re-use	5
Assessment revenues PSB from private sector re-use in EUR	1.5 M EUR
Assessment cost-recovery ratio from private sector re-use	17 %
Average revenue PSB per FTE working on facilitation of re-use	300,000 EUR

Profile

- The CENDOJ (the Spanish Judicial Documentation Centre) is the public content holder of all Spain's legal documentation. Since its foundation in 1997, CENDOJ has by law been dealing with the collection, organization and dissemination of the judgements of the Spanish Supreme Court and other collegiate courts. It plays an important role in guaranteeing access to this kind of PSI to all Spain's publishing companies, organizations and citizens.
- The CENDOJ practices a partial cost-recovery pricing model for its PSI which distinguishes non-commercial re-use from commercial exploitation. These costs relate mainly to the high expenses incurred by the PSB to process the sentences and anonymize them to meet its public mandate.

Key findings

- With the arrival of new ICTs, CENDOJ has implemented a system for disseminating judicial statements for free and has operated a pro re-user policy. Today the PSI can be accessed for free for consultation purposes by any citizen who does not intend to re-use the information. Since 2002, the CENDOJ's pricing policy for commercial re-users has been based on a license cost per sentence, which has allowed for an increase in the type and number of re-users. The CENDOJ's online PSI has increased its number of products to about 72 quality databases that can be accessed by re-users.
- As a result, commercial re-users have increased from only two large publishers acquiring the PSI a decade ago to over 28 publishers in 2010, including both large companies and SMEs. This growth has been facilitated, among other reasons, as a result of the change in pricing model from a fixed high total price to a price per sentence-based model. The number of Supreme Court case judgements delivered to publishers for re-use doubled between 2002 to 2009 and reached 1.34 million in 2010.
- However, some commercial re-users have complained that they find the current prices too high. To acquire the whole database costs about 3.4 M EUR per year (4.5 M sentences at 1.5 EUR after applying a 50% discount). Each year the CENDOJ processes about 350,000 sentences, which means making an annual investment of 262,000 EUR to acquire all the new sentences. Some re-users argue that it is difficult for new entrants and SMEs to pay these fees if they are to be able to compete in the legal information market (which is dominated by large multinationals).
- Currently, the CENDOJ expects that re-use will increase even further with the development of a new portal put into place in February 2011. The new website offers, for the first time, a unique one-stop shop point of access to all the tribunal sentences in Spain in all the Spanish languages as well as in English and French.

DILA (DILA)

Legal and administrative PSI – POPSIS Objective A

Key figures

Indicator	**2009**
Yearly budget of the PSB in EUR	135 M EUR
Number of FTEs entire PSB	1,055
Assessment # FTEs inside PSB working on facilitation of re-use	N/A
Assessment revenues PSB from private sector re-use in EUR	0.9 M EUR
Assessment cost-recovery ratio from private sector re-use	0.67 %
Average revenue PSB per FTE working on facilitation of re-use	N/A

Profile

- The Directorate of Legal and Administrative Information in France (*Direction de l'Information Légale et Administrative* – DILA) is a directorate of the Secretary-General of the French Prime Minister (*Secrétariat Général du Gouvernement*).
- DILA's public task involves the distribution of legal information, public publishing and administrative information. DILA will also be in charge of the technical implementation and the financing of the forthcoming French inter-ministerial data.gouv.fr PSI portal.
- DILA is financially independent and does not receive any government funding. It is financed mainly through the sale of announcements. DILA currently offers different licenses for the re-use of its PSI. Prices are limited to re-use facilitation costs (c*oûts de mise à disposition*). The viewing and extraction of the data in reasonable quantities (which do not lead to economic activity) are free of charge.
- DILA has implemented a sophisticated PSI web portal – *Légifrance* – that provides access to a large stock of legal information for citizens free of charge and without registration. Commercial re-users can acquire licenses for fees which are limited to the re-use facilitation costs.

Key findings

- The free provision of PSI to citizens via Légifrance was and is still heavily resisted by many commercial re-users that claim the loss of several million EUR in revenue per year.
- The introduction of the new public service mission to provide citizens with free legal information via the internet has forced commercial re-users to review their business models and to offer more sophisticated value-added services such as personalized interfaces and alerts, commentary on legal documents, and mash-ups of different legal databases. Commercial re-users admit that they had underestimated the potential of electronic legal information in the early 2000s and had not been prepared to fight their new 'competitor' Légifrance. They had not spotted the switch from paper to electronic media. Hence, they were severely hit by the free provision of legal information on the Légifrance web portal. As they had underestimated the market impact of Légifrance, they had not undertaken massive lobbying to stop or limit the government's initiative. Once Légifrance was implemented in 2002, the commercial re-users had no choice other than to review their own business models and to develop services that provide more added-value for their customers.
- DILA has recently developed a new pricing model that, according to its plans, will be codified and implemented by the end of 2011. The new model focuses on partial cost-recovery with a reasonable return on investment (10%). To remove barriers to entry, the new model will propose a 'pay per use' scheme, which is intended to be attractive to SMEs and start-up companies.

SIRCOM / APIE (SIRCOM)

Fuel prices PSI – POPSIS Objective B

Key figures

Indicator	**2010**
Yearly budget of the PSB in EUR	1.125 M EUR
Number of FTEs entire PSB	21
Assessment # FTEs inside PSB working on facilitation of re-use	N/A
Assessment revenues PSB from private sector re-use in EUR	0.179 M EUR
Assessment cost-recovery ratio from private sector re-use	15.91 %
Average revenue PSB per FTE working on facilitation of re-use	N/A

Profile

- Since January 2007, the Communication Service (*SIRCOM*) of the French Ministry for the Economy, Finance and Industry (*Ministère de l'Économie, des Finances et de l'Industrie*) has been collecting data on fuel prices in France. All fuel prices are freely available to citizens on the www.prix-carburants.gouv.fr governmental portal. The public database aims at enabling citizens to make informed choices when buying fuel.
- In early 2009, a pricing and licensing system was introduced by SIRCOM in cooperation with the Agency for Intangible State Assets (*Agence du patrimoine immatériel de l'État* – APIE). The model proposes a license for commercial re-use at 38,500 EUR a year and another license for non-commercial or internal PSI re-use at 5,000 EUR a year.

Key findings

- Since the introduction of the pricing and licensing model for SIRCOM's fuel prices database in 2009, a market with nine first-tier and at least ten second-tier re-users has evolved. PSI is used internally by fuel station networks for pricing optimization and externally by re-users to develop smart phone applications, GPS applications and B2B services.
- At least 24 jobs have been created in French SMEs. Two start-up companies could become European champions. They provide data products and services to large multinationals in the geo-information and mobile communication business. In addition, third-tier re-users are active in the market: they provide the PSI mainly free of charge as a result of business models based on advertising revenues.
- APIE argues that the commercial licenses have had a stabilizing effect on the market. The licenses have clarified the legal rights of the re-users and the obligations of the government. They provide security of data supply over a period of at least three years (this is the length of the licensing agreement) and have forced the government to maintain a high level of data quality (by verifying the prices regularly). The licenses clarify who is not allowed to re-use the data and who is allowed to do so and for what purpose. Therefore, the licenses were recognized by banks as a real asset and a basis for a business model: it was on this basis that the banks were persuaded to finance the expansion of the two SMEs. APIE asserts that, before the introduction of the pricing and licensing model when re-use was free (because it was not regulated), nobody wanted to invest in the re-use of French fuel price PSI. NAVX, the leading commercial re-user, confirms this view.
- On the other hand, 'Open Data' activists have argued that the model is 'discriminatory' and a 'barrier to entry, growth and innovation'. They point to the coincidence of the evolution of a new market for smart phone and GPS apps with the development of the fuel prices PSI pricing and licensing model. In their opinion, the re-use sector and economic growth might have been even larger if fuel price PSI had been provided free of charge.

Statistisches Bundesamt (DeStatis)

Statistical PSI – POPSIS Objective A

Key figures

Indicator	**2010**
Yearly budget of the PSB in EUR	177.7 M EUR
Number of FTEs entire PSB	2,689
Assessment # FTEs inside PSB working on facilitation of re-use	N/A
Assessment revenues PSB from private sector re-use in EUR	0.2 M EUR
Assessment cost-recovery ratio from private sector re-use	0.1 %
Average revenue PSB per FTE working on facilitation of re-use	N/A

Profile

- The German Federal Statistical Office (*Statistisches Bundesamt*) is an independent public administration within the sphere of the Federal Ministry of the Interior (*Bundesministerium des Innern*).
- Over the last two decades, the Statistical Office's PSI distribution and pricing model has been modified several times, mainly due to contextual changes. Gradually, the PSB has shifted to a model where all PSI can be downloaded free of charge and without registration.
- The free provision of PSI, and the continuous improvements (with regard to technical features and scope) in the PSI database *GENESIS-Online*, have led to a substantial increase in re-use – thereby achieving more effectively the Statistical Office's public task of disseminating its information widely.
- Users have to register only if they want to benefit from additional personalized services, such as permanent storage of table structures for retrieval, retrieval of large volumes of data, or the GENESIS web services. These additional services are available on a chargeable basis only: 50 EUR for a standard account and 500 EUR for a premium account. Educational institutions receive a 50% discount. The fees for the standard and premium accounts (total revenues in 2010: 152,000 EUR) cover the re-use facilitation costs incurred by the Statistical Office for the additional service offering. All users now access the same data; paying registered users do not acquire more or other data.

Key findings

- Destatis' zero cost pricing approach has led to a substantial increase in PSI downloads and has enabled the Statistical Office to better achieve its public task of wide dissemination of its information to society at large. For instance, the free availability of all statistical PSI has led to a considerable increase in data downloads, thereby achieving the Statistical Office's public task of disseminating its information widely. The yearly table downloads increased by about 800% from 130,271 in 2004 to 1,092,938 in 2010. Clearly, the bulk of the additional demand for statistical PSI comes from re-users who download the data for free without purchasing a standard or premium account. On the other hand, the number of customers holding a standard 50 EUR a year account can be kept relatively constant. At the end of 2007, there were 3,390 standard accounts; at the end of 2010, 2,955 customers held a standard account for the GENESIS-Online database. The number of premium customers paying a yearly fee of 500 EUR has increased from 55 at the end of 2007 to 69 at the end of 2010.
- The drivers for change were mainly of a contextual nature. They included the U-turn made in Eurostat's pricing approach and the changing legal framework. Internal factors such as high administrative costs for invoicing and licensing, and the realization that most citizens were not willing to pay for statistical PSI, also played an important role in this transition process.

4.1.3 Economic effects of lowered PSI re-use charges

This sub-section offers an analysis of the specific economic effects of lowered PSI re-use charges. It is sub-divided into five different sub-sections:

(1) Caveats;
(2) Overview;
(3) Downstream effects;
(4) Effects of lowered charges on PSBs;
(5) Effects on employment and tax gains.

(1) Caveats

Measuring effects is not always easy

Firstly, all the case studies examined demonstrate that the actual implementation of new PSI policies may take quite some time (e.g. in the KNMI case, the entire operation took about nine years) or emerge in waves (e.g. BEV, Destatis and the Spanish Cadastre). This makes it more difficult to associate very precisely the changes with the effects of change. Other factors may contribute to the effects measured: they include the impact of technology on costs and the autonomous growth of the market.

A second complication is that many PSBs do not consider it their task to monitor the effects, let alone re-use effects, of their policy changes. On the other side, however, they do quite often monitor the increase in website visitors, the amount of data downloaded and sometimes the country of origin of the re-users. Some PSBs have adopted a re-use charging model which is based on re-user characteristics: this allows them to stratify categories of re-users. Unfortunately, in many of the cases where interviews took place, interviewees claim that these data are of a confidential nature.

Thirdly, due to the character of digital PSI, the effects of charging will have network effects: hence, the PSI is dispersed downstream into the next chains of users.[27] These network effects are extremely hard to monitor and measure. Apart from the DECA case, none of the PSBs had any insights into the effects of their policy on second-tier users or those users located further down the value chain.

Moreover, determining these kinds of effects beyond the first tier of re-users is difficult, especially with regard to the effects lower down the value chain. This observation particularly applies to PSI which is of an infrastructural character (e.g., the address data in the DECA case) where the effects spread rapidly and on a large scale over millions of re-users. In those domains where the value chain is restricted in size, and where the value of the PSI remains a core element and the number of re-users can more or less be counted, the effects are easier to capture (as is the case, for instance, in the meteorological domain).

[27] Cf. Paul F. Uhlir (2009): *The Socioeconomic Effects of Public Sector Information on Digital Networks*.

Fourth and finally, the case studies demonstrate that, although charging is an important element, other framework conditions also influence the re-use market. For instance, re-users may be less enthusiastic to invest and innovate (on the basis of the lower charges) if the PSB is still active in the downstream market in selling its own added-value products. In order to avoid unfair competition in the downstream market, the commercial arms of most PSBs have to acquire the PSI raw data under the same conditions as private commercial re-users. Given such equal treatment conditions, the commercial arms of PSBs have to pay the same price for the PSI and respect the same re-use conditions as their private downstream market competitors. However, some private commercial re-users claim that the commercial arms of PSBs still possess a competitive advantage. This advantage may occur for two reasons: as the result of a smaller administrative burden (related mainly to licensing and invoicing) or shorter data provision delays. Indeed, in many cases the commercial arm of the PSB has direct internal access to the data which private re-users have not. Moreover, some re-users fear that inaccurate internal accounting in the PSBs may lead to a cross-subsidization of their commercial arm and thereby to unfair competition with commercial re-users. Some private commercial re-users have therefore argued in favour of a clear organisational separation of the operations that take place under the public task and those related to a PSB's commercial arm. Others advocated that commercial activities by PSBs should be abandoned.

(2) Overview

The table below provides an overview of seven case studies. The micro-economic effects observed in these cases are the result of a PSB shifting from a cost-recovery model towards re-use facilitation charging and marginal/zero cost charging for commercial and/or non-commercial re-use purposes.

Table 14: PSI policy changes and effects

Case study	Policy change	Effects
BEV	**2006** • Moved from a complex full cost-recovery pricing regime based on the costs of mainly analogue products (such as paper maps) to a simplified partial cost-recovery pricing and licensing model with drastic price cuts of up to 97%. • Regular reviews (2008, 2010). • Introduction of a web portal.	**2009 and 2010** • Substantial increase in the number of datasets sold: sales for many BEV PSI products increased significantly: cartographic products by +200% to +1,500%; digital ortho-images by **+7,000%**; digital cadastral map and elevation model by +250%; the digital landscape model by +1,000%. • Total revenues from geo-PSI sales increased by **+46%**, in spite of large price cuts. • The bulk of the additional demand comes from Austrian SMEs.

Destatis	**2004 – 2006** • Dissemination and communication strategy was focused on the internet as the main data distribution channel. • All downloads from the online shop were made available free of charge. • Portfolio of print publications was drastically reduced. • Users have to register only for personalized services available against very limited re-use facilitation costs. • Liberalization of intellectual property rights.	**2010** • Table downloads increased by **+840%** (130,271 in 2004 to 1,092,938 in 2010). • Around 25% of the users are private sector users. • Costs of re-use and FTEs working on facilitation of re-use have remained stable. • Re-use facilitation costs are broadly the equivalent of revenues.
DECA	**2002** • Under a 'free of charge' agreement a central database of all Danish addresses was established, motivated by public task ambitions. • Local PSBs were compensated for losses and rewarded by free re-use. • By distinguishing between the public sector investment and subsequent exploitation of the facility created, allocating the costs to those that benefit, there was no need to rely on cost-recovery above the re-use facilitation cost level. • An open network of distributors was established, acquiring PSI against re-use facilitation costs only. • An almost 100% decrease on variable charges and relatively small fixed costs (0.01 M EUR). • No re-use limitations.	**2010 (cumulative)** • Turnover of re-use market increased by **+1,000%.** • Number of **re-users** went up by **+10,000%**. • FTEs employed by re-users were boosted by **+800% to +1,000%**. • Tax gains exceed PSB investment by **400%**. • A self-propelling and financing re-use system maximizes the multiplier effects in downstream markets.
IGN-CNIG	**Pre-2008** • Prior to 2008, all the PSI was for sale. There were only ten re-users (including both commercial and non-commercial re-users). Hence the increase in re-users has been remarkable. • The Institute has increased access to geographical information for free to re-users for non-commercial purposes (or marginal cost if copying is provided) while implementing a pro re-user commercial policy.	**Post 2008** • Today over 40 re-users (the majority of them are SMEs) purchase the information for commercial purposes. • Since October 2010, the volume of data services and users has doubled. • Between 2008 and February 2010, there have been about 165,257 requests from 37,417 non-commercial re-users.

KNMI	**1999** • Switch from full cost-recovery charging to recovery of the re-use facilitation costs only. • This has led to an 80% decrease in price for the full KNMI national meteorological dataset. • Abandonment of its own commercial activities. • Sale of the commercial arm.	**2010 (cumulative)** • Private sector turnover grew by **+400%**. • Boosted re-user employment by **+300%**. • Stimulated innovation. • New business models arose. • Extra tax gains amount to total of **35 M EUR**. • Internal PSB efficiency gains of **3.5 M EUR**. • Re-use department is now run by 1.5 FTE. • Data quality and service delivery enhanced. • Level of professionalism increased.
Met.no	**2007** • Moved to a liberal re-use policy, driven by internal commitment. • All weather data, including most data from ECMWF partners, was opened up for free and anonymous re-use. • A step forward in the value chain, providing full service forecasts to all citizens which thus forced re-users to innovate further. • Actively promoted its re-use philosophy in international fora.	**2011 (cumulative)** • Downstream effects are significant where the number of unique weekly re-users increased by almost **+3,000%**. • Met.no serves a need felt throughout Europe (and beyond) since over 40% of re-users are from outside Norway. • Re-users appear to be SMEs that integrate data into their own content services for large groups of users (rather than adding high-resolution value) and App builders. • A direct link with citizens assures the quality of the data (through feedback) and embeds the public business case (and the public funding), thus protecting the developments against any reverse currents.
Spanish Cadastre	**Pre-April 2011** • Until April 2011, there was a high usage of digital certificates (over 4.5 M per year) and online consultation by citizens. Only a few companies purchased data for less than 330,000 EUR a year. • A new download model was introduced on April 5, 2011 which enables mass PSI downloads for free.	**Post-April 2011** • The new download service introduced in April 2011 was very successful in its first weeks of operation: it already has over 1,152 registered re-users. • The weekly volume of alphanumeric data downloads increased in only one week by **+1,900%**, from 67 to 1,203, and the total number of downloads of digital maps by +800%, from 275 to 2,101. The total downloads grew by nearly +1,000% from 342 to over 3,300.
UK Ordnance Survey	**April 2010** • Introduction of tiered 'freemium model' of data provision. • The lowest tier of the model provides access to information in four product categories for free at the point of use. (The categories are topographic mapping, address location, route networks and consumer mapping.)	**2011** • The full impact of changes is yet to be tested empirically. • Re-users suggest wider availability of free data has led more people to use this resource. • Re-users suggest that greater use has led to an increase in the help they provide to assist new users to use the free data effectively.

(3) Downstream effects

This section presents and discusses the downstream effects of lowered re-use charges, i.e. the effects on re-users and end-users of PSI.

Large multipliers

All seven case studies in the table below demonstrate large increases in demand and, where measured, significant impact on the business of private re-users.

Table 15: Selected downstream effects of lowered PSI charges

Case study	Increase
BEV	Number of datasets sold: **200% to 7,000% increase**
DECA	Number of re-users: **10,000% increase** Turnover re-users: **1,000% increase**
Destatis	Number of unique visitors: **1,800% increase** Number of downloads: **800% increase**
IGN-CNIG	Volume of data services: **200% increase** Number of users: **200% increase**
KNMI	Number of re-users: **1,000% increase** Turnover re-users: **400% increase**
Met.no	Number of re-users: **3,000% increase** Turnover re-users: **more than 200% increase**
Spanish Cadastre	Number of downloads: **from 800% to 1,900% increase** for various datasets.

DeStatis, the German Statistical Office achieves its public task more effectively through a zero cost regime

The German Statistical Office, DeStatis, has gradually implemented a more re-use friendly policy. Since 8 October 2008, all its tables can be downloaded at zero cost and without registration from the GENESIS-Online portal. The free availability of all statistical PSI has led to a substantial increase in data downloads, thereby fulfilling the Statistical Office's public task of wide dissemination of its information. The annual downloads of tables increased from 130,271 in 2004 to 1,092,938 in 2010.

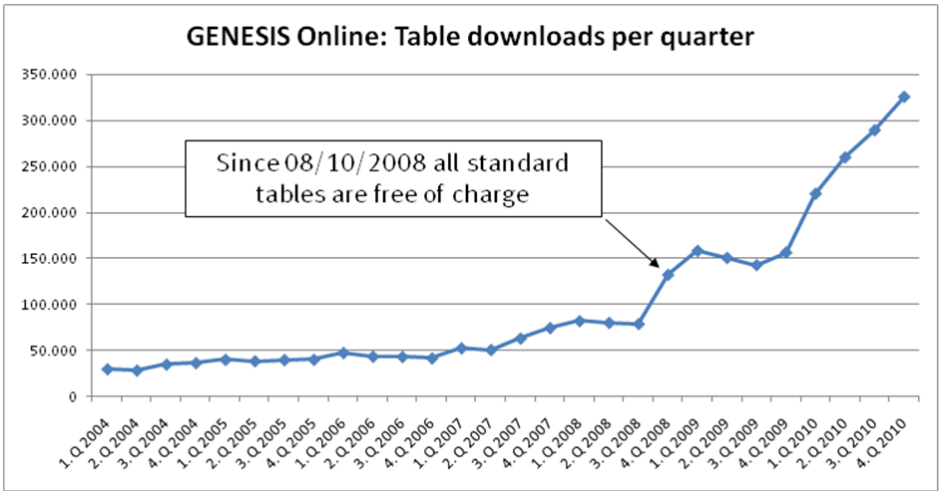

Figure 7: DeStatis' GENESIS-Online database: table downloads per quarter (2004-2010)

Low-end market effects

The low-end market effects are significant. Interestingly, new re-users appear to be content-driven. The 'classic' or more traditional re-users, however, tend to provide tailor-made services to professional clients. These new re-users either build their value propositions on a strong distribution basis or the use of mobile platforms and apps. Revenues are generated through high volumes but low charges (on a price per app basis) or third-party incomes (based on an advertising model). However, revenue could also come from innovative business models. These include apps that build on PSI and are integrated with other data to offer other value-added services.

High-end market effects

The effects in the high-end market appear to be less spectacular, although there are some exceptions. These are most prominent in the meteo sector. In the case of the KNMI, the number of high-end re-users increased by 250%. The Met.no case underlines the importance of non-discriminatory pricing and transparency: the biggest Norwegian re-user (StormGeo) was able to enter the high-end international market for targeted forecasts (for oil rigs and shipping). This market had previously only been covered by the added-value products of the national meteorological offices. This transition occurred after a significant price cut in the full ECMWF dataset established a more or less level playing field. StormGeo has now become a well-established international player. It has nine offices in Europe and the US, and has multiplied its turnover, staff and profit in just seven years. Entry by new providers is bringing enhanced competition in the downstream market, which has beneficial effects on prices for second-tier users.

Lowered charges and improved re-use conditions spark innovation

The lowering of charges brings in new types of users, particularly SMEs (e.g. in the cases of BEV, CENDOJ, IGN-CNIG, KNMI, Met.no and the Spanish Cadastre). In a number of other cases, the price cuts have been less significant or even absent: however, special schemes have been provided for SMEs to stimulate their re-use activities (e.g. DWD, German geo-information PSBs and the planned new DILA pricing model) or improved re-use conditions have been provided (e.g. SIRCOM). The SMEs entering the market tend to introduce new business models and re-use the data available quite differently from the 'classic' re-users.

NAVX benefits from improved re-use conditions and grows internationally

When SIRCOM introduced a pricing and licensing model for its PSI fuel prices in 2009 (re-use was unregulated before), NAVX, a 23 FTE venture capital ICT company active in the field of location-based services, acquired a commercial license right from the very start. NAVX enriches the public data in three ways. It filters out double entries and fuel stations that have gone bankrupt, it adds data for the fuel stations that are exempt from public reporting obligations, and it

improves the precision of the geo-localization. The enriched data are then used for the company's own GPS and smart phone applications and are sold to NAVX's sub-licensees. NAVX focuses on both the B2C business of selling its applications directly to end-users and on the B2B2C business of providing its enriched location-based content to GPS manufacturers, geo-information companies and mobile operators. Building on its strong home market in France, NAVX could expand further to cover at least eight different European countries.

Zero cost provision of PSI by the Spanish Cadastre sparks innovation and improves efficiency

The zero cost provision of Spanish cadastral data means that new geo-marketing possibilities have emerged. There are several examples. SMEs selling swimming pool products have been reported to use cadastral data to target only those houses with a swimming pool, since these data are embodied in their cadastral database. Other efficiency improving re-uses include a faster infrastructure deployment (up to 40% improvement) in the case of the AVE high-speed train. The online real estate service called 'Idealista.com' re-uses PSI from the Spanish cadastral database to identify and describe more accurately properties that are on its online database.

Cascade licensing may ease market entry

'Cascade licensing' implies that the first-tier re-users sell customized sub-licenses to second-tier re-users who can then sell on sub-licenses. It enables the market-entry of smaller players. Such market-based solutions are popular among PSBs as they reduce their administrative burden for licensing and invoicing significantly (examples include DECA and SIRCOM). They may, however, provide some market power to first-tier licensees, notably if the fixed fees are high.

Exploitation of new datasets

The success of smart phone applications which use novel sets of data confirms the potential hidden value of public data. Examples include the retirement plan reports offered by BrightScope[28] or environmental advice on housing through use of house registers coupled with additional sets of data by HusetsWeb[29]. Release data that were previously not valued as useful for re-use by public administrations may attract the attention of developers. For instance, company information, intellectual property and data from official gazettes are currently very rarely opened up, especially in comparison to the abundant use of transport and meteorological data.

Developers look for alternative data sources

In Europe, only a limited amount of meteorological data sets is provided to re-users free of charge. Hence, most of the existing weather-based smart phone applications in Europe are offered by B2B re-users who have already purchased the meteorological PSI for other business purposes (examples include wetter.com, MeteoGroup, meteosolutions and ilmeteo.it) or by the public data holders themselves (such as the Belgian IRM or the UK Met Office). Many developers are not willing to pay for meteorological PSI and have therefore

[28] http://www.brightscope.com/
[29] http://www.husetsweb.dk

turned to alternative data sources such as the United States National Oceanographic and Atmospheric Administration (NOAA) which provides weather information (including European data) free of charge to all kinds of re-users on its http://www.weather.gov/ website.[30]

Downstream network effects can be impressive

Considerable network effects can arise from making PSI available to re-users at favourable conditions, especially when PSI is placed free of charge on the internet. If information is accessible free to every person who has access to the internet, a potentially enormous pool of entrepreneurs can take and recombine that data with other information. This can enable the creation of new knowledge, products and services that would otherwise not be feasible, for example, if barriers existed in the form of either a high prices or re-use restrictions.[31] Furthermore, the new data products created by PSI re-users may then act as inputs for other downstream re-users. They, in turn, add further value to these re-use products by combining them with other sources of data. Complex networks of downstream re-users can thus evolve. This effect applies particularly to PSI which is of an infrastructural nature, such as address data and maps. The DECA case is a good example of this network phenomenon: the number of users of the central register of all Danish address data has expanded phenomenally from the original 26 first-tier distributors, to about 1,100 second-tier re-users. The second-tier users add further value to the data and, as a result, there are several millions of third-tier end-users of global positioning systems (GPSs). The SIRCOM case demonstrates similar patterns in its network structure of PSI re-use.

Clear charging strategies for new PSI sources offer large potential

A special case for potential expansion is the 'new' sources of PSI that are being launched. Quite uniquely, charges can be determined from the outset without any financing legacy. The DECA case and the SIRCOM case demonstrate that PSBs do not need to rely on overcharging levies imposed on re-users.

The DECA case accomplished a clear charging strategy by distinguishing between the public sector investment to be made in the infrastructure and the subsequent exploitation of the facility created. It clearly and concisely allocated the costs to those that benefit. Thus, it maximized the multiplier effects downstream. It underlined the benefits of its initiative for the government and Danish society as a whole, creating a cumulative value of around 57 M EUR.

The SIRCOM case demonstrates that the opening up of PSI to re-users may generate new business models and economic growth. SIRCOM converted the fuel prices at French petrol stations into PSI instead of being just information. At least 24 new jobs were created in SMEs that re-used PSI (as both first- and second-tier users). They created innovative smart phone and GPS applications (a market volume of 1-2 million smart phone applications and 300,000 apps for GPS devices) and value-added B2B services. On the basis of this new source of PSI, two SMEs grew to become European champions in their market segments:

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[30] Cf. MICUS (2009): *Assessment of the Re-use of Public Sector Information (PSI) in the Geographical Information, Meteorological Information and Legal Information Sectors*, p. 45.

[31] Cf. Uhlir (2009): *The Socioeconomic Effects of Public Sector Information on Digital Networks*, p. 19.

they provide services to leading, international geo-information companies such as Garmin, NAVTEQ and TomTom as well as large fuel station networks.

Impact on citizens and re-users has similar patterns

Free access – as opposed to re-use – has similar (or sometimes even stronger) impacts as lowered charges for re-use. Some very large increases in the number of non-commercial re-users, particularly citizens, are occurring. This ultimately leads to positive societal impacts such as democratic involvement and control. Some examples are: DeStatis: an 800% increase of statistical table downloads (in seven years); IGN-CNIG: a 200% increase; and Met.no: a 6,000% increase.

Different dataset have different values

Transport apps (such as public transport information and traffic information) and weather apps appear to be the most attractive types of downloaded mobile apps. Twenty per cent of apps in the travel category surveyed under POPSIS study objective D were based on PSI. Current trends and forecasts indicate that new apps will be more complex and will integrate different sorts of datasets, including more valuable and real-time datasets, and will provide value-added services such as personalization and localization. Citizens concentrate their interest in high value-added datasets, such as public transportation maps and timetables, real-time information, and information that are brought together from different datasets. It is for this reason that geo-location data, value-added datasets, and advanced solutions such as open API would have a large impact on the growth of the PSI-based app market.

There is a definite difference between what is offered on the commercial market (where there is a predominance of weather data and transport data) and what is proposed by the open data community at open data camps or apps contests (on transport and geospatial information, socio-economic statistics and physical property).[32] This points to the varied needs of consumers in comparison to the more citizen-focused ideas that lie behind apps contests. Nevertheless, apps contests and their results may direct the interest of market players towards previously unexploited PSI datasets.

The unexpected use of PSI stimulated by open data portals and apps contests makes it difficult to establish upfront which datasets have a real market value. Indeed, open data is based on the notion that “the coolest thing to do with your data will be thought by someone else" (a comment by Rufus Pollock). For example, Husetsweb offers a user-friendly tool for homeowners to assess and optimise their energy consumption using the Danish Building and Housing Register (BBR) data coupled with private companies data – Totalkredit (credit rating company) and Rockwool (provider of insulating materials) data on heating sources and potentials for improvements. Therefore, many portals include a ‘suggest a dataset’ feature that can gather further insight from users on which datasets to release in near future.

[32] This last app is only to be found in the US.

(4) Effects of lowered charges on PSBs

The case studies demonstrate clearly that it is not only the re-users that are affected by changes in charging regimes. These changes often form part of the broader context of a policy change of the PSB.

Lowering charges may increase revenues

All the case studies where PSBs have lowered their prices show that demand grows in relatively larger proportions, sometimes spectacularly. Accordingly, where the price elasticity of demand for PSI seems to be fairly large, the price cuts can continue to contribute to an increase in revenues, especially since current revenues appear to be relatively low. Of course, once charges are zero, revenues will also be zero.

The CNIG is a good example that illustrates that the many small transactions that follow a pricing model change have resulted in a similar amount of income generated, and much more usage. The effect is: many small sales as opposed to a few large sales. In the case of BEV, price cuts of up to 97% in certain geo-information data sets led to increased geo-PSI sales revenues (+46% after four years).

Opening up the re-use potential professionalizes the ties with re-users

In those cases where re-use intensifies, quite often in combination with lowered prices, the re-use facilitation process becomes embedded in the PSB's organization and the relationship is formalized in clear contractual terms (such as service level agreements and contractual guarantees). This alters the business relationship to a transactional level founded on a basis of equality, in which each party has a clear interest in delivering a service. This modification in organization also entails the set-up of various practical means to address the needs of re-users. They include fast connections, FTP-servers and help desk support.

At the same time, in particular when the lowering of charges is accompanied by a reduction in the PSB's own re-use activities, interviewees report a significant reduction in tension between the PSB and its re-users. This can lead to a change in atmosphere which is then more positively built on mutual interest and trust rather than suspicion (examples include KNMI and Met.no).

A more liberal re-use regime brings efficiency gains

The revenues per re-use for FTEs (those PSB employees who are dedicated to the facilitation of re-use) actually increase when charges are lowered for re-use facilitation costs. Clearly, this is caused by the very low number of FTEs needed to facilitate re-use once the decision to further professionalize the relationship has been taken and where tasks and responsibilities are clearly defined.

This development also seems to indicate that the costs incurred in the facilitation of the re-use hardly grow at all – in fact they often ultimately decrease – even if the volume of re-use and re-users increase significantly. Apparently, once the facilitation of re-use processes has been properly organized, the tasks simply become subroutines inside the institution. To a large extent, they are embedded in the public task-funded activities and involve no extra

costs. This also seems to apply to the transaction costs to be incurred when charging for PSI re-use (examples include DECA, Destatis, KNMI and Met.no as well as SIRCOM which outsourced its re-use facilitation activities).

Internal efficiencies surface

Some case studies demonstrate the emergence of a notion that the exploitation of the PSB's own added-value products is in fact inefficient. Due to the rationalization of re-use facilitation, the resources needed to create and market these added-value products (including those to police and protect the downstream market positions) can be identified. They often lead to an economically rational decision to drop added-value products all together (e.g. KNMI).

In Italy, both the Agenzia del Territorio and Infocamere are large organizations with strong internal capabilities to offer services to both final users and public administrations. Re-users claim that the lack of innovation in the market is due to the considerable role played by these bodies in providing value-added services. In fact, the Italian market for re-use is limited and stagnating.

More (re-)use can improve data quality

The intensified ties that are created with re-users have an interesting side benefit. Both PSBs and re-users state that data quality improves as a result. Through this intensified use, data deficiencies are flagged up and reported back to the PSB. Thus, the quality control for the data is partly outsourced when the interest in data quality is shared. Moreover, in those case studies where the PSI is opened up to access by citizens, this relationship becomes a reward mechanism in itself. In the Met.no case, the traditional end-users of the meteorological information produced had proved to be somewhat of an abstraction for the agency. Opening up a direct link with citizens established a new atmosphere. The Met.no employees began to feel an increased sense of importance to society for the tasks they were undertaking. This new approach created a direct transaction model between the PSB and the taxpayer. For Met.no, this association now helps to enhance the delivery of quality data: it receives over 5,000 e-mails a year from citizens who pass on their observations with regard to the organization's performance.

Public visibility can help to lock-in charging regime and public funding after change

The direct and enhanced relationship between the PSB and its re-users has another advantage: It enables the visibility of the (re-)use by society. It underlines more permanently the socio-economic business case and embeds an understanding of the underlying philosophy (and the public funding): thus the financing model grows to be protected against those political currents that may want the reverse it. In particular, in times of budget restraints, central governments may be inclined to desire to return to cost-recovery regimes. (A few interviewees reported that they had encountered such developments, especially after changes in governments.)

Interesting financing models emerge: PSI acts as seed capital

In the IGN-CNIG case, the PSB finances its policy of not charging for non-commercial re-use (which includes use in company management systems) with charges on commercial re-users. This has lead to a significant increase in users but not to a drop in PSB turnover. There

are currently over 40 commercial re-users who possess tailor-made contracts. The charges applied are actually based on an estimation of the value-added generated by the PSI in the commercial re-user's business model (the contribution of the original dataset to the final product, the sales figures and the benefit obtained). Moreover, the re-users do not have to pay initial fees, but they need to share the profit once this is made. For SMEs, this has turned out to be an attractive model. Re-users that do not want to reveal their business model can also just pay a flat fee.

The German geo-information PSBs (which apply the AdV pricing guidelines), provide a similar pricing scheme that takes into account the turnover and the value-added to the PSI by a re-user when determining the price to be paid by the re-user: the more value-added by the re-user and the lower the proportion of the PSI in the end product, the lower the percentage of the re-users turnover that is charged as the price of the PSI. Alternatively, re-users may also pay a flat fee.

In both models, PSBs actually benefit from the success of their re-users. They do not, however, receive returns if their re-users fail to create turnover. The models facilitate the entry of SMEs and start-ups into the market since they decrease the business risk as compared to fixed licensing fees.

Conclusion

To conclude, it can be underlined that allowing re-use at low charges has all sorts of beneficial effects. In essence, it:

- pares down the PSB operation and returns it to the contours of the true public task;
- cuts costs (efficiency, transactions, IPR enforcement);
- creates a self-propelling mechanism of data quality control;
- creates better conditions for SMEs to become re-users;
- increases the visibility and use of the PSI for citizens, companies and all types of re-users.

Where the change has lead to marginal/zero cost regimes or to models that limit cost-recovery to re-use facilitation cost only, the benefits and increased PSI demand are most evident.

(5) Effects on employment and tax gains

Since there is only a relatively small sample of case studies, their findings cannot be extrapolated to a macro level. The framework conditions surrounding the case studies also differ (such as the actual PSI domains and the countries studied). These two limitations need to be borne in mind when the figures below are interpreted. Nevertheless, the findings have a definite value, since at least three of the same patterns are repeated. These are that growth ratios are correlated, there are potentially high returns and there is a degree of support for previous literature on employment effects and tax gains.

Growth ratios correlate

In some cases, effects on PSI re-use sectors could be observed, in particular in the meteorological market, where the number of first-tier re-users is often limited.

The KNMI case demonstrates that in the eleven years since 1999 following the policy change that entailed the shift to cost-recovery of re-use facilitation costs only, there were significant developments. The number of re-users went up by 1,000%, the turnover increased by 400% and the employment was boosted by 300%. In the DECA case, which also shifted to a re-use facilitation cost-recovery model, the number of re-users went up by at least 5,400%, the turnover by 1,000%, and the employment by 800%.

Although no figures on the increase in FTEs and turnover is available in the Met.no case study (where the re-use charges dropped to zero), the number of new re-users increased from 100 to 3,000 since 2007 (with around 40% re-users coming from outside of Norway). Other case studies show similar, although less spectacular, increases in growth ratios of users and usage. In the CENDOJ case, the number of re-users went up from two to 28 over ten years, and in the IGN-CENIG case commercial re-users increased from ten to 40 in two years.

Thus, the case studies demonstrate a positive relationship between the lowering of prices and increased re-use (both in volume and number of re-users).

Potentially high returns

These increases in employment and turnover also positively impact the gross domestic product (GDP) in the particular country and therefore the tax gains. In the KNMI case, these amount to 35 M EUR over a period of eleven years, and in the DECA case to 14.25 M EUR over nine years. Obviously, at a macro level, these amounts are modest. However, when compared to the investments made and costs, the returns are high. The policy change also yielded PSB savings of 3.5 M EUR in the KNMI case and of 5 M EUR in the DECA case.

The returns are even higher if the benefits of free access by citizens (not only of the re-use) are taken into account. These social and economic benefits were confirmed by studies performed by the Spanish government on the effects of the move to zero costing on the part of the Spanish Cadastre. A 2010 KPMG study[33] estimated that the cadastre's online access and digital certifications provision was saving Spanish taxpayers at least 157 M EUR a year, which is much more than the cadastral budget of 118 M EUR in the same year. Another study conducted in 2009 by RSO, CapGemini and CS Transform for the European Commission[34] went much further in its conclusions since its cost-benefit analysis showed that the cadastre's electronic office was saving the Spanish taxpayer about 7,758 M EUR.

Findings are aligned with earlier research on tax gains

Finally, the overall findings on tax gains are in conformity with earlier documentation and studies, as is demonstrated in the text box below.

[33] Cf. Álvarez Capón (2010): *Catastro, políticas públicas y actividad económica*, p. 16.
[34] RSO, CapGemini, CS Transform (2009): *Benchlearning Study on impact measurement of eGovernment*.

Quotes on potential tax returns from earlier research

"The private sector has long argued that existing revenue based licensing models for PSI have operated against their interests and those of consumers by impeding the development of new products. Our study is the first to suggest that such models may even be operating against the financial interests of governments. Although governments gain income from the commercial license fees, they lose the taxation and employment benefits from the higher volumes of commercial activity that would be generated by abandoning charges. We find that a conservative projection of a doubling of market size resulting from eliminating license fees would produce additional taxation revenues to more than offset the lost income from PSI charges (...)."
Pira International (2000): Commercial exploitation of Europe's public sector information.

"Some government agencies are willing to liberalize their policies, but fear that they will suffer budget consequences. Therefore, the relevant government Ministries must come to understand that open data policies will create wealth and tax revenues more than adequate to offset the short term 'losses,' and that they need to fully fund agency information activities."
Weiss (2002): Borders in Cyberspace: Conflicting Public Sector Information Policies and their Economic Impacts, U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service.

"The failure to realize the potential in this market place is costing the national treasuries in the EU dearly in terms of lost revenue from taxation. If the European meteorological market were as well penetrated as that of the USA, then the actual market size would be around 1,390x106 Euro per annum. According to Eurostat the overall taxation return for EU countries in 2005 was 39.6% of GDP. To a first approximation then we might expect that the gross overall tax revenue from this sector would increase by around 340x106 Euro. If, to generate this, the NMHS were to lose all of their income from the sale of PSI, and all of their direct value added retail sales (which are assumed to be diverted to the private sector and are thus still within the total market size), then the net benefit to the EU central treasuries from this change in the trading structure of the market would be in the order of 290x106 Euro per annum and would be, if the US is any guide, growing at about 17% per annum in real terms, rather than at about 1.2% per annum as they now are."
Pettifer (2008): PSI in European Meteorology – an unfulfilled potential, R.E.W.

"Turning to the question of funding, there is a general proposition that public sector goods and services should be offered at efficient prices, unless there are compelling reasons to depart from efficiency. In the absence of beneficial (or harmful) spill-overs, the efficient price is marginal cost (with supply adapted such that the short and long-run marginal costs are equal). One reason for departing from efficient pricing is that the marginal cost is below the average cost, and that the benefits of a hard budget constraint outweigh the distortionary costs of raising the revenue to make up the short-fall, not from general taxation, but from raising the price of the products supplied. When it comes to charging `users' of public sector information the case for pricing at marginal cost or below is very strong for a number of complementary reasons (note that, for most digital data, marginal cost will be approximately zero). First, the distortionary costs of average rather than marginal cost

pricing are likely to be high because: a) the mark-up to cover fixed costs is high, as marginal costs are such a low fraction of average costs b) the demand for digital data as with other information services is likely to be high and growing c) there are likely to be large beneficial spill-overs in inducing users to innovate new services based on the data, as is evidently the case for other ICT services. Second, the case for hard budget constraints to ensure efficient provision and induce innovative product development is weak for public enterprises not subject to regulation and providing monopoly services without fear of competition. It would be far better to address issues of incentives, regulation and commitment explicitly rather than indirectly through budget constraints. Finally, for several services, the government is already providing effectively a large contribution to fixed costs, without allowing the public to enjoy the benefits of efficient pricing."
Pollock (2009): The Economics of Public Sector Information.

It is important to note that the transition from a cost-recovery regime to a zero/marginal cost model does not constitute a 'free lunch' since it may involve transition costs as well as additional public funding for the PSB which cannot rely any more on income from PSI sales. The transition costs and their financing are discussed in section 4.2.2.2. of this report.

4.1.4 PSI charging policies in other countries

PSI charging in both the US and Australia provide interesting comparisons with the situations found throughout Europe.

PSI charging policy in the US

By releasing their materials under non-exclusive, open content licenses, US government agencies have adopted the following policy position that states: by default, PSI that is made available for access can also be used and re-used. The US federal framework is unique in that, under Section 105 of the US Copyright Act, there is no copyright protection for information created by the federal government. This policy typically does not extend to information created and disseminated at the state or local levels.

As a result, US federal PSI promotes economic activity because there are no intellectual property restrictions and no adherence to strict cost-recovery policies. For instance, meteorological information created and shared by the National Oceanic and Atmospheric Administration (NOAA) stimulates economic activity – approximately 700 million US dollars annually – and leads to the creation of other value-added industries.

A 2011 report[35] highlights that the US has been active in disseminating and promoting the re-use of its PSI through three recent initiatives: the Data.gov portal, the National Institutes of Health Public Access Policy, and the Trade Adjustment Assistance Community College and Career Training Grant Program. These initiatives, and others, indicate an increasing interest from government and citizens in sharing and re-using PSI.

[35] Vollmer (2011): *State of Play: Public Sector Information in the United States*, European Public Sector Information Platform Topic Report No. 25.

PSI charging policy in Australia

Similarly, the Australian federal and state governments are increasingly grasping the social and economic importance of PSI. The Australian Government's Declaration of Open Government reaffirmed the federal government's commitment to this course of action, pursuing "open government based on a culture of engagement, built on better access to and use of government held information, and sustained by the innovative use of technology."[36]

A notable feature of the Australian experience is the use of open content licenses on copyright-protected PSI (they are primarily Creative Commons licenses). These licenses act not only as an operational mechanism for managing government copyright but also as a driver of information policy and the promotion of web 2.0 tools so as to increase the sharing of PSI through the Gov 2.0 Taskforce. A relevant venture is the Mash-up Australia initiative. It consists of a series of events that brought individuals together to innovate by using government datasets, creating new applications, comparisons, visualizations and demonstrations of how PSI can be used. The Mash-up Australia competition challenged members of the public to demonstrate how PSI can be assembled most creatively and made available online. To support the competition, the Gov 2.0 Taskforce arranged for the release of datasets from over 15 federal government agencies as well as some state and territory governments via a newly created beta data directory, data.australia.gov.au.

4.1.5 Concluding observations

These case studies indicate potential beneficial effects of lowered charges which are manifest in the downstream market, in the PSBs and at the level of employment and increased tax returns.

This triggers the question as to what has brought about such PSI pricing policy changes and why, in certain other cases, such changes are not taking place. These issues are discussed in the following sections.

4.2 Conclusions on the analysis of the case studies

The case studies illustrated in the previous section provide interesting insights into the key enablers and barriers to the adoption of a charging regime that is moving towards re-use facilitation costs recovery or marginal/zero cost regimes. This section summarizes the analysis regarding the change agents which influence such policy developments, and the elements that may help to overcome any obstacles to change.

Sub-section 4.2.1 analyzes the obstacles to PSI pricing policy change, whereas sub-section 4.2.2 states the enablers to change. Sub-section 4.2.3 offers concluding observations.

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36 Fitzgerald (2010): *State of Play: PSI Re-use in Australia, European Public Sector Information Platform Topic* Report No.13.

4.2.1 Obstacles to change

This sub-section focuses on elements such as the reliance on re-use revenues (what is called here 'the re-use revenues' reliance trap'), constraints posed by government organizations and financial structures, and the perceived risks of change.

It does not tackle other barriers to the broader perspective of opening up PSI for re-use such as the need for access, changes in culture, how to address fears (like losing control over data and deterioration of the organization's own position as a data holder) or legal uncertainties.[37]

4.2.1.1 The re-use revenues reliance trap

PSBs may have become reliant on the revenues generated by re-use. Other developments may worsen the situation.

Performance of public task is the key driver

First and foremost, a large majority of the PSBs interviewed do not seem to have principled objections to the lowering of their charges. Their main concern is the proper execution of the public task. As long as the public task – and its financing – is guaranteed, the lowering of charges does not appear to be a real issue in itself.

Reliance on the PSB's own exploitation of PSI becomes a trap

In the last decades, driven by the public mandate, PSBs have increasingly been pushed to recover part of their costs. This is creating a deadlock situation: although the PSBs tend to be sympathetic towards lowering charges and allowing more re-use, their dependency on revenues from the sales of their own raw data compels them to protect their current revenue streams if no sustainable alternative income stream is available.

Own added-value products make things worse

In those cases where PSBs are creating and exploiting added-value products (outside the public task) on top of their own raw data (which is generated inside the public task), the reluctance to move to lower charges is significantly higher. Many re-users have expressed the opinion that, in the event of the market presence of PSBs, this pulls PSBs into the potential danger zone of anti-competitive behaviour. This takes the form of high external charges and highly restrictive re-use conditions in the upstream market (for the re-use of raw data). This is combined with low – allegedly cross-subsidized – charges on the downstream market for added-value products. The absence or the relatively low numbers of re-users in the downstream market appears to be indicative of such situations (e.g. the case of the Dutch Cadastre).

Additionally, the PSI apps market is often distorted by those data holders who decide to develop their own apps. Apps based on PSI that is subject to a cost-recovery regime (such as

[37] For a comprehensive visualization of these barriers to change that includes over 100 barriers and solutions, see the summary of the SharePSI workshop 10 and 11 May 2011, Brussels called “Removing the Road Blocks to a pan European Market for PSI Reuse”: http://www.flickr.com/photos/epsiplatform/5736210453/sizes/l/in/photostream/

meteorological data) are often developed and offered by the data holders (or by large re-users) for free. This therefore limits the business possibilities of small apps developers. PSBs increasingly offer their services through apps, and are thereby competing with developers. Not only do the data holders offer their apps for free or at a very low price but they also sometimes decide to change the rules of the PSI re-use in order to protect these apps. Developers mention that it is often more profitable to develop apps for a PSB rather than to try to sell the app on their own.

4.2.1.2 Governmental organization and financial structures' constraints

A number of organizational and legacy constraints may face the PSBs in their efforts to alter charging regimes.

Current charging system creates a legacy

Changing PSI re-use charges does not simply mean putting another price tag on data. It requires a willingness to change existing practices, including processes, infrastructure, organization, procedures, legal frameworks, and most of all the perception of the tasks to be undertaken on the part of PSB staff. Accordingly, the difficulties associated with the change create barriers in themselves, especially where the gains are not immediate or fully certain.

PSBs holding the PSI have limited decision-making powers on charging

Typically, the PSBs concerned have a highly operational and executive task. Their power to make radical policy changes, including large changes in charging for the re-use of their PSI that affects their self-financing capacity, is often very limited or lies instead with a central Ministry. In those cases – even if there is some enthusiasm to lower prices – a hard sell towards the responsible Ministry is often involved.

Buy-in of PSBs is not self-evident

Conversely, where central governments embrace the concept of lowered re-use charges (which lately often takes place in the framework of Open Data policies), this does not automatically imply that PSBs accept this situation. Quite often the policy is not implemented. This is especially so in cases where the PSB has a strong and rather independent position or the policy-making Ministry is not the supervisory body of the particular PSB. The contexts of such top-down PSI policy changes are highly dependent on different national or regional styles of government. For instance, in the Netherlands, more than ten years ago, the PSI policy-making Ministry adopted a very re-use-friendly policy. However, this was never implemented by the large PSB data holders that were not only very independent but were also operating under the *aegis* of other Ministries.

Statutory provisions as obstacles to change

In some countries, such as Austria and Germany, there are statutory provisions that prevent the PSBs from changing their financing models. For instance, under German tax law, the *Verursacherprinzip* (benefit taxation principle) forces PSBs to charge re-users at least part of the data provision costs (*Kostendeckungsbeitrag*). This principle appears to work well, for instance, for levying transit taxes on the usage of roads. However, the question is whether it fits quite as well with respect to the economics of information. Interestingly, heavyweight

incumbent re-users invoke their interpretation of these rules to lobby against free provision of data to all types of re-users (e.g. the DWD case).

Benefits of lowered charges cannot be fully reaped by PSBs

Another aggravating factor resulting from governmental financing systems is that quite often at least a third governmental organization – the Treasury – is involved in the situation. The benefits from the lowered charges come together in the form of increased tax gains. Thus, the gains do not accumulate either with the Ministry that is willing to support the policy change or with the PSB that needs to implement the pricing policy shift in practical terms.

In some countries that operate on the basis of federal structures, these barriers are even more significant because costs and benefits are distributed over various levels of government or geography. For instance, additional corporate tax revenues from lowered re-use charges by the German cadastres, which are operating at *Länder* or even local level, would be consolidate in the main at the central federal level, thus complicating the compensation mechanisms even further.

4.2.1.3 Perceived risks of change

A number of perceptions about the risks of change colour the attitudes of the personnel in PSBs.

Sustainability of financial commitment to change

Lowering re-use charges may initially lead to higher costs and lower revenues, although probably less than PSBs would expect. To the extent that the public task is actually partly financed through returns from re-use charges (and PSBs' own exploitation of added-value products), PSBs will nevertheless need financial guarantees to cover the potential short-term losses incurred due to the policy change, in conjunction with the transition costs themselves. Such costs involve the training of staff, setting up a help desk, changes to technical infrastructure and legal support. These sorts of concerns were expressed by interviewees in many case studies, in particular those where the PSBs were profoundly affected by the re-use revenue reliance trap.

PSBs that are under public scrutiny particularly fear the tendency of central governments to give in to political pressure: they are concerned that they could be forced to move back to cost-recovery before the entire change process has been completed. In particular, data holders with large budgets (corresponding to large public tasks, for instance, cadastres or meteorological offices) are anxious about the risk of falling victim to political fads that advocate tax cuts by cutting their budgets and relying on their own revenues. These trends tend to take place in times of severe budget constraints. In those cases where the annual budgets are, ultimately, decisions negotiated and proposed by the government and approved by Parliament, the PSBs have very limited influence to alter the situation.

Incumbent re-users defend the status quo

Another source of anxiety voiced in the interviews is the tendency of those re-users which have heavy interests in the preservation of the status quo to do everything in their power to prevent the PSB from lowering charges because this may lower entry barriers in the re-use

markets. In particular, re-users that do not add much value to the data themselves, but rather rely on their strong distribution power – for instance in the downstream market of legal content (e.g. the CENDOJ and DILA cases) or in the meteorological sector (e.g. the DWD and Met.no cases) – have been reported to be active in lobbying against and sometimes even litigating to prevent PSBs from adopting lower charging schemes or generally more lenient PSI re-use policies.

4.2.2 Enablers of change

This sub-section discusses questions such as: What happened to those PSBs that actually made the move to a lower charging regime such as re-use facilitation cost recovery or marginal/zero cost pricing? What caused them to change and how did they overcome the obstacles to change? It ends with a series of "What if?" scenarios which examine what would be the costs and benefits of a policy shift towards marginal or zero cost charging occurring.

4.2.2.1 Triggers of change

The public task often provided a driver for change. Yet the policy shift could occur either top-down or bottom-up.

Public task as a driver for change

All the relevant case studies demonstrate that those PSBs that shifted in the direction of lower charges were driven by the conviction that the new model would bring more benefits than the existing one. A more effective performance of the public task was both the starting point and the objective. Interestingly, the real driver was not the perspective of increased revenues – which in some cases emerged as a side benefit – but the notion that serving re-users as part of the public task. To put it differently: the purpose of a PSB makes it highly likely that the interests of re-users are served in the realm of the public task.

Bottom-up vs. top-down

In some cases, the policy shift was generated from the bottom-up; in other cases, top-down. These examples are also referred to as 'selling' and 'telling' models. In the bottom-up cases, it was the PSB holding the PSI that took the initiative (e.g. BEV, Destatis, French Cadastre and Met.no). In many cases, the momentum was driven by inspired leaders in the PSBs who took action within the limitations of the existing framework. In most cases, where the movement was bottom-up, the business case was made upfront to justify the reason for change (what is referred to here as a ‘selling model’). In other cases, the need for change was imposed top-down through a clear political decision (the 'telling model’). This is reflected in the cases of the CENDOJ, DECA, KNMI, the Spanish cadastre and the UK Ordnance Survey.

4.2.2.2 Facilitating the transition

Different changes processes occurred. Some consisted of 'leaps of faith' and yet others produced circumstances that were 'eye-openers'. Quite a number of the case studies involved careful financing of the transition.

Some leaps of faith

In most cases where the movement was bottom-up, the business case had to be made upfront, in order to justify the reason for the change. Thus, the costs, the benefits and the financing of the transition process needed to be shown clearly. Sometimes the business case was backed up by market research undertaken (e.g. the BEV, French Cadastre and SIRCOM cases). However, quite often, interviewees acknowledged that, ultimately, there was often a significant 'leap of faith' undertaken: originally, there was no certainty as to the outcomes sought by the change, only a conviction that they were likely to happen and that the action was the appropriate one to take.

Eye-openers

In some cases, interviewees reported that it was only in the process of drafting the transition plan that the actual rationale for making the shift in organization was exposed. It was during this period that the fractional contribution of the re-use revenues was seen and a clearer picture emerged of the gains to be obtained both in terms of efficiency and effectiveness. For instance, in the Destatis case, the revenues from PSI sales were close to the costs of charging and licensing, thus yielding insignificant net revenues for the PSB.

Financing the transition

In terms of financing the pricing policy transition, the bottom-up cases had a more difficult time in finding the necessary resources. Quite often these resources had to be obtained internally or through 'project financing'. As an example, BEV relied on the price effects which generated the means to finance the transition to lower charges.

Conversely, in the top-down cases, the PSBs' negotiating position was somewhat different. In these cases, the PSBs often managed to obtain a form of compensation for the drop that occurred in their incomes, in particular in cases where revenues from their own exploitation of data were of some significance and entailed reorganization (e.g. KNMI and UK Ordnance Survey).

However, in both bottom-up and top-down circumstances, the PSBs interviewed declared that a clear path to transition and the financial means to do so have been of crucial importance.

The table below contains the key aspects of the transition plans of some of the PSBs that lowered their charging regimes.

Table 16: Transition financing measures of selected PSBs

PSB	PSI charging policy change	Transition financing measures
BEV	**Before policy change:** Cost-recovery **After policy change:** Cost-recovery (with price cuts of up to 97%).	▪ No additional state funding was provided to the PSB to finance the transition. ▪ The price cuts of up to 97% were financed by increased demand triggered by lower prices (+7,000% of demand for certain data sets). ▪ During the first four years after the policy change, the geo-PSI sales revenues actually went up by 46%. ▪ The relatively low costs of implementing the new pricing model were financed by own resources of the PSB.
DECA	**Before policy change:** Database non-existent **After policy change:** Re-use facilitation cost recovery	▪ The Danish municipalities that originally owned the data of the new national address database established by DECA were compensated through a one-off payment as well as the free future use of the DECA database. ▪ DECA received 3 M EUR of state funding to cover the initial investments to be made to establish the national database. ▪ A clear self-financing exploitation plan for PSI re-users was developed. The costs generated by re-use facilitation activities are recovered through re-use charges.
Destatis	**Before policy change:** Cost-recovery **After policy change:** Zero cost pricing + Premium accounts	▪ Before the policy change, revenues from PSI re-use were relatively small due to low demand. ▪ The drop in income after the switch to a zero cost regime was therefore limited and was mainly compensated by cutting the administrative costs associated with charging for PSI (e.g. licensing and online shop operation). ▪ No additional state funding was provided to the PSB to finance the transition. The relatively low costs of implementing the new pricing regime were covered by own PSB resources.
French Cadastre	**Before policy change:** Cost-recovery **After policy change:** Cost-recovery (with price cuts of up to 97%)	▪ No additional state funding will be provided to the PSB to finance the transition. ▪ The forthcoming price cuts of up to 97% will be financed by the expected increase in demand triggered by lower prices.
IGN-CNIG	**Before policy change:** Cost-recovery **After policy change:** Zero cost pricing / marginal cost pricing for non-commercial re-users + cost-recovery for commercial re-users	▪ The costs of providing digital data free of charge to non-commercial re-users could be covered by revenues from marginal cost requests as well as from revenues from commercial re-users. ▪ Due to a positive development of commercial sales and marginal cost requests, the level of income could be maintained at a level similar to prior to 2008 (i.e. many small transactions as opposed to only a few large ones).

KNMI	**Before policy change:** Cost-recovery + commercial arm **After policy change:** Re-use facilitation cost recovery	▪ The re-organization of the commercial arm with the aim of privatizing it was financed by state funding. ▪ The PSB further received 0.2 M EUR of public funding for investments. ▪ A clear self-financing exploitation plan for PSI re-users was developed. The costs generated by re-use facilitation activities are recovered through re-use charges.
Met.no	**Before policy change:** Cost-recovery **After policy change:** Zero cost pricing + re-use facilitation cost recovery for 'guaranteed delivery'	▪ To finance the transition to a zero cost regime, Met.no received compensation of 125,000 EUR from the Ministry. ▪ Other transition costs (a small amount) were covered by the PSB's own resources.
Spanish Cadastre	**Before policy change:** Cost-recovery **After policy change:** Zero cost pricing	▪ The costs of the transition to a zero cost regime are covered by the state budget. ▪ The full budgetary impact of the policy shift (April 2011) is still to be assessed.
UK Ordnance Survey	**Before policy change:** Cost-recovery **After policy change:** Zero cost pricing at the point of use for some less granular products + cost-recovery for higher quality products	▪ To enable the 'free distribution' of lower quality data, additional state funding was provided to the PSB by the central government. The amount of additional state funding is confidential. ▪ The full budgetary impact of the policy shift is still to be assessed.

What if? scenarios

The previous sub-section has illustrated how various PSBs successfully organized and financed their transition from a cost-recovery model to another pricing regime that is more favourable to re-users. This sub-section looks at the case studies under POPSIS objective B, i.e. PSBs that operate a cost-recovery model, and asks: "What would happen if these PSBs were to change their PSI charging policy in the direction of marginal/zero cost pricing? What would be the costs and benefits of such a policy shift?"

This analysis is purely hypothetical. It provides an abstraction of national contexts and specificities in the financing structures. This section should under no circumstances be seen as a policy recommendation for specific PSBs or groups of PSBs.

The table below provides an overview of the case studies under POPSIS objective B. It includes their absolute revenues from PSI sales as well as their cost-recovery ratios. The cases are ordered in alphabetic order by country.

Table 17: Cost-recovery ratios of the POPSIS objective B case studies

Country	Public sector body (PSB)	Sector	Total PSI sales revenues	Cost-recovery ratio
DE	BKG	Geographic information	0.08 M EUR	0.24%
DE	SenStadt	Geographic information	0.945 M EUR	10.38%
IT	Italian Cadastre	Geographic information	3.3 M EUR	0.50%
NL	Dutch Cadastre	Geographic information	17.5 M EUR	6.57%
DE	DWD	Meteorological information	2 M EUR	0.93%
ES	CENDOJ	Legal information	1.5 M EUR	16.67%
FR	SIRCOM	Fuel prices information	0.179 M EUR	15.91%
IT	Infocamere	Business register	30.6 M EUR	31.31%
NL	KvK	Business register	47.3 M EUR	19.50%
UK	Companies House	Business register	15.5 M EUR	20.73%

Many PSBs that operate cost-recovery models generate relatively small PSI sales revenues – in absolute terms (total PSI sales revenues) and in relative terms (cost-recovery ratio). It may therefore be argued that the potential costs of lowering PSI charges – mainly a potential drop in PSI sales revenues – are relatively small. Furthermore, the evidence in the previous sub-section has demonstrated that the costs of the policy transition itself appear to be very limited in the case studies that are categorized under POPSIS objective A. On the other hand, many case studies have revealed that lowering charges can lead to high potential benefits such as more economic activity, market dynamism, and innovation as well as improved data quality and PSB efficiency. A policy shift towards lower charges can therefore be beneficial for PSBs and the economies in which they operate.

In the following, the potential effects of a policy shift towards lower charges by PSBs that are currently building on a cost-recovery regime are discussed sector by sector.

In the geo-information sector, all case studies under objective B demonstrate low cost-recovery ratios. In the case of BKG and the Italian Cadastre, the ratios are even below 1%. The highest cost-recovery ratio in this group – 10% by SenStadt – corresponds to a relatively low absolute amount of PSI sales revenues: 0.9 M EUR. A shift to a zero cost pricing regime – as was undertaken by the Spanish Cadastre – would therefore only cause relatively limited costs (loss of income) that would have to be compensated by additional governmental funding. Yet, the cases of BEV and the French Cadastre show that substantial price reductions (up to 97% in both cases) are also possible without any additional governmental funding: the increased demand volumes which can trigger lowered prices may lead to stable or even increasing sales revenues. Indeed, BEV's lowered charges led to demand increases of up to 7,000% for certain product groups. In total, BEV was able to increase its geo-PSI sales revenues by 46% in the four-year period after the pricing review. These very low costs of lowering charges in the geo-information sector appear to contribute to potentially high benefits. All PSBs surveyed in the geo-information sector have experienced increasing re-use of their PSI. For instance, in the case of DECA, the number of re-users went up by 10,000% leading to a re-use market growth of 1,000% over eight years. The development of new re-use activities following price cuts generally leads to economic growth and more

employment, which ultimately results in higher tax revenues. In the case of DECA, it is estimated that the tax gains exceed PSB investment by 400%.

In the meteorological sector, DWD displays PSI raw data sales revenues of about 2 M EUR which corresponds to less than 1% of its total budget. Again, the potential losses from lowering charges may appear to be small when they are compared to the potential benefits. For instance, the free provision of meteorological PSI in Norway and the US and at prices limited to the re-use facilitation costs in the Netherlands has led to the emergence of strong private weather markets in these countries. The additional tax revenues of this economic activity are estimated to surpass the loss of PSI sales revenues. Besides these downstream effects, KNMI and Met.no have reported beneficial effects on their data quality and internal process efficiency. Indeed, through the intensified use of information, data deficiencies are flagged up and reported back to the PSBs. Furthermore, regular feed-back from re-users as well as contractual obligations from licensing agreements have led to more professionalism in the re-use facilitation activities and continuous improvement of internal processes.

All the business registers surveyed operate cost-recovery regimes with relatively high PSI sales revenues and cost-recovery ratios. This goes against the patterns observed in other PSI sectors and can be explained by the specific financing structure of business registers. Typically, business registers do not receive any governmental funding. Rather, they rely on two income streams corresponding to their main activities: (1) fees for registration of businesses and (2) charges for the provision of business information. The two activities generally do not cross-subsidize each other. Yet, there are substantial price differences between different business registers in Europe. While the entire dataset of UK Companies House can be purchased for about 1,340 EUR, each of Infocamere's re-users pays on average 720,000 EUR in licensing fees annually. Some business registers may therefore have the possibility to better exploit the price mechanism.

Lowered PSI prices could lead to additional demand and thereby maintain or even increase the income from information provision services. As experienced in other PSI domains, the increased demand for PSI may have beneficial effects on data quality and service delivery of the PSB due to more and intensified relationships with the re-users. In addition, lowered prices and better access to business information may lead to more transparency in the national economy as a whole. In the downstream markets, lowered prices may reduce barriers to entry, notably for innovative niche players. However, the downstream impacts of a policy move towards significantly lower charges are difficult to predict as there are currently no examples of business registries that provide company information free of charge or at marginal costs.

Hence, it appears that many PSBs that are currently operating a cost-recovery model may be able to benefit from a policy change towards lower charges. More importantly, the economy and society as a whole may benefit greatly from an increase in re-use of PSI.

Indeed, the POPSIS case study analysis indicates that the potential benefits of lowered charges for PSI re-use can be high. Lowered charges can lead to more economic activity, market dynamism, innovation and employment. They may also entail efficiency gains for the PSBs, notably with regard to data quality and internal processes.

Conversely, the potential costs of lowering PSI charges appear to be small. Unless zero cost pricing is applied, the price mechanism may actually increase the revenues rather than lowering them. The costs of a transition to lower PSI charges appear to be relatively limited. This is because, to a large extent, the knowledge and infrastructure needed by the PSBs already exist. The main effort lies in an adjustment of processes and mindsets to serve PSI re-users most effectively.

4.2.2.3 Consolidation of results

Various mechanisms can strengthen the shifts undertaken by PSBs. They include consolidation of the policy change, embedding it in law, and ensuring either self-sustainability or an irreversible character to the change.

Consolidating the policy change

In quite a number of case studies, especially among those moving to marginal/zero cost pricing, interviewees emphasized the importance of the consolidation of this policy change. As a PSB that has moved to zero cost pricing will become fully reliant on tax funding, it is in constant danger: in times of budgetary constraints, politicians may be tempted to lower the tax burden by turning the PSB back into a cost-recovery entity. To prevent that from happening, different complementary consolidation strategies are visible.

Codifying new tasks

Although time-consuming, the safest way to consolidate the new charging model and/or re-use policy appears to be the codification into legislation of the new task. This enables the PSB to create a first line of defence against reverse currents. This approach has been followed in the cases of DECA, DILA and KNMI. In the case of the KNMI it has taken about ten years to finalize the entire codification process.

Ensuring self-sustainability

In some cases (e.g. DECA and KNMI), the provision of data to re-users has become a business case in itself. All costs that are connected only to re-use facilitation are fully recovered (sometimes with a small margin to cover future investments). In these case studies, re-users have expressed their satisfaction with this model, as they feel that the prices are fair and the data quality provided and its delivery is worth the money. In this sense, the re-use policy becomes budget-neutral and it moves away from any perceived danger zone.

Ensuring an irreversible shift

Another complementary strategy is to secure the new charging model by establishing close ties with the clients to be served. This creates a 'need to have' character to the service. For instance, in the Met.no case, the free re-use model was combined with a step forward in the value chain to deliver detailed weather forecasts to society for free. Hence, the socio-economic business case was enhanced and the underlying philosophy (and the public funding) was protected by a 'human shield' that consisted of millions of visitors a week, including thousands of re-users. There are some parallels to be found with this strategy in the Destatis and DWD cases.

4.2.3 Concluding observations

In short, the most fundamental barriers to policy change are of financial, organizational and psychological characters. More specifically, they include the re-use revenues reliance trap, power and internal financing models, and anxiety with regard to a number of risks. A sound plan for transition including the financing of the transition process, a smart consolidation strategy and, most of all, the courage and the belief that re-use facilitation is part of the public task are needed to overcome these barriers.

5 Annex 1: Models for supply and charging for PSI (ABC) – Case studies

5.1 Introduction

This annex presents the full complement of public sector body (PSB) case studies on different models of supply and charging for PSI.

The table below provides an overview of the different case studies. It is ordered according to the type of data that the sector deals with (e.g., business register, geographic information, meteorological information and other forms of data). In each sector the cases are arranged according to the Member State in which they are located.

Table 18: Case studies overview

Country	Public sector body	Acronym	Sector
IT	Italian Chambers of Commerce	Infocamere	Business register
NL	Kamer van Koophandel	KvK	Business register
UK	UK Companies House	Companies House	Business register
AT	Bundesamt für Eich- und Vermessungswesen	BEV	Geographic information
DE	Bundesamt für Kartographie und Geodäsie	BKG	Geographic information
DE	Senatverwaltung für Stadtentwicklung Berlin	SenStadt	Geographic information
DK	Danish Enterprise and Construction Authority	DECA	Geographic information
ES	IGN-CENIG	IGN-CENIG	Geographic information
ES	Oficina del catastro	Spanish cadastre	Geographic information
FR	DGFiP	French cadastre	Geographic information
IT	Italian Cadastre Agency	Italian cadastre	Geographic information
NL	Dutch cadastre	Dutch cadastre	Geographic information
UK	UK Ordnance Survey	Ordnance Survey	Geographic information
DE	Deutscher Wetterdienst	DWD	Meteorological information

NL	Royal Dutch Meteorological Institute	KNMI	Meteorological information
NO	Norwegian Met Office	Met.no	Meteorological information
SI	Slovenian Met Office	ARSO	Meteorological information
ES	CENDOJ	CENDOJ	Legal information
FR	DILA	DILA	Legal information
FR	SIRCOM / APIE	SIRCOM	Fuel prices information
DE	Statistisches Bundesamt	DeStatis	Statistical information

5.2 Infocamere (IT – business register PSI)

Case study author: David Osimo (Tech4i2)

5.2.1 Key message

The Italian business register is the backbone for information used by business and company intelligence information providers in Italy. Through its company, InfoCamere, the System of the Chambers of Commerce delivers high-quality data on businesses. These data represent a pivotal component in the business intelligence services provided by national and international re-users.

A partial cost-recovery pricing model is applied, and the prices of both raw and processed data are set by the Italian Ministry of Economic Development. No changes in prices or pricing model have occurred in the last few years. *InfoCamere* receives 31 million Euros per year from 43 re-users, for an average income of 720,000 Euros per user. This represents about-one third of the revenues of InfoCamere.

Raw data are available to re-users who are also known as 'distributors'. Having access to raw data as a distributor is not an option for every paying customer. The selection procedure is subject to a number of criteria, such as size and technological capability. The number of re-users has remained stable over time and is heavily concentrated: the top three to four distributors account for nearly 80% of the business intelligence information providers in Italy, a market which is estimated at between 500 to 1,000 million Euros.

Overall, the size and structure of the market has remained stable in Italy (globally it is expected to grow at 4% CAGR), while *InfoCamere* revenues from PSI have slightly decreased in the last two years. One of the biggest re-users is *Cerved*. *Cerved* was originally owned by the Italian Chambers of Commerce. It was then separated from *InfoCamere*, sold to the banks and, finally, acquired by a private investment fund in 2008. *Infocamere* sells not only processed data as defined by Italian law but also value-added services, such as data visualization tools or iPhone apps, to end-users. According to the Italian Business Information Industry Association (ANCIC), this practice limits the development of third-party applications and services and represents a case of unfair competition. However, no case has ever been taken in court. The high prices of the Business Register data do not appear excessive to existing re-users, nevertheless, they could pose a significant barrier to entry for new players.

5.2.2 Key economic indicators

Indicator	Year 2010
PSB	System of the Chambers of Commerce
Entire organization	
Aggregated budget of 105 Chambers of Commerce + Infocamere	Not available
Total FTEs	5,300
FTEs involved in Business Register public task	1,700
Entire organization (InfoCamere)	
FTEs involved	500
Turnover	99 M Euro
Personnel Costs	38 M Euro
Re-use facilitation (infocamere)	
Price	Avg 720K Euros for access to full database
Revenue from selling data to re-users	31 M EUR (31% of total revenue[38])
FTEs involved	Not provided
Costs to facilitate re-use	Not provided
Re-users	
Number of re-users	43
Turnover generated by first 3-4 players	80%
FTEs employed first 2 players	484 + 1,300
Turnover first 2 players	250 M and 261 M Euro

5.2.3 Introduction

Since 1993, the System of the Italian Chambers of Commerce has been responsible for providing access to the Business Register. The information system and the provision of raw data are entirely managed by *Infocamere*, a consortium owned by the Chambers of Commerce.

Infocamere is closely monitored by the Italian Antitrust agency and has recently been sued by the association of re-users. It was accused of providing value-added services to end-users. The business information market in Italy, which is dominated by two to three main

[38] 20% of all revenues do not come from the Chambers of Commerce.

players, presents high barriers to entry due to the high pricing of the business register and a series of pre-requisites set by the *Infocamere* on the buying of raw data.

5.2.4 Organization, governmental structure, tasks

The Italian Chambers of Commerce, together with the Union of the Italian Chambers of Commerce, Industry and Handicraft (*UnionCamere*) and other public companies such as *Infocamere* (responsible for a number of digitalization and automation functions) form the System of the Chambers of Commerce (*Sistema camerale*) as defined by Italian legal reform in 2010 (Law n. 23/2010). The Italian Chambers of Commerce system consists of 105 Chambers of Commerce, 19 Regional Unions, 165 branches, 13 Regional Overseas Centres, 68 Italian Overseas Chambers of Commerce, 146 Special Companies, 67 European Bureaux and thousands of different holdings in infrastructure, companies, consortia and other organizations.

Law n. 580/93 identified one of the main public tasks of the Chambers of Commerce as providing the establishment of the Business Register (*Registro delle Imprese*), which consists of the Register of Companies (*Registro delle Società*) and the Register of Business Names (*Registro delle Ditte*). While each of the 105 Chambers of Commerce is formally responsible for collecting business name and registration data, a centralized database is managed by *Infocamere*, a shareholder consortium of the Italian Chambers of Commerce. The main task of *Infocamere* is to ensure the quality of the dataset, a real-time update of the information and the efficiency of a front-office service platform on the web called *Telemaco* (www.registroimprese.it). *Telemaco* allows professionals, businesses and the public to access this information online. All the information sold via the web through the www.registroimprese.it website is directly handled by *Infocamere*, while the Chambers of Commerce sell processed data only offline.

There are over six million companies in the Italian Business Register. They include:

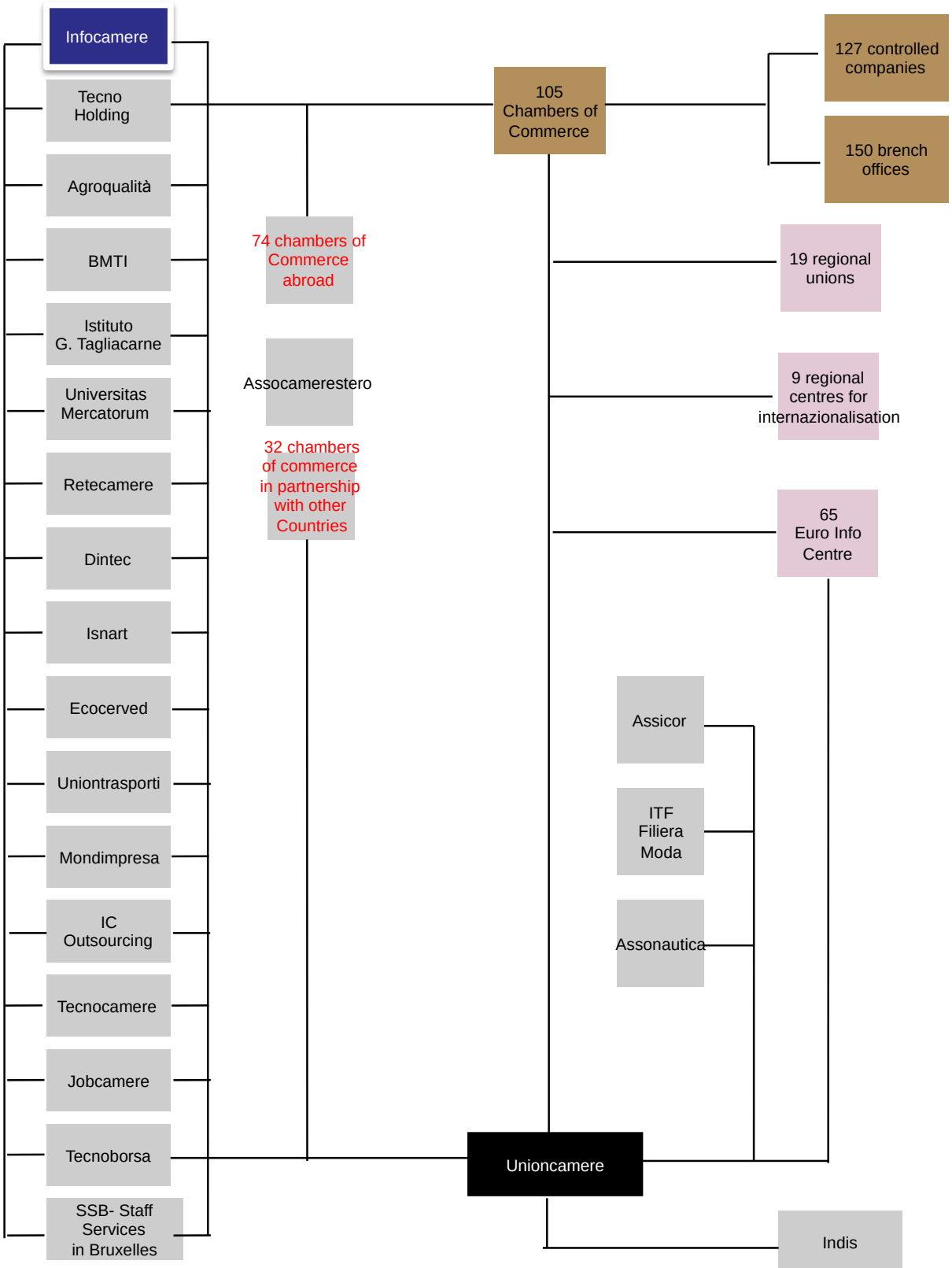
- 1,200,000 Limited Companies
- 1,200,000 Partnerships Companies
- 3,700,000 Individual Companies.

About one-third of the people currently employed in the whole System of the Chambers of Commerce (1,770 people) are dedicated to the Business Register public task. *Infocamere* employed 500 people in 2010.

The complex network that constitutes the System of the Chambers of Commerce in Italy is laid out in the figure below. It is adapted from the annual report of the Observatory of the

Chambers of Commerce at Unioncamere, 2010. The 105 chambers are represented at the national level by *UnionCamere* and own a number of public companies, one of which is *Infocamere*.

Figure 8 The System of the Chambers of Commerce in Italy



5.2.5 Budget, costs, revenues

Infocamere revenues in 2010 can be classified according to the table below.

Table 19: Revenues of InfoCamere by type and customer (2010, in thousand Euros). Source InfoCamere annual report.

Item	From other chambers	From customers	Total
Contributions	**4,183**		**4,183**
Data	**8,711**	**52,540**	**61,251**
Products	**3,725**	**0**	**3,725**
Services	**20,723**	**1,534**	**22,257**
Other	**1,661**	**522**	**2,183**
Total	**39,003**	**54,596**	**93,599**

This table shows that the vast majority of revenues from data come from customers, while the services are largely provided by *Infocamere* to the Chambers of Commerce. *InfoCamere* is the provider of most of the IT infrastructure of the Chambers of Commerce. In order to reach break even, *Infocamere* receives an annual contribution from the Chambers of Commerce that is variable, depending on the financial situation. For example, in 2009, the expected 5.8 million Euros contribution was lowered to 3.8 million Euros in view of the good financial results received from other revenue streams. Therefore, there are incentives in place to maximize revenues. In 2010, the publicly funded component of *Infocamere* revenues (the contribution from the Chambers of Commerce) was about 4.2 million Euros or 10% of total revenues.

The following table shows the three main types of costs connected to the production, management and selling of PSI. In 2010, software development was the main item (17 million Euros), followed by data entry and the updating of databases (6.5 million Euros) and hardware and software maintenance (4.5 million Euros).

Table 20: InfoCamere's costs mainly connected to PSI management and selling (2010, in thousand Euros). Source InfoCamere annual report.

Item	2007	2008	2009	2010
Hardware and Software maintenance	**6,173**	**5,767**	**5,108**	**4,588**
Software development	**17,449**	**35,694**	**33,512**	**17,658**
Data entry and database updating	**7,249**	**4,818**	**4,821**	**6,500**

5.2.6 Re-use policy and pricing

As with the other services provided by the Chambers of Commerce, the Business Register is funded by (a) a fixed fee that all registered companies must pay every year (*diritto annuale*) and (b) a variable amount of money, based on usage, that users must pay when accessing the information (*diritto di segreteria*). The level of payment for information access is set by the Ministry of Economic Development and must "take into account the average costs of production of the data and the connected services" (art. 18 Law n. 580/93). When the fees are updated, an estimate of the costs is undertaken by *Infocamere* and then validated by the Ministry.

The price model is therefore a partial cost-recovery model, since the price of the data may not cover entirely the costs of production.

A decree by the Ministry includes the fees to be paid for the different types of data, as reported in the following table.

Table 21: Price of processed data

Item	**Fee**
List/Registry office search (without prospect)	€ 0.60
Actual Duty Person Profile	€ 0.70
No longer active Duty Person Profile	€ 0.70
Full Person Profile	€ 1.00
Company Profile/Financial Statement	€ 2.00
Partner Profile	€ 2.00
Historical Person Profile	€ 3.00
Artisan Financial Statement	€ 3.00
Comprehensive Statement (Partners and owners of share actions royalties; Companies shareholdings; Main companies)	€ 2.00
Historical Comprehensive Statement (Market share transfers; Shareholdings; Companies shareholdings =; Main Companies)	€ 3.00
Simple Statement	€ 1.00
Protocol Statement	€ 1.00
Negative Protocol Statement	€ 1.00
Individual Companies Financial Statement	€ 3.00
Ordinary Limited Companies Record	€ 5.00
Ordinary Partnerships Record	€ 3.50
Historical Modified Statement	€ 2.00

Sole Proprietorships Historical Financial Statement	€ 4.00
Limited Companies Historical Financial Statement	€ 6.00
Partnerships Historical Financial Statement	€ 4.50
Limited Companies Business File	€ 10.00
Partnerships Business File	€ 6.00
Limited Companies Historical Business File	€ 11.00
Partnerships Historical Business File	€ 7.00
Artisan Certificate	€ 5.00
Registration Certificate	€ 5.00
Historical Certificate	€ 7.00
Personal Declaration Form	€ 5.00
Copy of Company documents	€ 3.50
Proceedings List	€ 0.00
Transfers of Company Divisions. Mergers, Spin-offs, Takeover Searches	€ 0.00
Proceedings Request	€ 3.50
Company Reports Request	€ 2.50
Last Company Reports Request	€ 2.50
Articles of Association Request	€ 3.50
Transfers of Company Divisions, Mergers, Spin-offs, Takeover Request	€ 3.50
Extended Company List	€ 5.00
Extended Company List (for position)	€ 0.12
Company Address List	€ 5.00
Company Address List (for position)	€ 0.02

Although the latest formal update of the decree setting the prices took place in 2009, no significant variation in prices has occurred during the last five years.

The price of processed data varies significantly according to the type of information requested and its details. It is also possible to buy a database extraction (called a 'list') containing the name and address of selected companies and other information such as tax code, VAT number and economic activity. The price of the list is composed of a fixed part (€1 for each business) and a variable part depending on the level of detail requested.

Raw data are sold in the form of direct access to the database through a protocol named AICA, which requires a subscription and a specific agreement. The price includes a variable component (*diritto di segreteria*), which is proportional to the number of records acquired

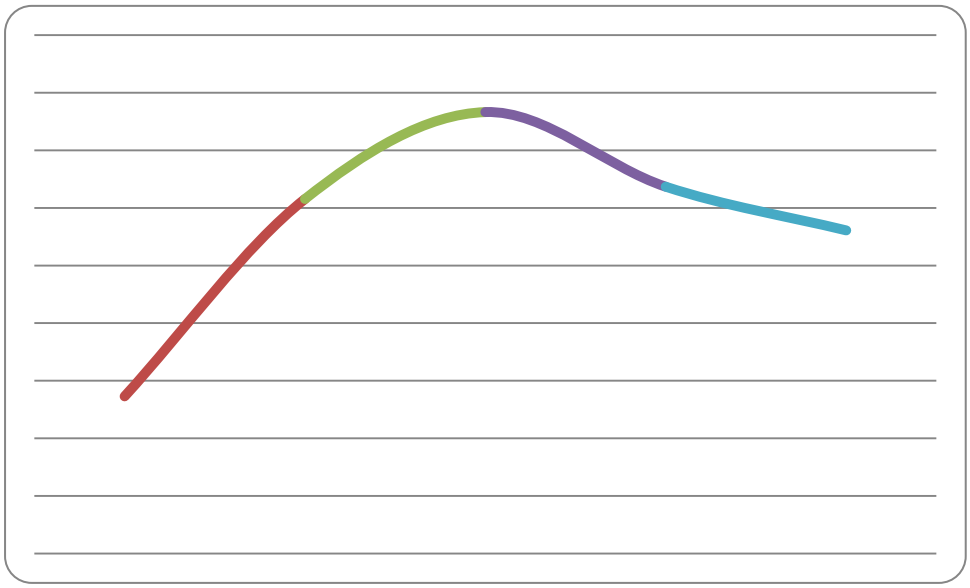
and is based on a set of standard figures set by the Ministry of Economic Development, and a fixed component set by *Infocamere*. The price of access to the raw data is relatively substantial. The 43 distributors bring an annual revenue of about 30 million Euros to InfoCamere at an average cost of 720,000 Euros per re-user. This price is considered fair by the Business Information Industry Association (ANCIC), when compared to the costs faced by *Infocamere*.

Direct access to the data at the maximum possible level of detail is guaranteed to distributors, and is based on a standard distribution contract signed with *InfoCamere*. Distributors are private companies involved in the sale of economic and commercial data to the public. They frequently provide value-added services such as ratings and other business intelligence services.

The Italian Antitrust Authority prevents *Infocamere* from selling value-added services to end-users in order to foster the re-use market created by the business register data. In fact, according to ANCIC, some of the services provided by *Infocamere* through the www.registroimprese.it website should be considered as value-added services. This is the case of "RI.map", a tool for data visualization which has advanced search functionalities (such as sector, size and employees) and uses Google Maps to find the location of Italian firms. Ri.visual allows users to search through companies' ownerships and relationships. "RI", a similar free application for iPhone, was launched in 2010 by *Infocamere*. On this basis, the association of re-users sued *Infocamere* in July 2010.

Taking into account the annual revenue of *Infocamere* generated from the sale of data, distributors account for around 30.6 M EUR (or 20% of total revenue) from clients other than the Chambers of Commerce. In absolute terms, the revenue from re-users grew between 2006 and 2008, but then declined, as the figure below shows.

Figure 9 Revenue from selling data to re-users (2006-2010)



Source: Infocamere Annual Reports 2007-2010

Revenues largely come from distributors. A minor component is due to lawyers, accountants and business associations. In 2010, *Infocamere*'s revenues were classified as shown in the table below.

Table 22: Revenues from the sales of data by type of customer, Y2010 (source: InfoCamere annual report)

Customer	**Revenues (M Euros)**
Revenues from distributors (re-users)	**30.7**
Revenues from associations and professionals	**8.1**

5.2.7 Impacts of the re-use policy

There are 43 re-users of data from the Italian Business Register. They are called 'distributors' as they sign a special contract with the *InfoCamere* in order to gain direct access to the Business Register. The term of 'distributor' is a legacy from several years ago. It suggests a perceived low added-value activity on the part of the re-users, which is at odds with the highly dynamic market of business information. These distributors include global players such as DNB and Experian, and national companies such as *Cerved* and CRIBIS. The complete list of distributors includes: Adc Network, ARC Group, Assicom, Byte Multimedia, *Cerved*, Credinform, Crediti e Finanza, Creditreform, CRIBIS, DCS Software e Servizi, Dnb, Experian,

Fisco e Tasse, Fox & Parker, Fraem Servizi, Geo web, Gruppo Sirio, Home On Line, Infonet, I supporti BS, Italia Commerciale, Libreria Giuridica Edinform, Lince, MF Honyvem, ODP Servizi, Omnitalia, Osirc, Ponzi, PosteItaliane, Rcs, Ribes, Seat Pagine Gialle, Servizi Cgn, Sintesi, Sistemi, Sistemia, SOAR, Studio-Eureka, Teleinform, Telematica Italia, Teleprotesti, Unappa Servizi, Visura and Zucchetti.

There are specific prerequisites to become a distributor. In fact, the *InfoCamere* website refers to 'applications' to become distributors. Prerequisites include size, nature of the company, type of technologies and the volume of information processed (http://www.infocamere.it/requisiti.htm). In the last few years, these requisites have become less stringent and this has contributed to lower the barriers to entry.

The leading three to four players, which include *Cerved*[39] and CRIF[40], account for nearly 80% of the business intelligence industry in Italy. In 2004, this high concentration of use led to investigations by the Italian Authority controlling competition and markets. It resulted in a decision against *Infocamere* and *Cerved Spa* based on alleged unfair competition.

In particular, *Cerved* has been a leader in providing Italian business information for almost 30 years. *Cerved* has an interesting history of progressive independence from the Chambers of Commerce system, and was originally a joint company with *InfoCamere*. It was created by the Chambers of Commerce of the Veneto Region in 1974. In 1995 the work was split between *infocamere* and *Cerved*, which was still owned by the Chambers of Commerce. In 2002, the company was bought by *Centrale dei Bilanci*, a business intelligence company owned by Italian banks. In 2008, private equity funds Bain Capital and Clessidra bought 92% of *Cerved*. The company offers solutions in assessing the economic and financial structure and reliability of businesses and market ratings, with an annual value of production of more than 250 million Euros. Ninety per cent of Italian banks use its services.

CRIF, which is based in Italy, is currently the market leader in continental Europe in the field of banking credit information. It is one of the main international players for business and commercial information and credit and marketing management services. It has more than 1,800 clients among banks and financial institutions and a total 2010 revenue of 261 million Euros. In 2009, CRIF created a strategic alliance with Dun and Bradstreet (D&B) in Italy.

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[39] www.cerved.it

[40] www.cribis.it

CRIF and D&B have launched a series of innovative value-added services. For example, a service named "Cream" processes business information through a semantic engine to monitor the online reputation of a company and its competitors.

Using these data, the total business information market in Italy is estimated to be around 500 to 1,000 million Euros. This is consistent with the total global market figure provided by ANCIC of 369 billion Euros as the total value of the information market. The importance of this market cannot be overestimated: especially during the financial crisis, access to real-time trusted company data is a fundamental competitive asset across all economic sectors.

Two elements might reduce the re-use of public information by private sector organizations. The first is the price of raw data for re-users which is significant, and the second is the pre-requisites that potential re-users must meet. The current fees are considered to be fair by existing re-users (which may benefit from high prices in order to limit the number of new entrants to the market). However, a switch to a marginal cost pricing model could lower the barriers to entry and encourage the development of innovative SMEs.

Moreover, *Infocamere* offers not only processed data as defined by its public task but also value-added services such as data visualization tools or iPhone apps. According to ANCIC, this practice clearly limits the development of third-party applications and services and represents a case of unfair competition, although no decision has been made in a court case and most of the information provided is already available on the public website. It has not been clearly demonstrated to what extent such a service can be considered as really "value-added" or is simply part of the core tasks of Chamber of Commerce.

5.2.8 Key sources

Background information available on the *Unioncamere* and *Infocamere* websites (www.unioncamere.gov.it and www.infocamere.it) and on the EPSI platform website (http://www.epsiplus.net), and *Cerved* and CRIBIS websites.

Infocamere Annual Reports 2006, 2007, 2008, 2009 and 2010.

Interviews

Interview held with Mr. Pierluigi Sodini, manager of the Business Register unit at *Unioncamere*, (26 April 2011).

Interview held with Mr. Cosimo Elia, *Cerved*, President of the Business Information Industry Association (ANCIC) (30th May 2011).

Interview held with Mr. Marco Preti, CIO of Cribis D&B (Criff) and vice-president of the Business Information Industry Association (ANCIC) (30th May 2011).

5.3 Dutch Chamber of Commerce (NL – business register PSI)

Case study author: Marc de Vries (Citadel Consulting)

5.3.1 Key message

The Dutch Chamber of Commerce (*Kamer van Koophandel* or *KvK*) relies completely on revenues that come from businesses and other organizations. It does not receive any contributions from the state budget (except for some specific project-based subsidies). The relevant budgetary aspects of the Chamber's activities that are relevant to this study include the maintenance of the national Business Register (*Handelsregister*).

The Chamber receives around 67.4 M EUR (about 56%) from the data entered in the register (*de registraties)*, and 53.3 M EUR (about 44%) from output from the register 9and the associated provision of information (*de verstrekkingen*)). This approach is based on the policy principle set out by the supervising Ministry (the Ministry of Economic Affairs, Agriculture and Innovation). The intention is to cover as many of the costs as possible from the provision of data, and other remaining costs from the annual fee which is levied on the registered members.

Thus there are two trends operating in parallel that are in opposition to each other. The first is the maintenance of the costs of registration at the current level or even lower than that level. The second is the indication that the central government in The Hague (where the Ministry of the Interior and Constitutional Affairs has the formal lead) is in the process of embracing the spirit of open data: this approach may lead to the need to reduce charges for re-use as much as possible. If the principle of the minimization of registration costs is not to be altered during the process of moving towards open data (which would in parallel lower charges), relevant funds would need to be provided in some other way.

In this context, the freedom of operation of the KvK to 'self-finance' such a transition would be fairly limited: the applicable legal regime very much restricts the way in which the KvK can operate in using new products and services. This difficulty was confirmed by The Hague District Court in 2009 in the 'Easystart' case, when the court ordered the KvK to cease the provision of a free service – the KvK Business Plan *(Het KvK Ondernemingsplan)*. This was held to be in unlawful competition with the private sector. The case is currently under appeal. Furthermore, the recent Law on Market and Government *(Wet Markt en Overheid)* which aims to limit market activities by PSBs, may intensify the ongoing debate on the bulk sale of data by the KvK.

5.3.2 Key economic indicators

Indicator	Year 2010		
	Total	Registrations	Provision of information
PSB			
PSB budget	240 M EUR		
# FTEs	1943		
Registration task			
Turn over	120.7 M EUR	67.4 M EUR	53.3 M EUR
Costs	117.8 M EUR	92.8 M EUR	25.1 M EUR
Result	2.8 M EUR	-25.4 M EUR	28.2 M EUR
# FTEs		1075	N/A
Turnover from users			
Users from the government	N/A		6.0 M EUR
Users outside the government	N/A		47.3 M EUR
Buyers of address data (both government and non-government)	N/A		5.3 M EUR

5.3.3 Introduction

There are twelve regional autonomous Chambers of Commerce in the Netherlands. Although the Chambers are involved in a wide variety of tasks, some of these are specifically related to the maintenance and running of the business register which is by far the most important form of PSI that the Chambers produce. The responsibility of running the register is largely allocated to the umbrella organization of the Chambers of Commerce – the Association of Chambers of Commerce (KvK NL). From here onward, therefore, this case refers to the Chambers of Commerce organization as if it were a single legal entity: the KvK.

In carrying out its registration task, the KvK keeps information on trade names, representation capacities, official addresses and financial accounts. The current register holds details on over 2.2 million businesses, associations and foundations throughout the Netherlands and is consulted several millions of times every year. The Ministry of Economic Affairs, Agriculture and Innovation acts as the supervisor of the registry on the government's behalf.

The KvK is financed by the regional business community on the basis of the principle of direct benefit: costs are passed on to customers wherever possible and individual users of products and services are charged breakeven prices. In addition, all registered businesses pay an annual fee. This income is used exclusively to finance activities that promote the interests of the regional business community. The Ministry monitors the subscription charge.

5.3.4 Organization, governmental structure, tasks

The legal framework surrounding the KvK consists of the Chambers of Commerce Act *(Wet op de kamers van koophandel en fabrieken 1997)*, the Legal Framework on Independent Governing Bodies *(Kaderwet op de ZBO's)* and the Business Register Act *(Handelsregisterwet)*. KvK NL directs the activities, and promotes the interest of the Chambers in coordination with the Ministry.

The Chambers of Commerce Act contains provisions on the organization, the board, the tasks and the financing of the KvK. Article 2 of the Act defines the purpose of the establishment of the Chambers: *"Across the country there are Chambers of Commerce and industry aimed at promoting the economic interest of trade, industry, craft and services in their area."* Accordingly, the KvK can only perform tasks that are aligned with the objective of this article. The Business Register tasks of the KvK are mandated to the KvK through the Business Register Act (*Handelsregisterwet)*. On the basis of this Act, the KvK maintains the register that lists all the companies and legal entities in the Netherlands.

Chapter five of the Chambers of Commerce Act defines the KvK's remaining tasks and conditions of their execution. The KvK is allowed to operate on the market, however, under strict conditions. These conditions are dealt with in this case under the section on impacts on re-users.

5.3.5 Funding and costs

In 2010, the total income of the KvK amounted to 240 M EUR and it employed 1,943 FTEs. Specifically, the maintenance of the register costs about 67.4 M EUR which comes from the intake of data into the register (*de registraties),* and 53.3 M EUR from the provision of information from the BR (*de verstrekkingen)*, its output which is its 'legal certainty' products.

Focusing on the input side, 7.4 M EUR is collected by the KvK from new registrations, and the remaining 60 M EUR from an annual levy which each registered organization must pay.

On the output side, 6 M EUR is collected from the government – e.g. the Fiscal Authorities pay 2 M EUR per year. The remaining element, 47.3 M EUR, comes from the sale of data to re-users outside the government. These re-users include those entities which are under a legal obligation to use the data (like civil notaries who need to check the capacity of a person to represent a company when selling shares) and others for whom the use of the data is not compulsory but is otherwise needed (such as a telecom provider doing due diligence on an organization with which it wants to enter into a contract).

A large volume of the 'profit' (29.1 M EUR) comes from the online application that enables the retrieval of digital extracts. About 5.3 M EUR is generated through the bulk sale of data to re-users for whom the register data forms a large and essential part their products. They include organizations which are both governmental and non-governmental: the latter includes 'heavy' re-users like D&B. The KvK does not itself provide any added-value products.

The table below clearly demonstrates that, in line with government policy, the provision of information covers the 'losses' incurred on the intake activities. In particular, the provision of digital extracts enables this cost coverage in conjunction with the sale of addresses (which is, however, small in volume in terms of the absolute numbers of 5.3 M EUR turnover and 3.5 M EUR profit).

Table 23: Consolidated revenues and costs under the registration task of the KvK in 2010

Registration Task (in M EUR)	Revenue	Costs	Result
Registration – input side (incl 60 M EUR levies)	**67.4**	**92.8**	**- 25.4**
• Deposition Annual Statements	0	6.1	- 6.1
• Maintenance of Register	7.4	86.7	- 79.3
Provision of information	**53.3**	**25.1**	**28.2**
• Extract on paper	11.2	5.9	5.3
• Telephone access and extracts (KvK NL)	0.4	1.4	- 1
• Digital extracts	29.1	11.6	17.5
• Annual reports on paper	0.2	0.7	- 0.5
• Other transcripts on paper	0	0	0
• Digital annual reports (KvK NL)	7.1	3.7	3.4
• Addresses (KvK NL)	5.3	1.8	3.5
Total	120.7	117.8	2.8

The number of FTEs involved in the registration task amounts to 1,075. The KvK could not establish how many FTEs are involved in the facilitation of re-use as no record is kept of this. Furthermore, the decentralized structure of KvK complicates such an assessment. All the individual Chambers of Commerce keep separate accounts and their consolidation is only undertaken at a limited level.

5.3.6 Pricing and re-use policy

Here the issues of both the pricing of products for re-use and the legal limitations on the re-use of data are covered**.**

Pricing of products for (re-)use

Setting charges, including charges for re-use, must be seen against the KvK's general policy of cost-recovery. The KvK attempts to minimize registration costs by trying to cover as many costs as possible through the provision of information. Any costs remaining are covered through the revenue of the annual statutory-based levies for entities that have registered or are newly registered. Ultimately, the charges are set on a yearly basis through the approval of the supervising Ministry in the form of a General Administrative Measure (*Algemene Maatregel van Bestuur*).

In establishing the charges for its information products, the KvK divides the revenues sought among the number of records expected to be bought in any given year (based on trends and numbers of previous years). Accordingly, it can set the charges for any information products: these range from a single extract to a full copy of the register. Bulk data are delivered through a CD-ROM or an FTP-server (which are called 'off line services').

Legal limitations on the (re-)use of data

The KvK uses standard terms and conditions when licensing its PSI. Under these terms and conditions, the KvK grants re-users a non-exclusive license to use the information. Where the KvK does not hold any intellectual property rights, including database rights, re-users are allowed to resell the data. However, this re-use is limited: re-users are not allowed to use data externally that have been tagged with a 'non-mailing indicator' by registrants. This tagging technique prohibits re-users from approaching these registered individuals or organizations through direct marketing activities. However, strict internal use, for instance cross-checking their own databases against the KvK data, is allowed. This provision is backed

up by a 'chain clause' which obliges re-users to pass on this obligation to all their clients. In the event that this clause is not observed, the re-user has to pay a fine of at least €11,344.51.

5.3.7 Impacts on the re-users

The register is a public register: it therefore needs to be 'open'. Where the register also holds personal data (e.g. of natural persons, like directors of companies), this raises privacy issues. Accordingly, the searchability of personal data is restricted, except for special users such as the Public Prosecutor.

The provision of data to re-users by the KvK is occasionally scrutinized by registrants, lobby organizations or politicians. These stakeholders have argued that the KvK should refrain from selling its data as (a) it has received these data against payment and (b) it may enable spamming activities. Even if spamming is prohibited under the KvK's general terms and conditions, policing this obligation appears to be difficult.

The exploitation of data on the market by the KvK is also a keenly-debated issue. Under article 29 of the Act on the Chambers of Commerce, the KvK can decide to exercise other tasks provided that these are aligned with its statutory goals. However, under article 30 of the Act, the KvK can only undertake such activities (a) if these are not undertaken by the private sector already and (b) provided this does not lead to any competition with the private sector which is considered undesirable from the perspective of market function.

Furthermore, the KvK must refrain from activities that may distort competition between private sector players. In the last evaluation report on the KvK (*Berenschot, Evaluatie van de wetswijziging van 1 januari 2008 van de Wet op de Kamers van Koophandel en Fabrieken 29 april 2010*), some re-users alleged that the KvK offers products that are also sold by the private sector. This tension is illustrated by the 'Easystart' judgement of the District Court in the Hague of September 16, 2009. The Court ruled it to be unlawful that the KvK was offering a free product called KvK Business Plan *(Het KvK Ondernemingsplan)*. It considered that this activity was not part of the public task of the KvK. Rather, it fell under article 30 of the Act on the Chambers of Commerce since similar products are offered by the private sector. Accordingly, the Court judged that the KvK should cease these activities. The KvK has appealed against this decision, which is now pending in the Court of Appeal in The Hague.

Interestingly, there has also been tension at the low end of the market. Representatives of the Open Data community launched a competitive service called 'openkvk.nl'. This initiative opened up basic data (such as the name of the registered entity, its number and address) for free 24 hours a day, 7 days a week, as a response to the fact that the search engine of the KvK website was closed at midnight.[41] Meanwhile, the KvK website has now opened 24/7.

The implementation of the 'Market and Public Sector' law (*Markt en Overheid*) may also impact the re-use policy of the KvK. This law was adopted by the Dutch legislator in March 2011, after years of political discussions. Briefly paraphrased, the law imposes a code of conduct upon PSBs that undertake' economic activities: it prohibits them from using public funds for economic activities, unless this is necessary for the public interest. Furthermore, a PSB may not use its PSI, generated under the public task, for economic activities (that are not aimed at execution of the public task), unless the PSI is also made available to third parties. Obviously, this law will not affect the core of the public task of the KvK, in particular the provision of 'legal certainty products' that does not require an 'open' business register. However, it may raise issues with regard to the bulk sale of data. Therefore, it is likely that, in the context of the Open Data movement, this issue will be debated further in the near future.

5.3.8 Key sources

- Background information available on the website of the KvK (www.kvk.nl) and numerous official publications.
- Berenschot – Evaluation of the amendment of 1 January 2008 of the Chamber of Commerce Act, study from 2010.
- *EasyStart BV and Visionplanner BV vs Vereniging Kamer van Koophandel Nederland*, decision of September 16, 2009 of the District Court of The Hague (case number 304838/HA ZA 08-571) .
- Interview held with Mr G. Knoop, former CEO of the Dutch association of Chambers of Commerce (CC), Blaricum, the Netherlands, January 18, 2011.
- Interview held with Mr K. Keuzenkamp, Deputy director Services, Deregulation and Information Policy of the Ministry of the Interior and Kingdom Relations, The Hague, the Netherlands, January 19, 2011
- Interviews held with Mr F. Keij, Information Manager Business Register, Mr R. Dun, International Relations Business Register, and Mr P. Jong, Director Office Business Register, The Hague, the Netherlands, May 17, 2011 and June 8 and 27, 2011.

[41] This was the case on the KvK website.

5.4 Companies House (UK – business register PSI)

Case study author: Paul Foley (Tech4i2)

5.4.1 Key message

Companies House provides a good example of a Trading Fund organization that has remained remarkably stable over a long period. Prices for products remained static between 2005 and 2010. Small reductions were introduced in April 2010; for example, the price of most bulk products decreased by 10%.

The sale of data contributed £13.8m (20.8% of total income) in 2009/10. Bulk data sales (of large parts of the core database that are regularly updated) to companies such as Dun and Bradstreet (D&B) and Experian contributed about £1m (7.3%) to the dissemination income. Twenty thousand subscription account holders (mainly SMEs such as lawyers and accountants) contribute about £8m (58.0%) to dissemination income. The remaining £4.8 m (34.8%) of dissemination is derived from one-off web users who search the website at the cost of £1 per company. The costs directly associated with the sale and dissemination of data were £12.7m (19.0% of total expenditure).

Companies House budgetary and pricing procedures are governed by a number of different factors. United Kingdom (UK) Trading Fund regulations state that year-on-year income should be sufficient to meet outgoings that are properly chargeable to the revenue account.

Companies House is a Trading Fund and must operate on the basis of cost-recovery. Companies House fees are linked, as required by European Law and HM Treasury guidance, to the forecast cost of providing each service and also to the way in which Companies House customers access them. Companies make a payment to register their details when the company is established and annually thereafter to update details. The amended 1st Company Law Directive requires copies of company records to be made available to the public at a price not exceeding the “administrative cost” of producing them.

5.4.2 Key economic indicators

Indicator	2004/5	2007/8	2009/10
Income	**£56.9m**	**£67.7m**	**£66.4m**
Registration income	£41.4m	£53.5m	£50.5m
Dissemination; sale of data and information income (dissemination as a percentage of income)	£14.2m (25.0%)	£14.1m (20.8%)	£13.8m (20.8%)
Expenditure	**£55.3m**	**£65.6m**	**£66.7m**
Registration activities	£39.8m	£51.5m	£52.7m
Dissemination activities (dissemination as a percentage of expenditure)	£14.1m (25.5%)	£12.5m (19.1%)	£12.7m (19.0%)
Staff costs (staff as a percentage operating costs)	£26.5m (48.1%)	£33.3m (51.7%)	£34.3m (53.0%)
FTEs (actual year end)	1,182	1,098	1,063
Use			
Company equivalent searches (images)	2.6m	4.0m	5.0m
Breakdown of 2009/10 dissemination income: £1.0m (7.3%) from bulk data sales; £8.0m (58.0%) from subscription account holders; £4.8m (34.8%) from one-off searches by web users.			

Source: Annual Reports

5.4.3 Introduction

All limited companies in England, Northern Ireland, Scotland and Wales are registered at Companies House, an Executive Agency of the Department for Business, Innovation and Skills (BIS). There are more than 2.5 million limited companies registered in Great Britain, and more than 350,000 new companies are incorporated each year.

The UK has had a system of company registration since 1844. Today, company registration matters are dealt with in law by the Companies Act 2006.

The Companies House Annual Report 2009/10[42] suggests that, on an average day, there were over 500,000 searches on company details, and over 400,000 companies' details are accessed. During a random two-day period, 22% of the entire register was searched.

This reinforces the need for customers (those organizations that submit details to Companies House) to provide accurate and up-to-date information for the register, to enable search customers (re-users of the PSI) to make confident decisions. Companies House strives to improve the register's integrity and completeness. During 2009 there was an increase in late filing penalties and a change to Companies House processes that meant that defunct companies have been removed from the register more swiftly. These changes have resulted in record compliance rates – 97.9% of companies now have up-to-date accounts on the register compared with 94.9% in 2008/09.

5.4.4 Organization, governmental structure, tasks

Companies House became an Executive Agency on October 3, 1988 as part of the Government's Next Steps initiative. The Agency subsequently took on a range of delegated powers from the then Department of Trade and Industry (now the Department for Business, Innovation and Skills) relating to Finance, Personnel and Support Services. It started operating as a Trading Fund on October 1, 1991.

This has provided a financial framework outside Vote finance,[43] that covers all operating costs and receipts, capital expenditure, borrowing and the Trading Fund's net cash flow.

Major UK legislation under which the Agency operates is the Companies Act 2006.[44]

Companies House has two main areas of activity:

1. Information registration, including the incorporation and striking off of companies, and maintaining a register of the documents delivered under companies, insolvency and related legislation.
2. Information provision to the public on companies, for which purpose compliance is enforced with the statutory requirements on registered companies. This is available to customers in a variety of formats (such as via internet or on a DVD) to Companies House's own services and to daily updates of more substantial data sets. Companies House continues to develop its business along quasi-commercial lines within the overarching legislative framework.

[42] http://www.companieshouse.gov.uk/about/pdf/annrep2009_10.pdf
[43] ibid 1
[44] http://www.legislation.gov.uk/ukpga/2006/46/contents

An Her Majesty's (HM) Treasury Minute of July 21, 2009 clarifies the Trading Fund status of Companies House. The trading fund for the Companies House Executive Agency was established on October 1, 1991 under the Companies House Trading Fund Order 1991. Section 4(1) of the Government Trading Funds Act 1973 provides that a trading fund established under the Act shall be under the control and management of the responsible Minister and, in discharge of his function in relation to the fund it shall be his duty:

A) To manage the funded operations so that the revenue of the fund:

(i) Consists principally of receipts in respect of goods or services provided in the course of the funded operations; and

(ii) Is not less than sufficient, taking one year with another, to meet outgoings which are properly chargeable to revenue account; and

B) To achieve such further financial objectives as the Treasury may from time to time, by minute laid before the House of Commons, indicate as having been determined by the responsible Minister (with Treasury concurrence) to be desirable of achievement.

The UK Companies Act 2006, which received Royal Assent on November 8, 2006, brought major benefits to business by modernizing and simplifying company law. It also changed Companies House operating requirements, but did not affect the fundamental structure of Companies House.

Activities concerned with the European First Company Law Directive,[45] enacted as part of the Act, came into effect on January 1, 2007. The primary impact of the Directive was to increase facilities for e-communications with Companies House. The key changes required by the Directive were:

- Company registries are required to allow companies to file all the "basic documents" electronically (specified in Article 2 of the First Company Law Directive);
- Company registries are required to allow requests for inspection of these documents to be made electronically;
- Company registries are required to offer electronic copies of these documents to those inspecting the register;
- Company registries have to keep all these documents in electronic form, whether submitted electronically or in paper form;

[45] http://www.bis.gov.uk/files/file36201.doc

The amended 1st Company Law Directive requires copies of company records to be made available to the public at a price not exceeding the "administrative cost" of producing them.

Companies House was established through the introduction of public dividend capital, and three 15-year loans from the Department of Trade and Industry which were fully repaid in 2007. A further loan of £4.5m was obtained from the Department in March 2009 to enable further investment to take place in capital programmes in 2009/10 and 2010/11. This loan was to have been fully repaid by March 2011.

2009/10 saw the final implementation of the Companies Act 2006. The new Act brought together and simplified many of the legislative changes of previous years, and added new benefits for business. It has required significant changes to the way in which businesses use Companies House's services.

In July 2009 Companies House extended the availability of online services (registration and online enquiries) to 24 hours a day, 7 days a week. The Government's White Paper, "Putting the Frontline First: Smarter Government", published in December 2009, focused on improving service delivery (especially through electronic channels) and making government more efficient. Key to this is the move to digital services, where Companies House is a leader within government.

During 2009/10 Companies House registered 5.3 million e-filed documents and by the end of March 2010 it was receiving 93% of all annual returns and incorporations electronically.

In 2008 Companies House replaced its old mainframe computer system with a modern n-tier application-server based service called Companies House Information Processing System (CHIPS). CHIPS allows the WebFiling, WebCheck and Companies House Direct services to remain available 24 hours a day, every day. The system was intended to provide the platform for future developments to modernize the UK company register.

5.4.5 Budget, costs and revenues

The 2009/10 Annual Report states that Companies House employs 1,202 people (1,088 FTEs). Of these, 1,152 (1,041 FTEs) were employed in Cardiff and the remainder were spread across small offices in the cities of Belfast, Edinburgh and London. Staff costs have increased as a proportion of operating costs from 48.1% in 2004/05 to 53.0% in 2009/10. During the same period, the average staff cost (which includes National Insurance and pensions (see the key economic indicators table – staff costs divided by FTEs) appears to have increased from £22,420 to £32,265 (43.9%).

The key economic indicators table showed that Income and expenditure have remained relatively stable at about £66 million over the last three years. In 2009/10, 76% of income (£50.5 million) was derived from companies registering businesses and making statutory returns, and 20.8% of income (£13.8 million) resulted from the sale of data and information.

Interestingly, income from late filing penalties is far greater than operating income. In 2008 the late filing penalty was increased and in 2009/10 income received from late filing increased to £85 million. Although the late filing penalties are surrendered directly to HM Treasury, and Companies House received £5.3m from BIS for the running costs incurred in the charging administration and collection of late filing penalties. In 2009/10, 229,008 companies filed late compared with 263,457 the previous year; compliance rates for accounts therefore increased to 97.9%.

On May 24 2010, the Government announced its plan to reduce costs by £6 billion in 2010/11. As part of this, the BIS needed to reduce its costs by £836m and one of the measures it is implementing is an 11% reduction in running costs across the Department, including Trading Funds. This means that Companies House will need to cut expenditure by £6.4m over and above the expenditure included in its 2010/11 Business Plan. The Companies House Annual Report 2009/10 noted that it would try to achieve these cuts while minimizing the impact on customers and trying to manage any staff issues in line with its organizational values. However, it was noted that these cuts could not be achieved without significant impact, and that the longer term impact on fees as a result of these savings may need to be considered.

Companies House budgetary and pricing procedures are governed by a number of different factors. Under UK Trading Fund regulations, year-on-year income should be sufficient to meet outgoings that are properly chargeable to the revenue account. Under the European First Company Law Directive fees to register business and fees to search for information must be met by payments. The two income streams cannot cross-subsidize each other.

The budget and longer term financial projections are developed internally by Companies House on a commercial basis on an annual cycle. Projections are based on expected demand and agreed at Ministerial level. Close monitoring and commercial management ensure regularly updated forecasting and appropriate actions to manage business performance and to develop suitable business opportunities. Although government can negotiate and/or approve business plans, day-to-day management is undertaken by Companies House. Companies House has a relatively high degree of functional and financial independence.

Each year costs are reviewed on the basis of predicted uptake/turnover for every product and the price of providing the information/data for that product.[46] Companies House then consider if there are any implications for fees as a result. The main consequence of this, as dictated by the European First Company Law Directive, is that product prices have to meet costs. Prices are set on the basis of cost recovery and that dictates the fee we charge, which are set by regulations. Targets and operating activities are agreed with HM Treasury and Minister each year.

In 2009, the Treasury determined that a further financial objective desirable of achievement by the Companies House Trading Fund for the five-year period from April 1, 2009 to March 31, 2014 would be to achieve a return, averaged over the period as a whole, of at least 3.5%. This would be in the form of a surplus on ordinary activities before interest payable and dividends payable, expressed as a percentage of average capital employed. This followed on from a similar target in the preceding years. Capital employed should consist of the capital (public dividend capital and long-term element of loans) and reserves.

In 2002 the Office of Fair Trading investigated a complaint from a member of the Business Information Providers Association alleging that Companies House was abusing a dominant position by subsidizing prices for its commercial products, and thereby unfairly taking business from its competitors. It was alleged that this cross-subsidization had been financed from two sources: either revenues earned from those activities where Companies House holds a statutory monopoly (i.e. the registration of company information) or from revenues earned in supplying other services where it did not face competition (for example, supplying bulk information products or magnetic tape products providing raw data about companies). It was also alleged that Companies House was treating its own search services more favourably than its customers by subsidizing its costs for the provision of electronic data through charging more to its competitors.

When the judgement was announced on October 25, 2002 the Director General of Fair Trading concluded that Companies House had not infringed the Competition Act 1998.[47] After the production and detailed investigation of accounts separating costs across Companies House activities, the Director found no evidence that Companies House had either:

[46] An example of projections for 2010/11 can be found at http://www.companieshouse.gov.uk/toolsToHelp/aprilAnnex1.shtml

[47] http://www.oft.gov.uk/OFTwork/cartels-and-competition/ca98/decisions/companies-house

- Engaged in predatory pricing by setting prices for the search aspect of its operations that failed to recover its costs; or
- Subsidized the price of its competing products by overcharging for products sold to competitors thereby anti-competitively squeezing the margin on products of its competitors.

Indeed, interviewees suggested that the review found that Companies House was under-charging for information.

5.4.6 Re-use policy and pricing

A page of the Companies House website[48] lists seven sets of UK and European Commission regulations under which company registration and search fees are determined. Prices for Companies House data remained stable between 2005 and 2010. In 2011 new prices were introduced, but the methodology to determine costs was the same as used in previous years. A 49-page document lists all of the regulations and fees for different registrations and search products.[49] The same prices are paid by all public and private sector organizations. The only organization that receives certain information free is HM Revenue and Customs, where the law requires this.

Companies House distinguishes between two categories of search products - bulk products and general individual enquiries. Both products are derived from data sets providing information about 2.7 million companies (data such as name, address, sector, and directors). All products are thus data, and there is no 'added-value' provided by Companies House.

Bulk products are complete data sets generally purchased by large business information companies such as Bureau Van Dyke, Dun and Bradstreet and Experian. The most expensive bulk product is an annual subscription to the Company Appointments and Usual Residential Address Daily Update package provided by means of a FTP service (£43,000.00). Examples of other bulk products and prices include an annual subscription for daily updates to the Annual Return Image package provided by means of a FTP service (£23,300) and an annual subscription for daily updates to the Annual Accounts Image package also available through a FTP service (£21,500). The prices charged for products are related to expected sales and they must not exceed the cost of production.

[48] http://www.companieshouse.gov.uk/toolsToHelp/costRecoveryPrinciples.shtml
[49] http://www.companieshouse.gov.uk/toolsToHelp/pdf/administrativeFeesDetermination.pdf

The table below shows the old fee level for bulk data products (2005 to 2010) and the new fee introduced in 2010. The reduction in prices was approximately 10% across all products. Re-users suggested the magnitude of the change was so small that it made little difference to their operating practices and the development of added-value products.

Product	*Old Fee*	New Fee
Bulk Data Products		
Directory		
Directory full snapshot	*£1,200.00*	**£1,075.00**
Directory quarterly snapshot	*£4,800.00*	**£4,300.00**
Daily update (per annum)	*£12,000.00*	**£10,800.00**
Enhancements to the daily update product		
With country of origin code	*£1,200.00*	**£1,075.00**
With date of last members list	*£1,200.00*	**£1,075.00**
With SIC codes	*£1,200.00*	**£1,075.00**
Company appointments		
Full snapshot	*£4,000.00*	**£3,600.00**
Daily update (per annum.)	*£48,000.00*	**£43,000.00**
Usual Residential Address (URA)		
Application by Specified Public Authority (SPA) or Credit Reference Agency (CRA)	*£140.00*	**No Change**
Full snapshot	*£,4.000.00*	**£3,600.00**
Daily update (per annum)	*£48,000.00*	**£43,000.00**
Specific request by SPA or CRA (per Director)	*£5.00*	**No Change**

Figure 10: Prices for selected Companies House data

Other products include a searchable DVD that costs £30: it includes details of all 2.7 million companies held on the companies register. This product does not permit the downloading of information. A DVD permitting the export of data can be obtained for £1,075.

Individual company records can be accessed online for £1 per company. There are no discounts for multiple purchases. Companies House interviewees suggested that, in future, the 'flat' £1 fee for ad hoc enquiries might decrease as economies of scale are derived from new information technology (IT) systems.

£13.8 million was generated from data sales in 2009/10. About £1 million was generated from bulk data sales mainly to larger business. Twenty thousand account holders purchase about £8 million worth of data from subscription sales (this equates to approximately £400

per account holder). These account holders are generally SMEs including law firms and other organizations that want intermittent access to data to examine company data and perform due diligence searches. The remaining approximately £4.8 million is generated from one-off web visitors. These are generally smaller businesses and individuals.

Interestingly Companies House does not own the copyright for the company data it provides. Instead copyright remains with the company that provides the data. Companies House is only able to place the information in the public domain through a special provision in Section 47 of the Copyright, Design and Patents Act 1988.[50]

Companies House provides a disclaimer[51] about the information it provides – "We carry out basic checks to make sure that documents have been fully completed and signed, but we do not have the statutory power or capability to verify the accuracy of the information that companies send to us. We accept all information that companies deliver to us in good faith and place it on the public record. The fact that the information has been placed on the public record should not be taken to indicate that Companies House has verified or validated it in any way".

Since Companies House does not own the copyright to the information nor accepts any liability for its accuracy, it does not formally 'police' or try to detect any breaches in accuracy of the provision of data to customers. Indeed, interviewees stated that there is very little to stop bulk purchasers providing the data they have purchased free online. This could undermine the position of Companies House and lead to a fall in revenues. However, it is for up to business information providers themselves to determine any copyright issues that their use of the data may have.

It was also suggested that, in future, for relatively complex reasons some of the cost-models might collapse. Similar to the current approach of HM Revenue and Customs to VAT submissions, Companies House is keen to make electronic filing mandatory, preferably by April 2013. Nonetheless, it was acknowledged that some documents would still have to be filed in hard copy. It might be these filings could have copy submissions that create problems for the cost models. When large volumes of documents are received and processed, economies of scale arise in administering the information. If the volume of hard copy filing decreased (due to the majority of companies providing information online), the same overheads might still be encountered for very low volumes of hard copy data. Due to

[50] www.legislation.gov.uk/ukpga/1988/48/section/47
[51] www.companieshouse.gov.uk/legal/termsAndConditions.shtml

the Companies House pricing model (where revenues have to offset costs and no cross-subsidization is allowed) these costs would have to be shared between the small number of transactions and costs of submission would have to rise, possible to unacceptable levels.

5.4.7 Impacts of the re-use policy

There has been relatively little change to Companies House re-use prices and policies over the last six years. There has therefore been considerable stability in the re-user market. The major re-users are the bulk product purchasers. These have been primarily larger global companies, which have divisions in numerous countries, which offer data obtained from Companies House in the UK usually combined with other useful data sets to provide 'added-value'. The large international organizations include:

Bureau Van Dyke[52] – This company is best known for its range of company information products that is co-published with many well-known information providers, such as Datamonitor, Financial Times, Jordans and Thomson Reuters. Their product range includes databases of company information and business intelligence for individual countries, regions and the world. Their global database, ORBIS, combines information from around 100 sources and covers approaching 65 million companies. In the UK the company regards itself as a data aggregator. By developing software search tools, it provides added functionality to enable strategic searches for information. In the UK its key datasets, which have a strong focus on accountancy data, include MINTUK and FAME.

D&B[53] (known as Dun and Bradstreet in the UK) – claims to be the world's leading source of commercial information and insight on businesses. D&B's global commercial database contains more than 177 million business records. The database is enhanced by D&B's proprietary DUNSRight® Quality Process.

Experian[54] – This company claims to be the leading global information services company, providing data and analytical tools to clients in more than 90 countries. Experian's main focus is on the utilization of data to provide credit ratings for and about businesses and citizens. In the UK, Experian have two major business products – *Corporate Researcher,* which provides ready-to-use, high-quality company information and data on UK and Irish limited companies and international corporate transactions and *B2B*, which provides research and marketing prospect data on limited companies and non-limited businesses.

[52] www.bvdinfo.com
[53] www.dnb.com
[54] www.experianplc.com

These three businesses use company data from a large number of the business registration and other organizations across Europe. It is evident that each has developed a niche (usually in the area of providing fulsome accounts information, credit ratings and marketing services) in providing 'added-value' to the basic company data provided by registration organizations.

In addition to these three major providers there is one other company that provides company data free:

UKData[55] provides international data about companies. Limited searches can be undertaken free online for UK and European companies, but its main products are related to company credit reports.

It is not possible to obtain data about the value of the company data re-use market since these companies are major international organizations that offer many different data sets alongside 'value-added' company information.

5.4.8 Final observations

This Companies House case study provides some interesting insights into the opportunities and problems facing company registration organizations. The price for providing information on a regularly updated basis to paying users is relatively inexpensive at £43,000 a year (though this relates to only one product), particularly when compared with the costs of obtaining PSI from other Trading Funds in the UK. The administration during the sale of information from a database containing company information is not particularly costly, since the database is the core of Companies House activities.

Interestingly, Companies House does not own the copyright for the company data it provides. Instead, copyright remains with the company that provides the data. Companies House does not therefore 'police' or try to detect any breaches in the provision of its bulk data to customers. Indeed, interviewees stated that there is very little to stop bulk purchasers providing the data free that they have purchased online.

The sales of data contributed 20.8% of income in 2009/10. Nineteen per cent of operating expenditure is spent on dissemination activities. Bulk data sales (of large parts of the core database which is regularly updated) to companies such as Dun and Bradstreet and Experian contribute about £1m (7.3%) to dissemination income. Twenty thousand subscription account holders (mainly SMEs, such as law firms and accountancy firms) contribute about

[55] http://ukdata.com

£8m (58.0%) to dissemination income. The remaining £4.8m (34.8%) of dissemination is derived from one-off web users who search the web site at £1 per company.

5.4.9 Key sources

- Desk research
- Interviews:

Tim Moss	Companies House	Director of Corporate Strategy
Paul Reynolds	Companies House	Press Officer
Alison Thomas	Companies House	Director's Assistant
Mark Williams	Bureau Van Dijk	Analyst
Katrina Downs	InfoUK	Analyst
Chris Taggart	Countculture	Blogger

5.5 Bundesamt für Eich- und Vermessungswesen (AT – geographic PSI)

Case study author: Lionel Kapff (Deloitte Consulting)

5.5.1 Key message

This case study demonstrates how the Austrian Federal Office of Metrology and Surveying adopted a simplified and more market-oriented PSI pricing approach with drastic price cuts of up to 97% within strict budget constraints (there was no additional governmental funding). Due to the additional demand – notably from SMEs – triggered by lower prices, PSI sales revenues and the associated cost-recovery ratio could be kept stable or slightly increased.

Without additional governmental funding, BEV could improve the situation for re-use business and secure a wider use of its public data.

A key strength of the BEV model is that it is regularly evaluated and adjusted based on a comprehensive multi-factor benchmarking exercise.

5.5.2 Key economic indicators

Indicator	Year 2010
PSB	Bundesamt für Eich- und Vermessungswesen (BEV)
Budget	84,971,000 EUR
Revenues (including PSI sales)	22,526,000 EUR
Cost recovery rate	26.5%
FTEs	1,275
Re-use facilitation	
FTEs involved	35 in central marketing department
Re-users	
Number of re-users	120,000 licensees (commercial and non-commercial)

5.5.3 Introduction

The Austrian Federal Office of Metrology and Surveying (*Bundesamt für Eich- und Vermessungswesen* – BEV) is in charge of surveying, mapping and the Austrian Cadastre. BEV is the main provider of geographic PSI in Austria.

In 2006, BEV moved from a complex, full cost-recovery pricing regime based on the costs of mainly analogue products (such as paper maps) to a simplified partial cost-recovery pricing and licensing model with drastic price cuts of up to 97%. The new model was reviewed and amended in 2008 and 2010.

Prices are now calculated based on regular benchmarking exercises that take into account the PSI market value, prices applied by foreign PSBs for comparable datasets, re-use business conditions, budgetary constraints from the federal government, and the costs of data production and re-use facilitation.

The reduced prices for PSI and the introduction of a PSI web portal have led to a substantial increase in the number of datasets sold. As a result, the total turnover from BEV's PSI sales stayed roughly constant or increased slightly, thus remaining within the budgetary constraints from the Federal Budget Law. Many new re-use business activities, mainly involving SMEs, have evolved since the implementation of the new model.

5.5.4 Organization, governmental structure, tasks, PSI portal

The Austrian public administration in the field of geographic information, although it follows a federal structure, is organized in a much more centralized way than in Germany. Many tasks have been clearly allocated to the federal level, i.e. to the BEV. BEV is the main provider of geographic PSI in Austria. The following figure gives an overview of the different levels of administration in Austria:

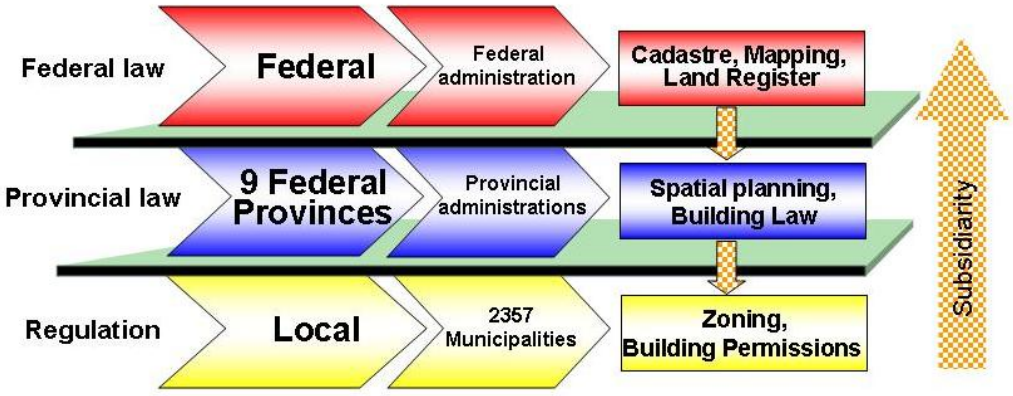


Figure 11: Levels of administration in Austria (source: BEV)

B BEV is a PSB subordinated to the Austrian Federal Ministry for Economy, Family and Youth (*Bundesministerium für Wirtschaft, Familie und Jugend*). In addition to its headquarters in Vienna, BEV maintains 66 local offices in all nine of the Austrian federal provinces (*Bundesländer*).

The public task of BEV with regard to mapping and surveying is defined in Section 1 of the Surveying Act (*Vermessungsgesetz*). The main competences include the Austrian Cadastre, geodetic measurement, levelling, topographic mapping and the surveying of state boundaries. In addition, BEV is also in charge of calibration and measurement (*Eichwesen*). This division is, however, not further assessed in this case study.

Sections 47 and 48 of the Surveying Act regulate the distribution and pricing of geographic PSI by BEV. It is part of the public task of BEV to deliver products and services based on its geographic PSI. BEV is empowered to determine its own pricing model within the framework set up by the government. Data and services need to be provided at 'reasonable' prices. The prices also need to cover at least the re-use facilitation costs ('additional costs for reproduction and diffusion') incurred by BEV (Section 48 of the Surveying Act). The prices of documents extracted from the real estate database or the technical documents register as well as the issuing of excerpts and the provision of documents for official acts (*Amtshandlungen*) are fixed by the Austrian Regulation on Surveying Charges (*Vermessungsgebührenverordnung*) enacted by the Federal Minister of Economy, Family and Youth (Section 47 of the Surveying Act).

Contrary to other European national mapping and cadastral agencies such as IGN in France, BEV does not yet offer any customized services to its re-users (such as reformatting of the data according to individual needs). This activity is left to the market.

On 1 April 2008, BEV's PSI sales portal on www.bev.gv.at went live. Many products can be directly downloaded from the portal. The figure below provides a screenshot from BEV's PSI portal.

Figure 12: BEV's PSI portal www.bev.gv.at

In many cases no registration is necessary to purchase PSI. Still, the number of registered users is steadily increasing:

- End of 2010: 4,022 registered users
- End of 2009: 3,132 registered users
- End of 2008: 1,939 registered users

122,000 purchase orders have been registered in 2009 (193,500 order items). From these purchase orders, 79,500 were fulfilled via download on the BEV portal, 2,111 via CD or email and 1,550 were delivered as single plots (*Einzelplots*).

In 2009, 67% of the total PSI sales revenues came from the real property database (*Grundstücksdatenbank*), 15% from documents needed for official acts (*Amtshandlungen*), 5% from cadastral data, 3% from the address register, and 10% from other products such as bench marks, the Austrian Positioning System (APOS), aerial images, orthophotos, paper maps, the 'AMap Fly' DVD, cartographic models and usage rights.

Reliable data on the different user groups are not available as many users acquire their data without registering on the portal.

5.5.5 Budget, costs, revenues

Currently, BEV's entire budget comes from the general state budget. BEV's total budget has been increasing in recent years (source: Annual Federal Budget Laws):

- 2011 (target): 81,782,000 EUR
- 2010: 84,971,000 EUR
- 2009: 84,318,000 EUR
- 2008: 77,270,000 EUR
- 2007: 77,173,000 EUR

On the other hand, BEV is trying to reduce its workforce (source: BEV):

- 2011 (1st April 2011): 1,261 FTEs
- 2010: 1,275 FTEs
- 2009: 1,286 FTEs
- 2008: 1,290 FTEs
- 2007: 1,299 FTEs

BEV's total revenues from all activities (BEV's PSI sales revenues are kept confidential) have oscillated around 20 M EUR (sources: BEV annual reports, Federal Budget Law for 2011):

- 2011 (target): 16,123,000 EUR
- 2010 (target): 22,526,000 EUR

- 2009: 18,726,000 EUR
- 2008: 18,607,000 EUR
- 2007: 20,510,000 EUR

The cost recovery ratio of total revenues from all activities (BEV's PSI sales revenues are kept confidential) to total budget has been decreasing slightly:

- 2011 (target): 16,123,000 EUR / 81,782,000 EUR = 19.7%
- 2010 (target): 22,526,000 EUR / 84,971,000 EUR = 26.5%
- 2009: 18,726,000 EUR / 84,318,000 EUR = 22.2%
- 2008: 18,607,000 EUR / 77,270,000 EUR = 24.1%
- 2007: 20,510,000 EUR / 77,173,000 EUR = 26.6%

BEV's revenues are composed of geo-PSI sales, but also come from fees for official acts (*Amtshandlungen*) and from the activities of BEV's metrological branch. The absolute amount of geo-PSI sales revenues is kept confidential by the PSB. Currently, all revenues from BEV flow directly to the general state funds. Thus, BEV cannot directly reinvest its PSI sales revenues. Increasing revenues do not entail a higher budget for BEV.

The amount of government funding that BEV receives (i.e. its total budget) as well as its target revenues are negotiated annually between BEV, the Federal Ministry of Finance and the Federal Ministry for Economy, Family and Youth. The agreed amounts are incorporated in the Federal Budget Law which must then be adopted by parliament.

The negotiated cost-recovery ratio (*Deckungsgrad*) varies somewhat from year to year depending on the orientation of the government programme and budgetary constraints imposed by the Federal government. The political debate on BEV's cost recovery ratio takes place mainly between the Federal Ministry of Finance and the Federal Ministry for Economy, Family and Youth. While the Ministry of Finance generally expects some 'reasonable' return from BEV to reduce the burden for tax payers, the Ministry for Economy, Family and Youth argues in favour of a lower cost-recovery ratio: this is to allow for low PSI fees that may support the development of the Austrian PSI re-use industry. The BEV has the power to decide itself on its cost-recovery ratio. However, the total revenues need to be kept on a constant level according to the guidelines given by the Federal Ministry of Finance. A comparable budgetary procedure is applied to all Federal PSBs in Austria.

As of 2013, Austria will introduce one-line budgeting (*Globalbudgetierung*) for a number of PSBs including BEV. As a consequence, BEV will receive a reduced lump sum of public funding, but will be able to retain its revenues. BEV will also gain considerable autonomy to

manage its own budget. Notably, its sales revenues will have a direct impact on its budgetary capacities. BEV will also be able to implement its budget in an efficient way. Expenses for staff and material will not be strictly separated anymore. Therefore, savings from staff reductions could be reinvested in more sophisticated technical equipment (an approach which is currently not possible).

BEV does not have any separate accounting for its re-use facilitation costs. BEV's central marketing department numbers approximately 35 FTEs. The department is in charge of general marketing issues, product development, distribution, PSI sales, preparation of products for non-online delivery, licensing and invoicing activities, customer service as well as public relations. In addition to the central marketing department, many decentralized BEV offices also sell PSI and/or provide re-user services.

5.5.6 Re-use policy and pricing

In 2006, BEV moved from a complex full cost-recovery pricing regime based on the costs of mainly analogue products (such as paper maps) to a simplified partial cost-recovery pricing and licensing model with drastic price cuts of up to 97%. This section explores the central drivers for change.

BEV's old pricing model (which was in place until the end of 2005) was based on the distribution of analogue products such as paper maps and aimed at full recovery of all costs incurred, including the costs of data collection under the public task. Individual prices were determined based on a large number of factors including the number of content layers, a basic fee, areas of interest, data volumes, the number of records, processing expenditure, data transformation costs, usage modes, format, and the number of print lines (see the figure on pricing factors below). BEV tried to include all data production and distribution costs in the price calculation model. Sometimes these cost calculations yielded such high prices that BEV had to implement abatements in order not to prevent any re-use.

Recognizing the structural changes in the evolving geo-information business, BEV began to rethink its pricing model in the mid-2000s. Major contextual changes of that period included (1) the digitalization of more and more geo-information market segments and the marginalization of analogue products; (2) the development of new products and services such as web services, location-based services, smartphone and GPS device applications based on geographic PSI, geo-marketing or geo-scoring services; (3) the need for licensing agreements with re-users to clarify the legal situation; and (4) the need for more frequent data updates.

The need to respond to these contextual changes as well as the willingness of BEV to find a flexible pricing and licensing model that is not fixed on a specific product, but that is open to innovation, have been the essential driving forces for the review of the old pricing model. Furthermore, BEV wanted to implement a model that would ensure the long-term sustainability of the system, i.e. a model that recovers (parts of) the costs incurred by BEV to produce and distribute the data. Finally, both business and the BEV wanted to introduce clear licensing agreements and general re-use conditions to provide legal certainty to PSI re-users.

Resistance to the adoption of the new pricing and licensing model came only from some PSBs that were obliged to purchase multi-user licenses under the new model instead of a single license to cover their entire administration. There were no complaints from actual or potential private sector re-users.

In 2005/2006, BEV developed internally a new pricing and licensing model with substantial price cuts of up to 97%. Lower PSI prices were expected to attract sufficient additional re-users to keep BEV's total turnover stable. Of course, there was no guarantee that this projected development would actually take place, but BEV was willing to take this risk and convinced the Ministry for Economy, Family and Youth that is in charge of the office to approve the new pricing and licensing model.

In 2007, BEV also decided to subcontract the distribution of analogue mapping products (paper maps) to a private company. This decision was based on a 2006 market study that showed the potential savings for BEV. It was concluded that the distribution of maps by a private company with a specialization in that field would ensure better customer service and satisfaction (such as more sales points, better marketing and faster delivery). The company, Freytag & Berndt, a major Austrian editor and distributor of maps, won the public tender. Interestingly, since the outsourcing of BEV's paper map business, the sales have increased. This is surprising, especially since the paper map market in other countries is strongly decreasing vis-à-vis the rapidly evolving market for digital maps.

- 2009: 44,637 paper maps sold
- 2008: 42,361 paper maps sold
- 2007: 43,983 paper maps sold

Since 1 January 2006, BEV's new pricing and licensing model has been in force. It applies to all geographic PSI products regulated by Section 48 of the Surveying Act.

The new model has been built around the following principles:

- Enhancement of geographic reference data re-use by SMEs and public administrations to enable the development of value-added products, online-solutions, geo-services and e-government applications;
- Simplicity and transparency for clients;
- Partial cost-recovery for a long-term sustainability of system;
- Calculation of prices by benchmarking;
- Equal treatment of all public and private re-users;
- Flexibility for future requirements and solutions;
- Continuous evaluation of the regime and adjustment of fees where necessary;
- Complementarity to the market: BEV only provides value-added products (such as leisure cards) until the market does so.

The following figure depicts the structure of BEV's pricing and licensing model which is further explained below.

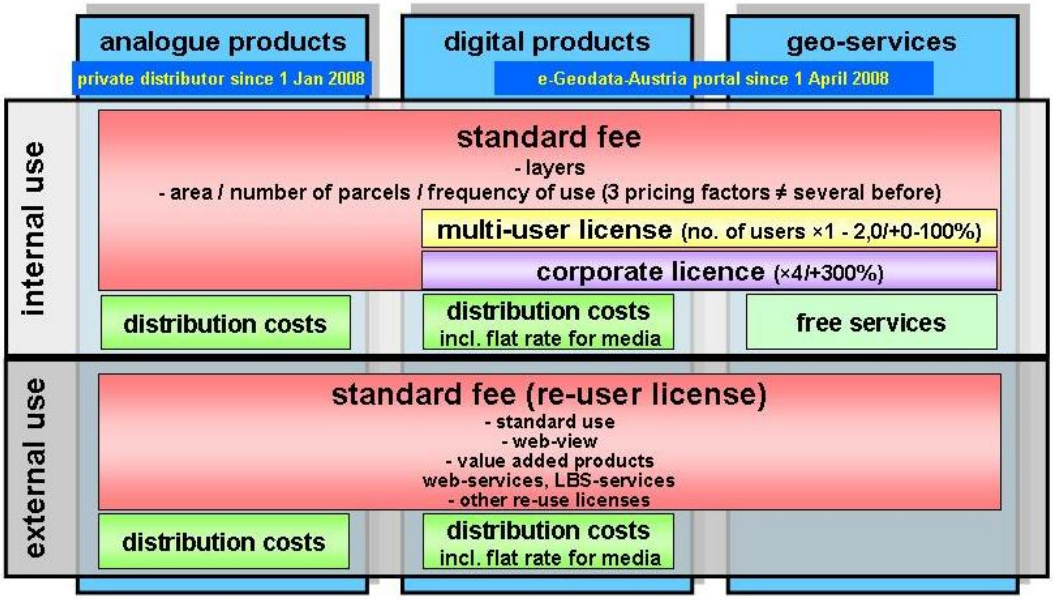


Figure 13: Architecture of BEV's new pricing and licensing model (source: BEV)

Firstly, the new model distinguishes between three types of products: (1) analogue products such as paper maps, (2) digital products such as digital orthophotos or digitized cadastral maps, and (3) geo-services, i.e. the regular automated web-access to BEV's spatial base information.[56]

[56] BEV Standard Charges and Licencing Conditions 2010, <http://www.bev.gv.at/pls/portal/docs/PAGE/BEV_PORTAL_CONTENT_ALLGEMEIN/0200_PRODUKTE/BESTELLFORMULARE/STANDARD_CHARGES_AND_LICENCING_CONDITIONS_2010.PDF>.

Secondly, the model distinguishes between the customer's rights of internal use ('*use of data in the internal, technical and administrative area of the customer*') and rights of external use ('*provision of data to the public and/or users other than those holding rights of internal use*'). In contrast to internal re-use, external re-use allows for re-distribution of value-added products and services based on the purchased PSI.

All internal and external re-users have to pay a standard fee. Compared to the previous pricing model, far fewer factors are taken into account to calculate the standard fee for a specific dataset. For example, in the new model only three factors determine the standard fee of a dataset for internal re-use: (1) the kind of content layers (such as road and path network, buildings and vegetation), (2) the size of the area of interest (square metres, square kilometres) or the number of properties, and (3) the number of users (single user license or multi-user license). The figure below illustrates the significant reduction of pricing factors.

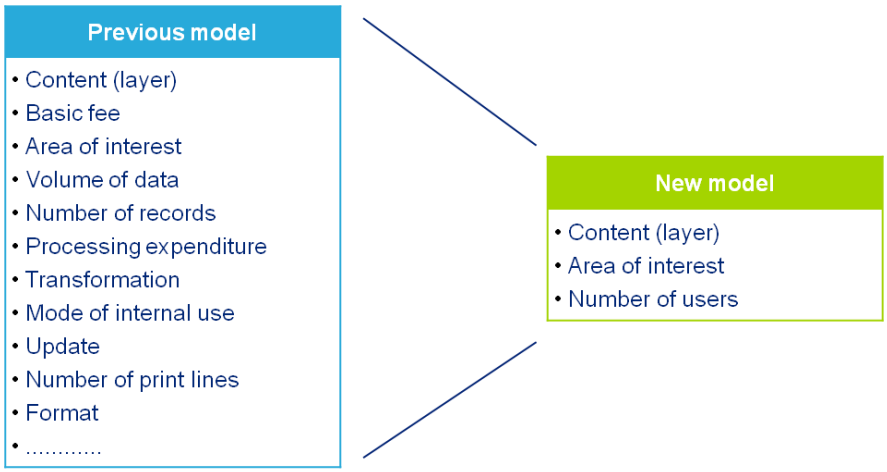


Figure 14: Example of pricing factors for BEV PSI (internal re-use) (source: BEV)

The price of internal re-use licenses further depends on the number of users. Re-users have to acquire either a multi-user license (*Mehrplatzlizenz*) or a corporate license (*Konzernlizenz*). While the multi-user license allows for the re-use of the PSI by several people within one organization, the corporate license provides the right of internal re-use to groups of companies or groups of public administrations acting under one umbrella. The surcharge of the multi-user license depends on the number of users, whereas the surcharge of the corporate license is fixed at 300% of the standard fee.

Number of authorized users	Multi-user fee factor	Surcharge on standard fee
1 to 5	1.00	0%
6 to 20	1.25	25%
26 to 100	1.50	50%
More than 100	2.00	100%
Corporate license	4.00	300%

Table 24: Multi-user and corporate license surcharges (source: BEV price list 2010)

The model further differentiates different types of external use: (1) free use of works, (2) standard use, (3) analogue or digital derivative products, (4) web-view, (5) web services, (6) location-based services and (7) the right to digitize. The fees vary depending on the type of external use and the usage of the re-user's product. The table below provides an overview.

Right to external use of data	Explanation	User fee (surcharge)
Free use of works	Reproduction for personal use, by public administrations, schools and universities, and for research purposes.	No charges for external use are payable in addition to the standard fee for internal use.
Standard use	Reproduction below certain thresholds: 1,000 analogue copies or, for digital products, 10 sections of a maximum of 1,000,000 pixels each.	No charges for external use are payable in addition to the standard fee for internal use.
Analogue or digital derivative products	Derivative products on paper, CD, DVD, memory cards, etc.	Depending on the number of copies and/or licenses (between 30% and 1,000% surcharge on standard fee).
Web-view	Web applications for visualization of BEV data	15% of the standard charge for internal use (single user license) p.a.
Web-service	Web application beyond mere visualization of BEV data ('web-view')	Either a flat rate of 40% of the standard charge for internal use p.a. or 5% of the standard charge for internal use p.a. per transaction (in each case on the basis of a single user license)

Location-based services	Use of BEV data for topographic information services.	Either a flat rate of 40% of the standard charge for internal use p.a. or 5% of the standard charge for internal use p.a. per transaction (in each case on the basis of a single user license).
Right to digitizing	Digitizing of analogue BEV products.	Free of charge for private use. For any other use depending on the right to use/license on the basis of the standard charge for internal use (single user license) of the relevant digital products.

Table 25: External use (source: adapted from BEV price list 2010)

In addition to the standard fees for the PSI and the surcharges (if applicable), re-users have to bear the distribution costs of the data. For the production of digital data carriers (CD, DVD) a media flat rate of 3.00 EUR per purchase order is charged by BEV. In the case of physical products, a packaging flat rate of 1.50 EUR per purchase order is invoiced. Additionally, re-users have to pay the postage fees (a flat fee of 5.00 EUR per purchase order for international customers).

Re-users who want to make use of BEV's geographical internet applications ('geo-services') have to pay an access fee of 1,200 EUR p.a. as well as an annual standard fee that depends on the usage (the number of clicks). The level of use needs to be selected by the customer in advance. If the maximum limit selected is exceeded, the service is accounted for in arrears according to clicks. The table below gives an overview of the BEV geo-reference-service pricing.

Fee for BEV geo-reference-service	
Access fee	**Price p.a.**
Flat rate	1,200.00 EUR
Number of clicks	**Price p.a.**
1 to 10.000	600.00 EUR
10.001 to 50.000	1,800.00 EUR
50.001 to 200.000	3,600.00 EUR
Accounting in arrears	**Price per click**
Per click via the selected package level	0.10 EUR

Table 26: Geo-services fees (source: BEV price list 2010)

All PSI prices were determined and are regularly evaluated by a benchmarking exercise that takes into account factors such as market value of the PSI, prices applied by foreign PSBs for comparable datasets, re-use business market conditions, budgetary constraints from the federal government as well as costs for data production and re-use facilitation.

There have been two reviews and amendments – in 2008 and 2010 – since the model's implementation in 2006. In 2008, the corporate license (*Konzernlizenz*) was introduced to resolve problems faced by groups of companies or complex public administrations that had needed to acquire a license for every single entity before the introduction of the new license. In addition, there were some adaptations of products and updates of prices according to benchmarks. The 2010 amendment introduced a new pricing model for external use of digital and analogue value-added products and for geo-information services. Again, product lists were brought up to date to reflect products that had been launched or withdrawn since 2008, and prices were revised in line with the most recent benchmarks.

The prices of documents needed for official acts (*Amtshandlungen*) are fixed by the Austrian Regulation on Surveying Charges enacted by the Federal Minister for Economy, Family and Youth and are not subject to review within the benchmarking process.

Under the current regime, all PSI re-users are treated the same way (non-discrimination). Private companies in many cases pay exactly the same fees to BEV as public authorities. However, if public authorities use the PSI for their public tasks as regulated by law, BEV has to provide the data free of charge. This however applies only to documents needed for official acts (*Amtshandlungen*) as defined by Section 47 of the Surveying Act (mainly data from the cadastre). For geo-PSI products as defined by Section 48 of the Surveying Act, the public re-users will always have to pay the same fees as private re-users.

BEV's pricing and licensing model does not include any specific regime to favour new entrants and innovative start-up companies. All re-users pay the same prices. In Austria, innovative start-ups would receive support from one of the government funds for innovation and enterprise foundation. With this money they could then acquire the PSI necessary for their business model.

In April 2011, BEV had 120,000 licensees. As registration is not obligatory, the number of multi-user licenses (*Mehrplatzlizenz*) and corporate licenses (*Konzernlizenz*) is not available.

5.5.7 Impacts of the re-use policy

The new pricing and licensing model was strongly welcomed by the business community. Many re-use businesses felt that the old pricing model was a stumbling block to additional

and innovative PSI re-use because of its relatively high prices, its complexity and its inappropriateness with regard to new digital services. Indeed, the new model has led to a significant increase of orders and subscriptions. During 2007, the sales for many BEV PSI products rose significantly: a 200%–1,500% increase for cartographic products, 7,000% for digital orthophotos, 250% for the digital cadastral maps, 250% for the digital elevation mode, 1,000% for the digital landscape model, and a 100% increase in external-use licenses. The bulk of this additional demand came from Austrian SMEs.

As expected, the increased demand for BEV products has allowed it to finance price cuts of up to 97% when compared to the previous pricing model. The following chart shows the indexed (2004 = 100) geo-PSI sales revenues from 2004 to 2009. Clearly, the geo-PSI sales revenues have remained stable and even increased despite significantly lower prices. BEV's actual geo-PSI sales revenues are confidential.

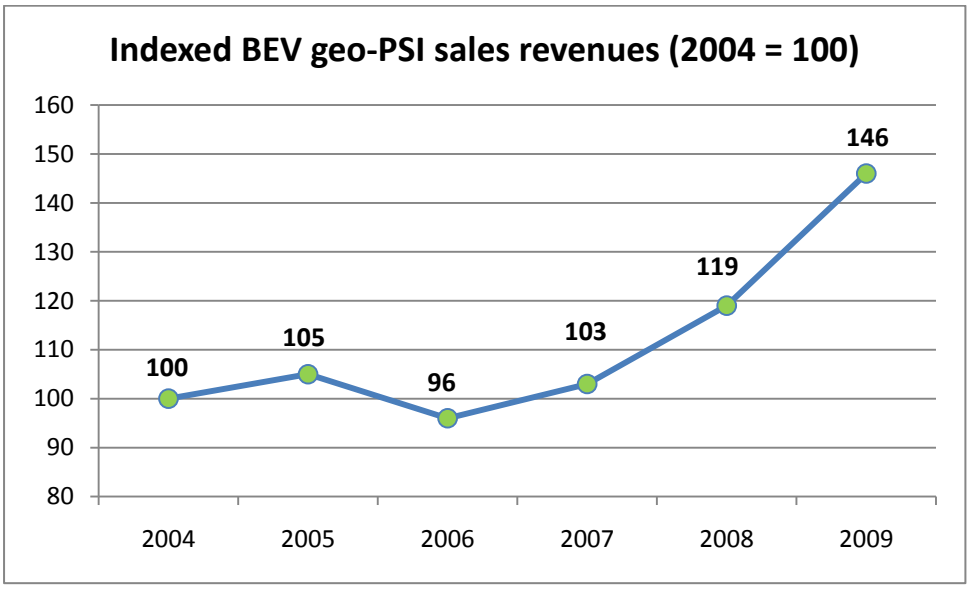


Figure 15: Indexed BEV geo-PSI sales revenues (2004 = 100) (source: BEV)

In 2011, five years after the introduction of the new pricing model, the number of purchase orders has stabilized after a period of strong growth following the implementation of the new model. The number of registered customers on the PSI web portal and the number of external licenses are, however, still increasing. Re-use businesses are now also evolving outside of the typical geo-information market, for example in fields such as geo-marketing or location-based services. There is also an increasing demand from international customers.

BEV underlines that there has *never* been a complaint from a (potential) re-use business that it was unable to implement a business model due to BEV's pricing approach. Many re-

use businesses argue that PSI prices (as long as they are 'reasonable') are less important than a transparent, sustainable, calculable and non-discriminatory pricing and licensing model. Businesses mainly want legal certainty and stability with regard to pricing and re-use in order to build their business models.

One of BEV's PSI re-users is GeoMarketing Datenverarbeitungs & Dienstleistungs GmbH, a 12-FTE company active in the geo-marketing business since 1992. The company purchases raw data from various sources and produces data mash-ups and customized data services, for example for targeted advertising, for the optimization of business locations or the routing of emergency services. This Austrian SME has built strong partnerships with leading companies in the geo-information business such as GfK, NAVTEQ and Teleatlas. BEV's new pricing and licensing model has been welcomed by GeoMarketing because it has been designed to cover digital and web-based products and services. The old model focused on the reproduction of analogue products such as paper maps and was difficult to apply to GeoMarketing's business model. Also, the prices of the new model are now better suited to market conditions, whereas the prices under the old model were prohibitive in certain cases. The company, however, regrets that the model is still somewhat inflexible for highly innovative companies, notably because all changes to the model have to be codified in legislation. The rule relating to equal treatment/non-discrimination also prevents businesses from concluding customized licensing agreements with BEV. Furthermore, GeoMarketing proposes that BEV should cooperate with businesses for the distribution of its PSI. Certain first-tier re-users could act as distributors of BEV's PSI if their clients need geo-data, but do not want to contract directly with the PSB. The private distributors would receive a sales commission from BEV to create incentives to use public data rather than private data. This would lead to a more widespread use of up-to-date and authentic public data in the economy. GeoMarketing disapproves of a zero cost pricing model for commercial re-use as this would lead to competition problems for business and to a subsidizing of geo-businesses by citizens.

The rmDATAGroup, an Austrian SME with 60 FTEs, develops surveying software, geo-information systems and geo-data-management solutions by re-using BEV's PSI. It provides services to a wide range of customers, from the building sector through energy and telecommunication companies to various PSBs at local, federal and international level. With regard to BEV's new pricing and licensing model, the company underlines that prices today are reasonable and allow for easier market entry, notably for small geo-business companies. Re-users are also now willing to update their datasets more often. This ultimately yields better results for all actors which use geo-information-based decision-making systems and

processes. The company also appreciates the clear definition of prices and licensing conditions and the implementation of an application programming interface (API) for BEV geo-services. On the other hand, rmDATAGroup regrets that BEV's pricing approach for geo-services is based on clicks rather than data-transfer, as this makes it difficult to forecast costs for business. The fixed access fee of 1,200 EUR should be abolished and replaced by fully variable pricing as for all other BEV products. In addition, rmDATAGroup misses the usage of WMS/WMF protocols as well as the provision of differential datasets. Finally, the company proposes that BEV should provide key geo-PSI such as cartographic information or address data at zero cost in order to allow small businesses which have innovative business models to enter the market. More sophisticated datasets such as cadastral information could be charged for in order to guarantee the long-term sustainability of the system.

It is difficult to measure the macro-economic impact of BEV's new pricing and licensing model owing to the large number of re-users and the non-availability of market data. In addition, not all of the growth in the geo-information market has its origin in BEV's PSI. The 'open data' movement provides an increasingly popular source of raw data with databases such as OpenStreetMap. These raw data sources compete with BEV's PSI, but public data clearly predominates where authentic data are needed. Finally, much of the growth in the geo-information sector has occurred as a result of general technological progress and cannot be attributed solely to the improved accessibility of public geo-data.

5.5.8 Key sources

- Desk research
- Face-to-face interview with Gerda Schennach, Stab L/BEV, BEV
- Telephone interviews with commercial re-users of BEV's PSI:
    - Martin Redl, CEO, GeoMarketing Datenverarbeitungs & Dienstleistungs GmbH
    - Jürgen Beiglböck, CEO, rmDATA Group

5.6 Bundesamt für Kartographie und Geodäsie / Arbeitsgemeinschaft der Vermessungsverwaltungen der Länder der Bundesrepublik Deutschland / Senatsverwaltung für Stadtentwicklung Berlin (DE – geographic PSI)

Case study author: Lionel Kapff (Deloitte Consulting)

5.6.1 Key message

This case study demonstrates how the federalist organization of Germany's geo-information public sector prevents re-users from fully reaping the benefits of a growing private re-use market. Various harmonization efforts of the public sector have improved the situation. Yet, progress is slow. Heterogeneous, fragmented and complex PSI pricing policies still pose a challenge to business.

The case of BKG, a PSB that operates at federal level, shows that revenues from PSI sales may be negligibly small. Yet, the PSB may not be able to take the decision to provide its PSI free of charge to all types of re-users itself because this decision needs to be taken at a political level.

The AdV pricing guidelines provide a scheme where the prices of the PSI are determined according to the re-user's turn-over (*Umsatzerlösbeteiligung*). This scheme helps SMEs and innovative start-ups to enter the market by reducing their business risks significantly in comparison to fixed price systems. Indeed, where no turnover is generated, no fees have to be paid. On the other hand, a successful product also benefits the PSI-holding PSB. When companies do not want to reveal their business model to public authorities, they can choose to pay a flat fee.

The case of the *Senatsverwaltung für Stadtentwicklung Berlin* provides an example of the political and budgetary context that determines the pricing policy of many geographic-PSI-holding PSBs in Germany. Many PSBs act under severe pressures from finance ministries, parliaments and politicians who see geographic PSI as a public asset that needs to be exploited in order to reduce the taxpayers' burden.

5.6.2 Introduction: The federal structure of geo-information in Germany

In Germany, most official surveying and mapping responsibilities are allocated to the 16 *Länder* – not to the federal level. In the majority of the federal *Länder*, the specialist authorities responsible for surveying and mapping, real estate cadastre and geo-information are assigned to the Ministry of the Interior of the respective *Land*. Their surveying and mapping authorities are responsible for the production of a standardized spatial reference

system and the management of topographical geospatial reference data. Very often, these authorities have further sub-delegated the collection, management and provision of cadastral information to authorities at communal level.

In the course of administration reforms, some *Länder* have merged their state survey and their surveying, mapping and cadastral authorities into an integrated geo-information authority and are taking advantage of the resulting synergy. Furthermore, the number of surveying, mapping and cadastral authorities at local level has been drastically reduced in recent years – from more than 600 a decade ago to 239 at the end of 2010. This restructuring and centralization process of surveying and mapping activities is still ongoing.

At federal level, the Federal Agency for Cartography and Geodesy (*Bundesamt für Kartographie und Geodäsie* – BKG), placed under the authority of the Federal Ministry of the Interior (*Bundesministerium des Innern*), is the main geo-information PSB. In cooperation with the *Länder*, it fulfils a coordinating role between the PSBs at *Länder* level in order to ensure the provision of geographical information at federal level. It also has a focus on research in the field of cartography and geodesy and represents the interests of the Federal Republic of Germany in this field at international level.

The cadastral and surveying authorities of the *Länder* cooperate on a voluntary basis within the Working Committee of the Surveying Authorities of the States of the Federal Republic of Germany (*Arbeitsgemeinschaft der Vermessungsverwaltungen der Länder der Bundesrepublik Deutschland* – AdV) to discuss matters of fundamental and supra-regional importance in view of defining uniform regulations. For instance, in 2007 the AdV enacted common pricing guidelines (*AdV-Gebührenrichtlinie*).

The cadastral and surveying authorities of the *Länder* are the main distribution points for geographic PSI products in Germany. However, some PSI products are provided nationally and in a harmonized way, building on three central distribution centres (*zentrale Vertriebsstellen*):

- BKG GeoDatenZentrum – mainly for geo-topographic data and digital ortho-photos;
- GVHH Bonn – for geo-referenced house numbers and house outlines;
- SAPOS Zentralstelle – for satellite positioning data.

While 20% of the PSI sales revenues generated by these central distribution centres are kept by them to cover their administrative costs and marketing activities, 80% of the revenues are redistributed to the PSBs at *Länder* level which provided the data.

Principally, in Germany exclusive license usage rights are not allowed. Fees are charged to both the private and public sector. Generally, viewing of the PSI is possible at zero cost, but the re-use of the PSI has a charge.

Because of the German constitution, the 16 *Länder* are independent in their pricing policy as well as in the legislation for the geo-information sector. Fees are regulated by law and may, therefore, vary from *Land* to *Land*. Generally, fees follow both the 'benefit taxation principle' (*Äquivalenzprinzip*) and the 'cost-recovery principle' (*Kostendeckung*).

Due to the strong insistence of several *Länder* on their budgetary independence, the AdV assembly could only decide that the AdV pricing guidelines should be applicable to the central distribution centres. Only re-users that buy geographic PSI from two or more *Länder* can use the AdV pricing guidelines. If PSI is bought from one *Land* only, the individual pricing policy of the relevant *Land* is applied.

At the level of the *Länder*, the AdV pricing guidelines are a recommendation. Yet, most surveying and mapping authorities of the federal states – such as the *Senatsverwaltung für Stadtentwicklung Berlin* – are transposing the guidelines into their state regulations in view of harmonizing the distribution, pricing and licensing policies for products and services that are available nationwide. The gradual harmonization of the *Länder* pricing and licensing policies as well as the central distribution centres ensure that nationwide available products and services are offered under nearly the same conditions in all distribution points. Besides, the *Länder* regulate individually the fees for their regional products.

In 2008, the German federal government declared that it considers that all fees for the provision of geo-information should be determined by the re-use facilitation costs (*Bereitstellungskosten*) only.[57] Yet, as the federal level is not the principal holder of geographic PSI in Germany, its influence on pricing is rather limited. The *Länder,* which produce and own the bulk of German geo-information, are independent in their pricing decisions and currently do not seem to be willing to give up this competence.

[57] Bundesregierung (2008): „Zweiter Bericht der Bundesregierung über die Fortschritte zur Entwicklung der verschiedenen Felder des Geoinformationswesens im nationalen, europäischen und internationalen Kontext", *Deutscher Bundestag Drucksache 16/10080*, p. 6.

5.6.3 Bundesamt für Kartographie und Geodäsie

5.6.3.1 Key economic indicators

Indicator	Year 2010
PSB	Bundesamt für Kartographie und Geodäsie
Total budget	33.8 M EUR
FTEs	254
Turnover from PSI sales	70,000 EUR p.a. on average + AdV revenues
Cost-recovery rate (from PSI)	0.2%
PSI sales target (Federal Budget Law)	80,000 EUR
Pricing model	Application of AdV guidelines
Re-use facilitation	
FTEs involved	11.5
Re-users	
Number of re-users	381 (including 181 commercial re-users)

5.6.3.2 Introduction

The Federal Agency for Cartography and Geodesy (*Bundesamt für Kartographie und Geodäsie* – BKG) is placed under the authority of the Federal Ministry of the Interior (*Bundesministerim des Innern* – BMI). BKG is based in Frankfurt am Main, but also operates a branch in Leipzig and a geodetic observatory in Wettzell (Bavarian Forest).

BKG fulfils a coordinating role in the sense of data harmonization between public sector bodies in charge of geo-information at the *Länder* level, ensuring the provision of aggregated geographic PSI to public administrations at federal level as well as compliance with European regulations such as the INSPIRE Directive.

The BKG's aggregated geo-information databases are also made available to commercial and non-commercial re-users on a partial cost recovery basis. BKG applies the AdV pricing guidelines to all its products and services.

Further, BKG's data service *GeoDatenZentrum* (GDZ) is one of the three national distribution centres (*zentrale Vertriebsstellen*) for geo-information in Germany. On behalf of the *Länder,* which produce and own the data, BKG distributes geo-topographic data and digital ortho-photos to re-users that want to acquire data from at least two *Länder*. The GDZ also serves

as central distribution centre for all data products of EuroGeographics, a European federation of national geo-information public sector bodies.

5.6.3.3 Organization, governmental structure, tasks, PSI portal

In cooperation with the federal states, the BKG fulfils the following tasks in the field of geographic information and geodesy:

- Provision and representation of current analogue and digital topographic-cartographic information as well as the advancement of the procedures and methods required for this purpose;
- Provision and updating of the geodetic reference networks of the Federal Republic of Germany;
- Services pertaining to surveying and mapping, as well as the theoretical services for the acquisition and processing of measured data, and the participation in bi-lateral and multi-lateral work for determining and updating global reference systems;
- Advancement of the implemented measuring and observation technology; and
- Representation of the interests of the Federal Republic of Germany in the field of geodesy and geo-information on an international level.

Up to the mid-1990s, the PSB's work was mostly research-centred. Then BKG was entrusted with the coordination and harmonization of geo-information in Germany in order to build a homogenous spatial infrastructure at national level. These data have been made available to all types of re-users – primarily to federal public administrations, but also to commercial re-users – via BKG's data service, the *GeoDatenZentrum* (GDZ). The following figure depicts the functioning of the GDZ.

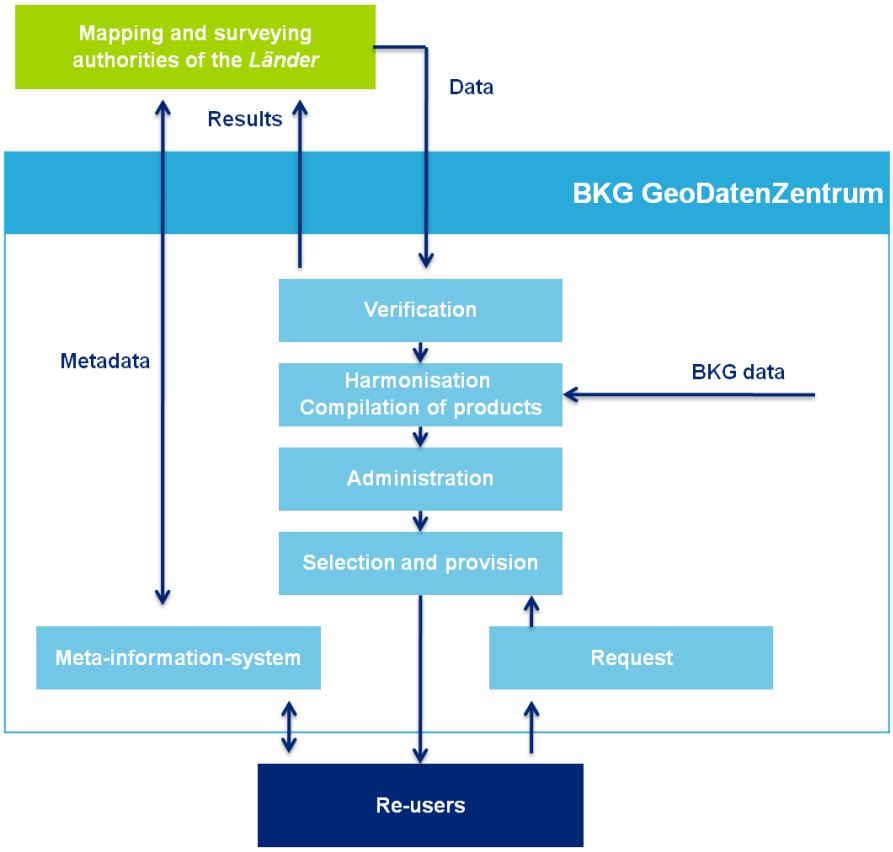


Figure 16: Functioning of BKG's GeoDatenZentrum (source: figure adapted from BKG)

A re-user that needs geo-information from at least two *Länder* can contact BKG's *GeoDatenZentrum* and request the necessary dataset. The re-user may also search the GDZ metadata that aggregates all metadata provided from mapping and surveying authorities of the *Länder*.

Most of BKG's geographic PSI comes from the mapping and surveying authorities of the *Länder* that, in turn, partially rely on data from the communal level. BKG collects the data from the different *Länder*, verifies, harmonizes and compiles it into data products. In some cases, BKG's own data are also included. The GDZ further ensures the administration of BKG's data products and services as well as their provision to re-users.

Since 1996, BKG has operated a national database service called *GeoDatenZentrum* (GDZ) that harmonizes geo-topographic information provided by the mapping and surveying agencies of the *Länder*. Since 2005, the GDZ database is accessible via the internet.

The GDZ provides a meta-information-system in line with international standards. Re-users can order data and download it immediately through the online geo-data shop. Re-users can also convey to BKG their interest in releasing new online services by means of a web form. In addition, paper maps can also be ordered via BKG's online shop.

BKG offers OGC-compliant web services in industry-standards such as Web Map Services (WMS), Web Feature Services (WFS), Web Gazetteer Services (WFS-G), Web Coverage Services (WCS), Web Catalogue Services (CSW), Web Processing Services (WPS) and Web Perspective View Services (WPVS). The services support fault-tolerant and phonetic comparisons for road and place names and address search for a geographical position.

The figure below shows the increased usage of BKG's web services. The introduction of the freely accessible DOP viewer that contains up-to-date digital ortho-photos of the *Länder* has led to a significant increase of usage of BKG's web services. Since early 2010, the number of connection to BKG's web services is, however, relatively constant at the level of 2.5 M connections per month.

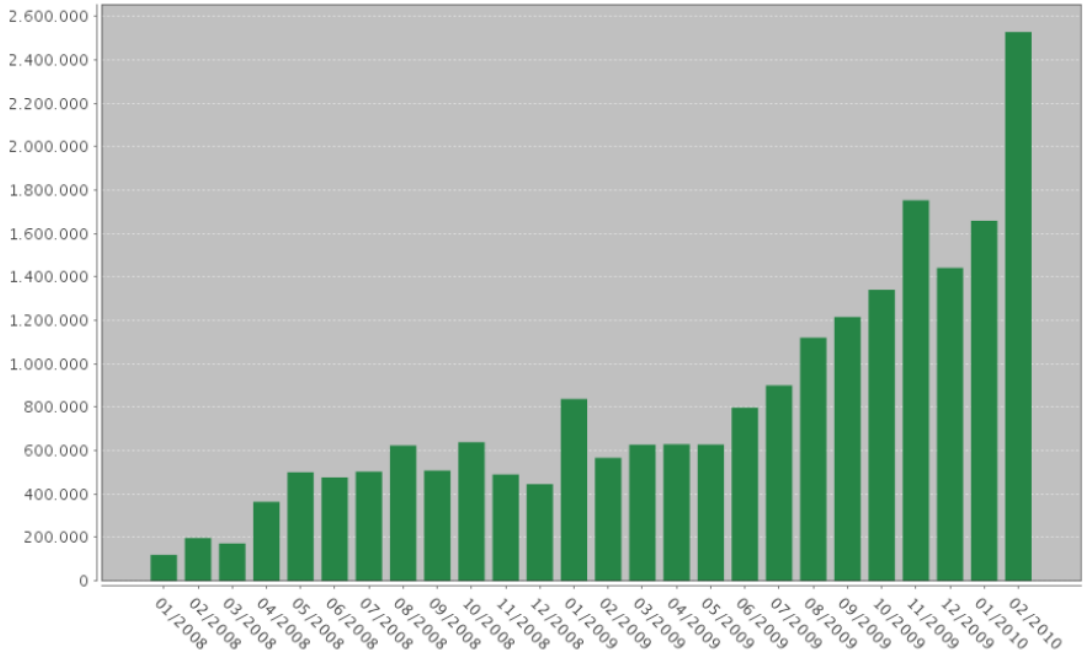


Figure 17: Usage of BKG's web services (number of connections) (source: BKG)

5.6.3.4 Budget, costs, revenues

In 2010, BKG had a budget of 33.8 M EUR which came entirely from the federal state budget. For 2011, the Federal Budget Law fixes BKG's public funding needs at 32.2 M EUR.

The Federal Ministry of Finance expects yearly PSI sales revenues of 80,000 EUR from BKG. This target has been codified in the Federal Budget Law. The 80,000 EUR needs to be transferred to the federal state budget. However, unlike other German PSBs, BKG can keep all PSI sales revenues above the 80,000 EUR revenue target. These can then be reinvested in improving the quality of BKG's services.

BKG's average yearly PSI sales revenues from its own data stocks amount to about 70,000 EUR. These sales revenues are relatively low because the PSB does not hold large quantities of its own data. Indeed, most geo-information in Germany is collected by the *Länder* which registered 12 M EUR of sales revenues from geographic PSI in total in 2006.[58]

In addition to the distribution of its own PSI, BKG acts as one of the three German central distribution centres for geo-information (*Zentrale Vertriebsstellen*). In this activity, BKG sells the data for the *Länder* applying the AdV pricing guidelines. BKG can keep 20% of the PSI sales revenues in order to cover its administrative costs; the rest is transferred to the mapping and surveying authorities of the *Länder*.

BKG does not specifically measure its re-use facilitation costs. Indeed, the infrastructure and staff used for the facilitation of re-use by private re-users was initially put in place to supply the federal public authorities with geo-information (the public task). The provision of private re-users with PSI is a fringe effect of the public task.

The workforce dedicated to the facilitation of re-use includes:

- 5.5 FTEs in the sales department
- 4 FTEs for the provision of data (GeoDatenZentrum Leipzig)
- 2 FTEs for technical services (GeoDatenZentrum Leipzig)

5.6.3.5 Re-use policy and pricing

All the prices of the *GeoDatenZentrum* are determined by the AdV pricing guidelines. Yet, BKG is currently developing its own pricing and licensing rules. Currently, BKG does not provide any datasets free of charge to private re-users. Only free viewing of the public data – for example via the so-called DOP Viewer – is possible.

[58] See MICUS Management Consulting (2008): '*Chancen für Geschäftsmodelle deutscher Unternehmen im europäischen und globalen Geoinformationsmarkt*', p. 49.

Figure 18: Free viewing of digital ortho-photos in BKG's DOP-Viewer

BKG has proposed that it provide at least some datasets free of charge, but this has not been accepted. The reasons include budgetary constraints at federal level, established budgetary principles such as benefit taxation (*Äquivalenzprinzip*) that would need to be reviewed, and possible conflicts with the *Länder* which provide BKG with PSI but also sell the data themselves. BKG underlines that it is a purely political decision whether BKG is allowed to provide its data free of charge. BKG cannot take such a decision itself.

Federal public authorities get data and web services free of charge from BKG for missions that are incorporated within their public task. However, this does not mean that the federal level receives the data free from the *Länder*. Indeed, BKG pays a yearly lump sum to the *Länder* for their geographic PSI and is thereby authorized to provide the data free of charge to PSBs at federal level. This solution has helped to reduce the administrative burden substantially. Similar administrative agreements also exist at the level of the *Länder*.

5.6.3.6 Impacts of the re-use policy

In 2010, BKG sold data to 381 different re-users. The following table gives an overview of the different re-user groups.

Re-user groups	Number of re-users (2010)
Public sector bodies (federal level)	55
Public sector bodies (*Länder* level)	41
Public sector bodies (commune level)	14
Other public sector bodies	7
Universities	27
Other research institutes	8
Associations, parties, etc.	12
Commercial re-users	181
Individual citizens	35
TOTAL	381

Table 27: BKG re-user groups 2010 (source: BKG)

The 181 commercial re-users include approximately 20 large 'internal re-users' that are willing to pay for high quality public data. Examples include energy utilities, assurance companies, *Deutsche Bahn* (the German railway company), *Deutsche Post* (the German postal services), and *Deutsche Telekom* (the German telecommunications company). These companies integrate BKG's PSI into their internal information and operation systems, but do not redistribute it.

On the other hand, there are 'external re-users' that develop value-added products and services based on BKG's PSI. These notably include distributors of leisure maps on different media (such as paper, CD, DVD, GPS devices or smartphone apps) as well as global players in the geo-information business. Contrary to many internal re-users, global players from the geo-information business are extremely price-sensitive. If the PSBs do not propose pricing conditions that they find acceptable, they look for alternative sources.

Non-commercial re-users do not play an important role for BKG. Indeed, for most non-commercial actors, the free viewing functions are sufficient to satisfy their needs.

In recent years, BKG has found that more and more re-users – including many commercial ones – work with OpenStreetMap data instead of BKG's PSI. The German OpenStreetMap community has been proven to be very accurate, and provides high quality data with a good coverage even of rural regions. Notably, on coverage, the German OpenStreetMap seems to be more reliable than in other EU Member States. BKG underlines that OpenStreetMap cannot guarantee the quality of its data and the sustainability of data provision to re-users. Therefore, many large re-users still prefer to buy public data. However, BKG observes

emerging resistance in the OpenStreetMap community against the increasing commercial exploitation of the data that has been collected by the community without any compensation and without any commercial objectives.

In total, the PSI sales in recent years have been decreasing – other than in the case of some large deals with global geo-information players. This development can be explained by the increased competition from private data providers and communities such as OpenStreetMap. The willingness from the private sector to pay for public data has also decreased.

BKG underlines that, in Germany, PSBs make about ten times more money selling cadastral information than selling cartographic-topographic information as distributed by BKG. Indeed, while the cadastre is a monopoly of the public sector, cartographic-topographic information is increasingly collected by private firms or communities, thereby putting pressure on prices. Furthermore, in Germany, the prices for cadastral information vary widely. While such PSI is very expensive in big agglomerations – notably in Hamburg – where commercial re-users enjoy a large potential market of end-users for value-added services, the data are cheaper in most rural areas of Germany. AdV, however, has announced that prices for cadastral data in Germany will be fully harmonized once the current migration to the new nationwide ALKIS cadastral information system has been completed.

5.6.4 The AdV pricing model

Recognizing that heterogeneities in the pricing and licensing models of the *Länder* mapping and surveying authorities were barriers to the evolution of a strong German geo-information business and the broad re-use of public geo-information, the *Länder* authorities developed common pricing guidelines. These were enacted by AdV – after five years of negotiations – for the first time in 2007, and have been reviewed several times since then.

The AdV pricing guidelines follow the guiding principles of the INSPIRE and PSI Directives and the German spatial infrastructure program 'GDI-DE', notably with regard to the principle of non-discrimination (*Gleichbehandlungsgrundsatz*). Furthermore, the AdV pricing model builds on the benefit taxation principle (*Äquivalenzprinzip*) according to which those who benefit more from government expenditure (here, the reference is to the provision of geo-information) should pay more taxes to support such expenditure.

The AdV pricing guidelines are applicable to all re-users purchasing geo-information in more than one of the German *Länder*. If PSI is bought from only one *Land*, the individual pricing

policy of the relevant *Land* is applied. The *Länder* authorities have been asked to adapt their own pricing models to the guidelines. While some authorities have – at least partially – adapted their pricing regimes, others insist on their independence.

The AdV pricing guidelines are applicable to the three central geo-information databases covering the German territory:

- AFIS spatial reference information system (*Amtliches Festpunktinformationssystem*)
- ALKIS cadastral information system (*Amtliches Liegenschaftskatasterinformationssystem*)
- ATKIS geotopographic information system (*Amtliches Topographisch-Kartographisches Informationssystem*)

The AdV pricing guidelines contain a number of price-determining factors such as a cost-based standard fee, rebates for large information quantities, rebates for certain data formats, surcharges for multi-user licenses or surcharges for external re-use. The following figure illustrates these factors.

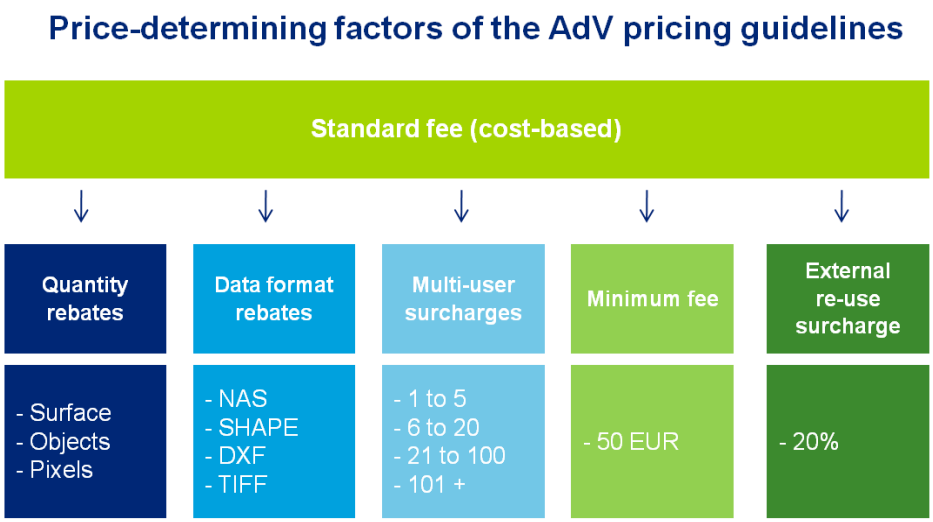


Figure 19: Price-determining factors of the AdV pricing guidelines

Once a re-user has bought PSI based on the AdV guidelines, the yearly updates of the PSI are offered at a price of 18% of the initial cost.

For many data products the guidelines have price caps for re-users that want to acquire a full database for the entire national territory. These caps ensure that the prices for very large data quantities do not become prohibitive for re-users.

Where re-users want to re-distribute refined PSI in a value-added product or service, the fees are determined as a percentage of the turnover generated by the re-user

(*Umsatzerlösbeteiligung*). This pricing approach is beneficial for SMEs because such variable licensing fees determined on the basis of the turnover reduce barriers to entry substantially as well as the business risks when compared to fixed licensing fees. However, in order to calculate the price, companies have to disclose their business model to the PSB. Some companies fear that this would allow critical information to reach their competitors. Therefore, companies can – as an alternative – also pay a flat fee.

In order to determine the exact re-use fee, the AdV guidelines propose a two-step-approach. First, the PSB needs to determine the 'value points' consumed by the re-user depending both on the proportion of the original PSI in the end-product or service (category 1), and on the degree of rework of the original PSI (category 2).

Category 1: Proportion of the original PSI in the final product or service		**Category 2: Degree of rework of the original PSI**	
%	**Value points**	**%**	**Value points**
Up to 25	10	Up to 25	30
More than 25 Up to 75	20	More than 25 Up to 75	20
More than 75	30	More than 75	10

Figure 20: 'Value points' for the re-distribution of value-added products and services (AdV guidelines)

In a second step, the turnover generated by the re-user from product or services sales is multiplied by a factor that is determined based on the 'value points' consumed by a re-user's business model (i.e. the sum of category 1 and 2 'value points'). This multiplication yields the fee that the re-user has to pay to the public sector body. The highest possible fee corresponds to 25% of the re-user's turnover.

Sum of category 1 and 2 value points	**Price factor**
20	0.05
30	0.10
40	0.15
50	0.20
60	0.25

Figure 21: Price factors for 'value points' (AdV guidelines)

According to AdV, the pricing guidelines propose a number of customized pricing models that fit very different business models and re-use purposes. On the other hand, GEOkomm –

a geo-information business interest group – has criticized the pricing model's complexity and AdV's 'cartel-like approach to pricing'.

5.6.5 Senatsverwaltung für Stadtentwicklung Berlin

5.6.5.1 Key economic indicators

Indicator	Year 2010
PSB	Senatsverwaltung für Stadtentwicklung – Geoinformationen
Total budget	9,140,200 EUR
FTEs	120
Turnover from PSI sales	945,000 EUR
Cost recovery rate	10.3%
PSI pricing model	Own pricing model + AdV guidelines
Re-users	
Number of re-users	2,879 external re-users (private re-users, public authorities not belonging to Land Berlin)

5.6.5.2 Introduction

The department for geo-information of the Senatsverwaltung für Stadtentwicklung (SenStadt) of the *Land* Berlin operates a partial cost-recovery pricing model for its geo-information in order to meet revenue targets set down in the Budget Law of the *Land* Berlin, and to transpose the AdV pricing guidelines to the regulations of Land Berlin.

5.6.5.3 Organization, governmental structure, tasks, PSI portal

The department for geo-information of the *Senatsverwaltung für Stadtentwicklung Berlin* (SenStadt) is the public sector body in charge of mapping and surveying in the *Land* Berlin. It is fully integrated in the administration of the *Land*. The department currently counts 120 FTEs.

The public task of geo-information authorities of the *Land* Berlin – that includes SenStadt – is defined by the Surveying Law of the *Land* Berlin (*Gesetz über das Vermessungswesen in Berlin* – VermGBln) and summarized as follows in the Budget Law of the *Land* Berlin:

- Providing efficient surveying and geo-information services;
- Securing the right of property by the operating and making accessible the cadastre;
- Ensuring an efficient and effective co-operation of all actors involved in the collection, provision and use of geo-information;

- Supporting the planning and environmental departments of the public administration;
- Informing the public by the provision of systematic, comprehensive and high-quality geo-information and information about the geo-information available;
- Harmonizing the framework conditions of the geo-information sector in the *Länder* Berlin and Brandenburg;
- Strengthening the position of Berlin as a location for European co-operation in the field of satellite positioning; and
- Building and operating an infrastructure for spatial information in line with the INSPIRE-Directive, the German project GDI-DE (*Geodateninfrastruktur Deutschland*) and AdV.

To better fulfil its public task, SenStadt has withdrawn from all activities in recent years that were not at the core of its tasks. These notably include the production of leisure cards. The development of value-added services and the refinement of the data are left to the market.

The PSB is closely monitored by the parliament (*Parlamentarische Kontrolle*) with regard to its adherence to its public task. For instance, following a strong political desire, SenStadt has recently developed a three-dimensional (3D) city model of Berlin. However, the parliament considered that this model did not fall within the core public task of the PSB. Therefore, the distribution of the 3D city model will be undertaken by a private public partnership. Moreover, SenStadt has recently developed some paper leisure cards at the request of politicians. These cards do not lie within the core public task as defined by law and therefore need to be given to the public free of charge (up to the limit of available stocks).

SenStadt has put in place a web portal for its geographic PSI: www.stadtentwicklung.berlin.de/geoinformation/. The portal contains a catalogue of all available geo-information products, data samples and prices. Re-users can easily contact the customer service to order geographic PSI. The data is then delivered by e-mail, FTP-transmission or on CD/DVD. The cadastral database is fully available online via a dedicated portal. Furthermore, the 'FIS Broker' service enables citizens to view a wide scope of geo-information of the *Länder* Berlin and Brandenburg free of charge on the website.

5.6.5.4 Budget, costs, revenues

As an integral part of the public administration, SenStadt is fully financed by the general budget of the *Land* Berlin. The PSB's budget is voted on by the parliament as an integral part of the Budget Law of the *Land* Berlin (see volume 9, section 1230). It should be underlined that the *Land* Berlin is currently in an austere financial situation in which it depends on

massive financial transfers from other *Länder* (*Länderfinanzausgleich*) amounting to 2.9 billion EUR in 2010.

The total budget of the geo-information department of SenStadt has been slowly rising in recent years:

- 2011 (target): 9,128,800 EUR
- 2010 (target): 9,140,200 EUR
- 2009 (target): 7,938,800 EUR
- 2008: 8,623,736 EUR

On the other hand, the revenues – mainly from PSI sales – have been varying around an average amount:

- 2011 (target): 1,206,000 EUR
- 2010 (target): 1,223,500 EUR
- 2009 (target): 1,102,200 EUR
- 2008: 1,307,872 EUR

The (target) PSI sales revenues have been the following:

- 2011 (target): 945,000 EUR
- 2010 (target): 945,000 EUR
- 2009 (target): 891,000 EUR
- 2008: 1,052,388 EUR

As codified in the Budget Law for 2010/2011 of the *Land* Berlin (as voted by the parliament), SenStadt is expected to generate yearly total PSI sales revenues of 945,000 EUR. These include:

- 600,000 EUR from data sales of the digitized cadastre;
- 200,000 EUR from sales of cartographic products and aerial pictures;
- 95,000 EUR from sales of products based on the real estate prices database; and
- 50,000 EUR from sales of other mapping and surveying products.

It is important to underline that, in recent years, most PSBs and communes in Germany have shifted from budgetary accounting to cost and activity accounting (*Kosten- und Leistungsrechnung*). This means that the costs and revenues of many public authorities have become clearer, but it has also led to a situation where finance ministers and parliaments put more and more pressure on PSI-holding PSBs to produce higher sales revenues. Indeed, politicians often regard PSI as a public asset which needs to be exploited in order to improve the disastrous financial situation of their commune or *Land*. Most PSBs in Germany –

including SenStadt – are not free to decide on their PSI pricing policy and target sales revenues. These decisions are mostly taken by finance ministries and the parliaments which vote on the budgets.

5.6.5.5 Re-use policy and pricing

SenStadt has implemented a PSI pricing model that enables the recovery of approximately 10% of the PSB's total costs (target values from 2010 budget). The model applies to private re-users and to re-users of authorities which do not belong to *Land* Berlin. Public authorities of the *Land* Berlin receive PSI free of charge for use within the public task.

The prices of specific data sets are determined based on the re-use facilitation costs (*Bereitstellungskosten*), the transposition of the AdV pricing guidelines into the regulations of the *Land* Berlin, the interests of politics of the *Land* Berlin, as well as the interests of re-users and of private data collectors.

SenStadt is, however, somewhat limited in its pricing decisions. Indeed, it cannot set very low prices or provide PSI free of charge as requested by some re-users because this would pose challenges to certain segments of the private data collection market. Further, SenStadt has to ensure that it meets the sales revenue targets set by the Budget Law.

As recommended by AdV, every re-use of SenStadt's PSI requires the subscription of a licensing agreement. The licensing fees depend on the product and the type of re-use. SenStadt has fixed a standard unit fee for every geo-information product. SenStadt's standard unit fees for nationwide available products are in line with the AdV pricing guidelines. For regional products of the *Land* Berlin such as districts maps, SenStadt has set its own standard unit fees. For certain products SenStadt provides large quantity rebates, i.e. the standard unit fees are lower for bigger quantities.

The pricing and licensing model distinguishes between internal and external re-use of the PSI. The subscription for an external license gives the owner the right to re-distribute value-added products based on SenStadt's PSI.

For internal re-use, the licensing fee depends on the standard unit fee as well as on the number of PCs on which the PSI is used. The following price formula is used:

*Licensing fee = units * standard unit fee * multi-user surcharge factor*

The table below indicates the different multi-user surcharge factors applicable to three main groups of nationwide available PSI products in line with the AdV pricing guideline:

digital ortho-photos (DOP), digital topographic maps (DTK) and digital ground models (DGM).

Number of workstations	Multi-user surcharge factor
1 to 5	1.00
6 to 20	1.50
21 to 100	2.00
More than 100	2.50

Table 28: Internal re-use multi-user surcharge factors for the products DOP, DTK and DGM (source: SenStadt price list 2011/12, AdV pricing guideline)

For regional digital PSI products, the following multi-user surcharge factors are used:

Number of workstations	Multi-user surcharge factor
1	1.00
2 to 4	2.00
5 to 10	3.00
11 to 25	7.00
More than 25	10.00

Table 29: Internal re-use multi-user surcharge factors for other digital products (source: SenStadt price list 2011/12)

In the case of external re-use, the licensees have to pay two fees: a data provision fee and an exploitation fee.

*Data provision fee = units * standard unit fee * multi-user surcharge factor * 0.2*

*Exploitation fee = units * standard unit fee * multi-user surcharge factor * 1.5*

In the case of external re-use of the nationwide available products such as DOP, DKT or DGM, the licensees can choose between different payment models: (1) payment of the entire fee at once, (2) payment of a flat rate, or (3) payment of a percentage of the turnover generated by the re-use (*Umsatzerlösbeteiligung*).

This exploitation fee is only applied to cases where the re-user sets the prices of its product to zero or below market prices or where the re-users' business model cannot be evaluated. In the case of market-oriented pricing by the re-user, the exploitation fee is individually negotiated between the company and SenStadt based on the AdV pricing guidelines and the general rule of non-discrimination between re-users (*Gleichbehandlungsgrundsatz*).

For the external re-use of other PSI products, the following formula is used to calculate the price to be paid by the re-user:

*Licensing fee = units * standard unit fee * multi-user surcharge factor * 1.5*

However, in the case of re-diffusion of the PSI via the internet, the licensing fee is individually negotiated between the company and SenStadt.

5.6.5.6 Impacts of the re-use policy

SenStadt's PSI is mainly (60%) used by PSBs of Land Berlin which receive the data free of charge. Private re-users and other PSBs which have to acquire the data (subject to the same conditions), thereby ensure SenStadt's PSI sales revenues. Relatively large companies are responsible for 75% of all private PSI purchases.

SenStadt underlines that the INSPIRE Directive, which introduces the principle of free viewing of geo-information, has led to important decreases in PSI sales revenues. Notably, citizens and small companies now content themselves with the free viewing and do not buy the PSI anymore.

5.6.6 Re-use of geographic PSI in Germany

The size of the German geo-information business market in 2007 has been estimated by MICUS Management Consulting at 1.51 billion EUR, an increase of 51% as compared to the 2000 market volume (see figure below). The growth has been particularly strong in the navigation sector, which has more than doubled in size. Yet, the recent market strategy of Google and Nokia to provide mobile navigation free of charge to end-users has led to increasing pressures in the navigation market. The geo-marketing segment and planning and maintenance systems have experienced continuous growth as well.

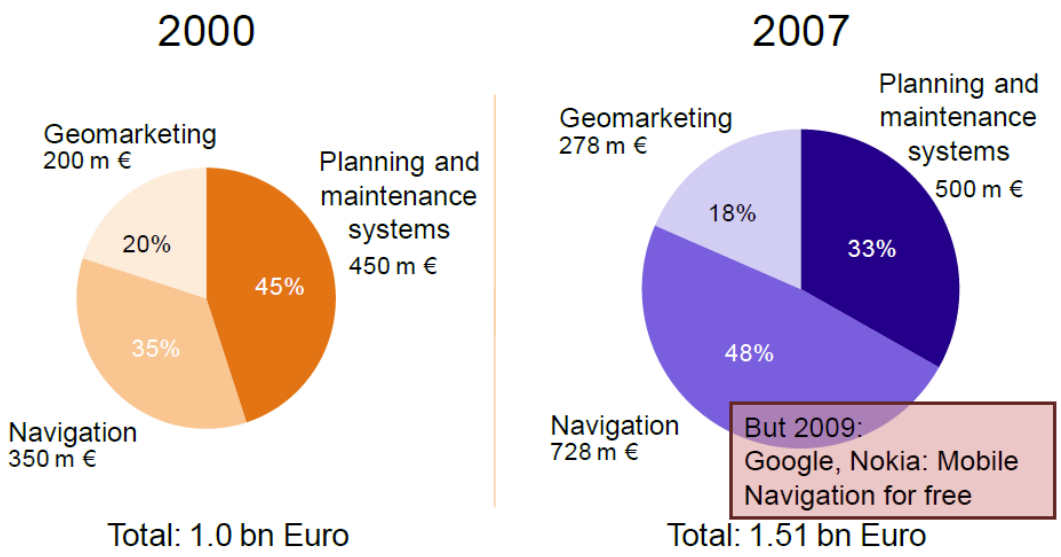


Figure 22: German geo-information market 2000 and 2007 (source: MICUS Management Consulting)

The German Ministry for Economic Affairs (*Bundesministerium für Wirtschaft und Technologie* – BMWi) sees Germany as one of Europe's front-runners of geographic PSI re-use. It underlines the efforts of the GIW Commission, a PPP initiative that has, inter alia, developed a common tool kit for PSI pricing, licensing and privacy protection rules which can be used at all levels of government. Also, a unit flat rate pricing model for *all* public data is currently being developed. However, these innovative pricing approaches have not yet been implemented by the public sector.

All public and private actors agree that the strong federalism in the German public geo-information production – causing the fragmentation of data stocks and pricing policies – is *the* core problem which needs to be tackled in order to fully reap the benefits of a growing geographic PSI re-use sector. For instance, GEOkomm, a re-user interest group, calls the federalism a 'fiasco for business' and argues in favour of centralization at federal level.

Another prominent problem is the severe budgetary constraints that *Länder* and communes impose on their geographic-PSI-holding PSBs Often, parliaments and finance ministries see the geographic PSI as a public asset that needs to be exploited, especially in the context of austere public finances. Generally, the geo-information business faces difficulties in obtaining political support when it fights for lower PSI prices.

Finally, strong privacy protection concerns with regard to the re-use of geographic PSI are an additional stumbling block for geo-information business companies in Germany. Indeed, the strong focus on privacy protection in the public debate on geo-information is a German specificity. For instance, the launch of Google Streetview in Germany has led to a highly emotional debate with the intervention of numerous prominent politicians. GEOkomm

regrets that politicians prefer to present themselves as protectors of citizens' privacy instead of searching for balanced solutions that also take into account the needs of business.

5.6.7 Key sources

- Desk research.
- Face-to-face interview with Reiner Retzek and Bernhard Weichel, Bundesamt für Kartographie und Geodäsie.
- Face-to-face interview with Gisela Fabian, head of public relations and marketing, Arbeitsgemeinschaft der Vermessungsverwaltungen der Länder der Bundesrepublik Deutschland (AdV), head of department III D, Senatsverwaltung für Stadtentwicklung Berlin.
- Face-to-face interview with Angelika Müller and Manfred Rupprich, Bundesministerium für Wirtschaft und Technologie.
- Face-to-face interview with Derek Earnshaw and Sallie White, EuroGeographics.
- Face-to-face interview with Dr. Peter A. Hecker, General Manager, GEOkomm e.V.
- Face-to-face interview with Daniel Dietrich, director, Open Data Network Deutschland.

5.7 DECA (DK – geographic PSI)

Case study author: Marc de Vries (Citadel Consulting)

5.7.1 Key message

A solid, centrally-run system of address data is not only of vital importance for the proper execution of the public task (such as emergency services, taxation departments and the monitoring and control of safety regulations), it is also a considerable source of materials for the development and distribution of digital products and services for which location is a key element. In Denmark, it took a public sector investment of 3M EUR to finance this operation and to provide a clear perspective on its subsequent exploitation.

DECA distinguished between the public sector investment to be made in the infrastructure[59] and the resulting exploitation of the facility created, by clearly and concisely allocating the costs to areas of benefit. It did not need to rely on levies imposed on re-users. It maximized the multiplier effects downstream and underlined the benefits of this initiative for the government and the Danish society as a whole.

The DECA case illustrates that increased tax returns on expanded turnover by first-tier and second-tier re-users downstream in the value chain largely exceed the investments made by the public sector. In other words: a central database of addresses supported by a re-use policy which only charges minimal re-use facilitation costs, and yet which boosts economic activities further down the value chain, has financed a more effective performance of the public task. DECA has succeeded in creating a self-propelling multiplier that is available to re-users.

5.7.2 Key economic indicators

Indicator	Year 2002	Year 2010
PSB		
Re-use facilitation	Municipalities	DECA
FTEs involved	11	0.5
Turnover	Less than 0.1 M EUR	0.26
Operational costs	1.1 M EUR	0.2 M EUR
Investment costs	0.28 M EUR	0
Profit	0	0.6
Price per address	0.15-0.20 EUR	0 (300 EUR for the full set of 2.2

[59] This is indispensible, since no party to the market will make such an investment in the public interest.

		million addresses) + a basic yearly fee of 0.01 M EUR for distributors
Re-users		
Number of re-users	12-22	Around 1,200
- first tier	2	26
- second tier	10-20	1175
FTEs employed	8-12 (first and second tier)	65-120 (first and second tier)
Turnover sector[60]	Between 0.5-1 M EUR	Between 5-10 M EUR
Results 2002-2010		
Price level full data set	Almost 100% decrease on variable costs	
Value created	57 M EUR	
% increase in FTEs re-users	800-1,000 %	
% increase turnover re-users	1,000%	
PSB savings	5 M EUR	
Investment of the operation	3 M EUR	
Corporate tax gains	14.25 M EUR	
Return on PSB investment	470%	

5.7.3 Introduction

The DECA case shows that considerable societal and economic returns can be achieved as a result of an initial public infrastructural investment. It set up a central database of address data that was combined with a re-use policy that stimulates the re-use of its data. It demonstrates the pay-off that can accrue when a political decision is made to take up the public task (of PSI collection) at a central level and cover the costs of the task fully through the use of public sector money. By including the future potential returns of re-use in the equation when decisions about the public task and its financing are made, the maximization of re-use potential can become a purpose in itself rather than a danger to the sector's own exploitation of the data.

5.7.4 Organization, governmental structure, tasks

The Danish Enterprise and Construction Authority (*Erhvervs- og Byggestyrelsen* or *DECA*) is a department of the Danish Ministry of Economic and Business Affairs. It is responsible for Danish enterprise and construction policy. Since 2002, under the Building and Dwelling Register Act (the BDR), DECA has overall regulatory responsibility for the set-up,

[60] Based on an assessment of FTEs employed.

maintenance and facilitation of the use and re-use of the Danish system of road names and addresses recorded by the municipalities in the BDR. In conjunction with section 1 of the Danish Statutory Order on Road Names and Addresses, the sharing and re-use of these address data records are clearly described as a key objective: "*The registration of the designated road names and addresses has as its purpose to ensure that correct information on the subject may be available in a uniform way to citizens, the business community and the public administration.*"

Accordingly, DECA makes these data available for use by any entity (whether from the public or the private sector). DECA has set up a system of Public Data Servers (PDS) so that any re-user can acquire a license to the registered data and distribute it further and/or use it to build different applications.

Currently, DECA has 257 FTEs. Its gross yearly expenditure is 31.6 M EUR (these are figures stated in the state budget of 2011). Only 0.5 FTEs are engaged in facilitating the public sector use and re-use of the address dataset.

5.7.5 Re-use policy and pricing

Before 2001, there was no central address data register in Denmark. At that time, there was no obligation or central policy on how the 275 municipalities should capture and maintain addresses and address coordinates. There was also no common technical, legal or organizational distribution system. This lack of commonality existed at the expense of the proper execution of the public task (and had a consequent impact on the running of emergency services, taxation, postal services, policing and monitoring and control of public obligations). Furthermore, re-users that were interested in applying Danish address data to their digital products and services faced an uphill battle: they had to acquire the address data from various places, in different formats and under a wide variety of re-use license conditions, such as high charges and divergent re-use schemes. Addresses cost an average of 0.15-0.20 euro cents per address, and the different re-use schemes often did permit for redistribution.

As a result, at that time only a few re-users managed to develop an application which consisted of address data distributed across municipal boundaries. Viable business cases were even more rare. The public sector possessed the most thorough data, even though they were somewhat scattered. However, re-users were generating alternative collections of addresses of varying quality which incurred costs of hundreds of thousands of euros. As a result, until the set-up of the central address facility there were hardly any Danish re-users of address data.

During the course of the 1990s, there was a growing consensus in Denmark that matters should change. There was an appreciation that addresses have a fundamental role to play in society. The notion was embraced that free and unrestricted access to addresses of high quality would be beneficial to the general public. It was accepted that address data could act as the basis for substantial benefits to be reaped in public administration, industry and commerce.

In this context, in 2002, the Ministry of Finance and the Danish eGovernment Taskforce launched an initiative to establish a common, geographic reference system called *"Better Access to Public Data*". It was supported by a financial mechanism that enabled a shift towards centralized data to take place. It was called the 'free of charge agreement' (hereafter, the agreement). Underlining the need for a business case for all citizens, the agreement arranged for three specific actions to take place:

1. Compensation of the municipal loss of income in data sales and for the extra workload in the mandatory process of the annual updating of the data, through free municipal access to government data (from the cadastral map and land registry) plus a separate remuneration of 1.3 M EUR (over a total period of three years).
2. Cost-free sharing of address data between public sector parties in order to enhance the execution of public tasks.
3. Availability of address data via a central distribution point (PDS) at prices equal to the maximum of the re-use facilitation costs incurred by DECA and without imposing any re-use limitations whatsoever.

The key to this transition process lay with the Ministry of Finance. This ministry holds a very powerful position since, every two years, it leads the integral budget revision and evaluation process. It ensured that the municipalities' own exploitation income was reduced and incorporated into the bigger picture in this two-yearly exercise. In the beginning, some of the larger Danish municipalities were not thrilled by the prospect of losing this source of income. However, their reticence swiftly disappeared as the full address dataset was made available for free: it increased the municipalities' efficiency and effectiveness significantly and removed from them the burden of organizing the task themselves. By 2005, the entire operation of address centralization had occurred.

5.7.6 Budget, costs, revenues

The initial investment to establish the infrastructure amounted to a total of 0.28 M EUR; these costs were distributed over a period of two years.[61] From the outset, the point was that re-users should only pay the costs of the facilitation of the re-use. This consisted of the costs incurred by the PDS (a facility and unit that enables maintenance and distribution of the data). For the period 2003-2009, the total costs of the PDS amounted to 1.3 M EUR. In 2010, the entire PDS organization (or at least the part of it that dealt with the address data) was run at a cost of 0.2 M EUR. This covered the costs of two FTEs (of whom only one-half of a FTE dealt with address data), a small overhead and technical costs.

Since both the public sector (in the framework of its public task) and re-users obtain data from the PDS, a decision was taken to cover 50% of these costs from the state budget and to recover the other half from re-users. Accordingly, the tariffs for re-use were set at:

- A fixed fee of 0.01 M EUR per year
- A fee based on the volume of data acquired (0.14 EUR per megabyte of data delivered), corresponding to 300 EUR for all 2.2 million addresses. After January 2003, the cost per delivered address became negligible in comparison to the earlier fees of 0.02-0.15 EUR per address.

By 2011, 26 re-users have entered into license agreements with DECA: these agreements cover fully the re-use facilitation costs.

The contractual relationship between a re-user and DECA is based on a standard license agreement. There are no quality criteria to be fulfilled in order to become a re-user, the only stipulation is to sign a contract to pay the yearly fee. Furthermore, DECA organizes yearly meetings that involve all its re-users: these meetings enable a flexible form of collaboration to take place between DECA and its re-users.

5.7.7 Impacts of re-use policy

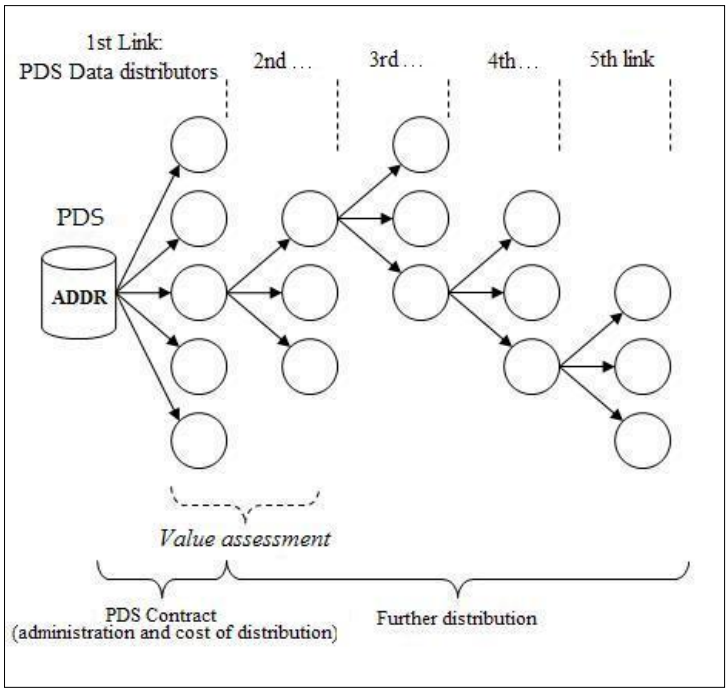
In 2010, DECA had a survey carried out among the re-users of the address data. The survey results relate to 2009:

- Address data were delivered to 1,236 users, 286 of which were full copies of the entire database.
- 70% of these deliveries were made to second-tier re-users (the rest were to PSBs as part of the execution of their public tasks). This amounts to 850 re-users.

[61] The initial investment to build up the PDS and its database amounted up to 1.12 M EUR. It is estimated that the address data comstitutes not more than 20-25 % of the total PDS costs. Thus, they amount to 0.28 M Euro.

- At least 12 of these deliveries were made to be implemented in applications with more than one million third-tier users. This particularly relates to GPS products: almost 50% of all Danish families use GPS navigation systems. All of them are fuelled by the addresses data set up by DECA.

Previously, only three re-users which partly relied on their own collections of data before the agreement. In comparison to that earlier situation, the gains are self-evident.



In terms of the economic value created, the survey assessed that:

- The direct downstream benefits for the period 2005-2009 amount to 57 M EUR.[62]
- The savings made by PSBs (which no longer has to deal with license issues) amount to 5 M EUR.[63]
- If one would take the value created as a basis, the corporate tax incomes gains would amount to around 14.25 M EUR (in Denmark the corporate tax relates to an average of around 25% of the turnover), yielding a return on investment of around

[62] This calculation is based on the assumption that the economic value of the free-of-charge address datasets corresponds to the price users paid before they became available free-of-charge. As it could be argued that prices for these data will have fallen due to increased competition and technological progress, to be on the safe side, a further reduction was applied of 25% to the value assessment.

[63] The assessment was made that each of the 275 municipalities spends eight workdays a year to facilitate re-use (contract/license negotiations and approval, extraction of data and data delivery to the re-users). Accordingly, the delivery cost of municipality data amounted to: 275 municipalities x 8 days x 7.5 hours per day x 67 EUR (average costs per hour for a civil servant), around 1 EUR per year (and thus 5 M EUR over five years).

470%. It could be argued that this value has not yet materialized in the form of turnover: however, this sum may be compensated for by the gains in income tax from the 50-110 new jobs that were created.

Finally, in terms of societal benefits both downstream and upstream, a number of conclusions can be drawn:

- As there is now a single, central database, no resources are wasted on any duplication of address data and there are no harmful effects.
- Public tasks are executed more effectively and efficiently (examples include the emergency services, postal services and taxation), in particular in terms of their contribution to public safety and service delivery.
- Completeness of data and quality are increased (through the mandatory updating of data by municipalities and the central reporting of mistakes).

5.7.8 Final observations

Although, legally speaking, municipalities (and possibly DECA itself) could claim that they own database rights related to parts of the address database, under the 2002 free-of-charge data agreement this was prohibited. Accordingly, any PDS is allowed to exploit copies of the database in whatever form and against any charges (including no charges). So too are purchasers of data from the PDS. This is not the case when the PDS itself adds value to the data, thereby creating its own intellectual property rights on the data. Thus, the re-use facilitation costs are paid by those entities that really want to rely on the source data. After that first-tier of use, the 'invisible hand' sets the prices on the basis of economic principles and fair competition.

5.7.9 Key sources

Interview held with Mr. Morten Lind, special advisor, and Mr. Asbjørn Lenbroch of the Danish Enterprise Construction Authority, February 17, 2011.

Interview held with Mr Christian Fischer - Grontmij | Carl Bro A/S, re-user of the Danish Enterprise Construction Authority, March 11, 2011.

Danish Enterprise and Construction Authority (2006), ”Statutory Order on Road Names and Addresses, Bek. nr. 1398 12, Copenhagen December 2006. (http://www.adresse-info.dk/Portals/2/Dok/DK_Statutory_order_on_road_names_and_addresses.pdf)

Lind, M. (2008) ”Addresses as an infrastructure component: Danish experiences” (ISO workshop on address standards, 25. May 2008, Copenhagen), ISO June, Oslo. (http://www.isotc211.org/Address/Copenhagen_Address_Workshop/papers/Lind_Addresse

sAsAnInfrastructureComponentDanishExperiencesAndPerspectives_ISOWorkshop_May2008.pdf).

Lind, M. (2003), ”Reliable Address Data: Developing a Common Address Reference System” (GINIE Compendium of European SDI Best Practice, Chapter 6), Oct. 2003, p. 94 -105. (http://www.ec-gis.org/ginie/doc/SDI_initiatives/GINIE_EBP_Section6.pdf).

5.8 IGN-CNIG Spain (ES – geographical PSI)

Case study author: Mar Negreiro Achiaga (Deloitte Consulting)

5.8.1 Key message

The *Centro Nacional de Informacion Geografica* (CNIG) (National Centre for Geographic Information) is the commercial arm of the *Instituto Geografico Nacional* (IGN), the Spanish Geographical Institute. Since its foundation, the CNIG has dealt with the collection and dissemination of geographical information which comes mainly from the IGN. While the IGN is in charge of the raw data collection and production, the CNIG is responsible for providing added-value to these data, their dissemination and commercialization. This commercialization was originally based on high prices, so that only a few major players (re-users) were able to afford the initial investment.

The CNIG-IGN was selected as a case study because of its progress during the last decade in providing increased access to geographical information for free to re-users for non-commercial purposes while implementing a pro re-user commercial policy. This has resulted in a remarkable increase in the number and type of re-users. For instance, the number of re-users has expanded from around ten large companies which initially purchased the PSI for both commercial and non-commercial purchases. Prior to 2008, all the PSI was for sale. The situation today means that over 40 re-users (the majority of them are SMEs) buy the information for commercial purposes, and hundreds of thousands of re-users acquire it for non-commercial purposes.

In terms of its revenues, the CNIG-IGN has experienced a steady decrease in product sales since 2004. An increasing number of users can access the data for free online instead of purchasing them. However, this situation is compensated by the fact that, over the same period, the centre has experienced a similar expansion in services sales. There is now a much larger number of commercial re-users than previously, and revenues that result from the marginal costs applied to re-users. There have been 3,325 requests to pay marginal costs since March 2008, compared to 168,582 total requests. Therefore, only about 2% of all requests have a non-commercial purpose.

Turnover from PSI sales constitutes a very small proportion of the budget: total PSI sales represented less than 4% of the total IGN-CNIG budget in 2009, and 24% if only the CNIG component of the institution is considered.

Since the download centre service has been in place, the centre has experienced very high demand from non-commercial users and re-users. For instance, between 2008 and February 2010, there were about 165,257 requests for data from 37,417 users. There has also been an increase in terms of visits and usage: since October 2010, the volume of data services and users has doubled.

5.8.2 Key economic indicators

Indicator	Year 2006	Year 2009
PSB		
Entire organisation		
FTEs	735 IGN 50 CNIG	660 IGN 101 CNIG
Yearly budget	49 M EUR	51 M EUR
Re-use facilitation		
FTEs involved		42
Turnover	1.8 M EUR	2.1 M EUR
Costs	0.44 M EUR	1.3 M EUR
Profit	1.7 M EUR	0.83 M EUR
Price full data set		Not applicable
Re-users		
Number of re-users	10*	40
FTEs employed		
Turn over sector		

*These re-users included both commercial and non-commercial purposes. Today, there are over 40 re-users which use the data for commercial purposes, and hundreds of thousands of re-users who use them for non-commercial purposes There are millions of users who access the geographic information for only consultation purposes.

5.8.3 Introduction

The *Centro Nacional de Informacion Geografica* (CNIG) is the commercial arm of the *Instituto Geografico Nacional* (IGN), the Spanish Geographical Institute. The centre is evolving from a model in which all its PSI was commercialized for re-use, whatever the final purpose, to one which distinguishes non-commercial re-use (where the PSI provision is granted for free) from commercial re-use (where the CNIG applies partial cost-recovery).

5.8.4 Organization, governmental structure, tasks

The *Instituto Geográfico Nacional* (http://www.ign.es) (IGN - National Geographic Institute) is part of the Ministry of Public Works and Transportation. Its main activities are cartography, geodesy, photogrammetry, remote sensing, geographic information systems and the national seismic network, geophysics and astronomy.

The *Centro Nacional de Información Geográfica* (CNIG – National Centre for Geographic information) is an autonomous body linked to the IGN. Its goal is to produce, develop and distribute geographic works and publications, including dissemination and commercialization of the products and services from the IGN. It is the dissemination office for cartographic products of the National Geographic Institute.

It was created by the Law 37/1988 of 28th December 1988, and the General State Budget for 1989. Section 122. Creation of the National Centre for Geographic Information. (BOE n º 312 of December 29th, 1988). It is currently regulated by Royal Decree 663/2007 of 25th May, 2007 (BOE n º 134, 5th June), which approves the Statute of the National Centre for Geographic Information.

Since its establishment, the CNIG has dealt with the collection and dissemination of geographical information from the IGN. Whereas the IGN is in charge of raw data collection and production, the CNIG is in charge of its dissemination and commercialization. This commercialization used to be based on high prices. The re-users were composed of only a few major players that could afford the initial investment in the database.

Today public dissemination of geographic information generated by the CNIG is governed by the FOM/956/2008 order of 31st March 2008 (BOE n º 85, April 8th, 2008). This order established the policy for the dissemination of digital geographic information. It established the free nature of non-commercial use of this information and determined how to define the economic consideration in the general use of it. It is important to note that the CNIG does not offer value-added services to the market for commercial purposes outside its public task.

5.8.5 Re-use policy and pricing

The CNIG practices a partial cost-recovery pricing model for its PSI which distinguishes non-commercial re-users from commercial exploitation. Its new pricing policy, introduced in 2008, is based on an estimation of the added-value of the PSI to its business model (as a percentage of turnover). This has allowed for an increase in the type and number of re-users. For instance, re-users buying the PSI have increased from about ten large companies

purchasing the PSI for both commercial and non-commercial purchases (i.e. prior to 2008 when all the PSI was for sale) to a situation today in which over forty re-users purchase the information for commercial purposes (the majority of them are SMEs), and hundreds of thousands of re-users do so for non-commercial purposes.

These purposes are clearly laid down in the law. Depending on the type of information requested for download, it is necessary (or not) to accept a license, and this in turn may be of two types: 'free use' or 'commercial use'. Specifically, the IGN-CNIG established a new data policy on 8 April 2008. It stipulated that:

- National Reference Geographic Equipment (NRGE), Information and Metadata are PSI accessible under conditions such as free access, free use and free of charge (without the need for a license).
- Other Digital Geographic Information is accessible for non-commercial uses under conditions such as free access and free of charge (while a license must mention the origin and ownership of data).
- Online Services for viewing, analyzing and geo-processing can be accessed for free on the internet.
- Downloading PSI available online is free of charge (while an online license is needed).
- Asking the CNIG to download the PSI offline applies a marginal cost. Datasets produced or directly coordinated by IGN Spain are distributed free of charge for non-commercial re-users, except when the process is not done online directly by the re-user but offline by the CNIG. In this case only costs related to the reproduction are charged. This cost varies according to the volume of information that is affected by the time to copy the required files. It is established by an initial price (currently 10 EUR) for preparation of the copying process, the generation of a use license and organization of computer storage media in which information is copied, plus one EUR per file copied (storage unit) for the processing and use of information resources, less volume discounts on copied information, plus overhead storage media used.
- Direct internal use at companies in company management systems is considered non-commercial use. Geographic information from IGN can be published on the Internet, thus adding value to the original geographic information when the uses are non-commercial.
- For commercial re-users, a license must be signed and there is a charge depending on the contribution of the original dataset to the final product or service, the sales figures and the benefit obtained. Digital geographic Information will be accessible for commercial uses under agreement contract with CNIG. These uses do not require initial

fees, only commercial profits sharing. Fees are established by an agreement that takes into account the Reference Value of the geographic information and the total business value (Mas-Mayoral et al., 2009; Rodriguez et al., 2009).

Thus the PSI pricing policy for re-users is based on cost-recovery from the start. However it has evolved positively from an oligopoly based on commercially high prices to purchase the whole database to a more pro re-user policy that permits different types of purposes (commercial and non-commercial) and different types of re-users' needs (re-users can purchase large or small quantities of PSI depending on their needs).

The CNIG has changed its pricing policy approach completely since 2008 with the implementation of the Royal Decree 663/2007. Previously, it used to charge for its PSI to all users (whether commercial or non-commercial) with fixed prices based on a partial cost-recovery model. The CNIG acknowledges that these charges were quite prohibitive.[64] Thus only about a dozen large companies were able to purchase this information upfront and made the initial investment to acquire it. Since 2008, non-commercial users can access the PSI for free: for a year now there has been a mass downloads platform which is increasing the number of its visitors and its volume of data downloads (it has doubled both in less than twelve months).

On the other hand, the approach for commercial purposes is now to provide the CNIG with a percentage of the profits according to the business model and the value of the PSI to it. This is provided *a posteriori* to the re-use. In the case of large corporations which do not want to reveal their business models, the CNIG allows them to pay a flat fee as long as they use the PSI: the fees are determined on a case-by-case basis but according to public regulations. Thus the policy is now to charge according to the estimated revenues generated from the PSI and the size of profits rather than a large fixed price. This has translated into a policy of many small transactions rather than a few large ones. There is also no need for the management of invoices and this has brought many costs savings to the

[64] Old price data exists for access to PSI: DECISION of 1 July 2004, the National Centre for Geographic Information. It was publicly charged to govern the distribution of data, publications and services geographical character (Núm.171 Gazette of 16 July 2004). Public prices were fixed in paragraph 9. "Geographic information in digital format, licenses for end user" as required under the transitional provision of the Order FOM/956/2008, 31 March. The law approves the policy for public dissemination of geographic information generated by the Directorate General of the National Geographic Institute, multiplied by ten, and acts as a benchmark for setting the economic considerations in commercial applications, as required by Article 8.4 of the previous Order. http://www.boe.es/boe/dias/2004/07/16/pdfs/A26079-26082.pdf

CNIG (which would have not been able to transmit all the current level of requests with their previous fixed prices system).

5.8.6 Budget, costs and revenues

Out of the nearly 52 M EUR budget in 2009, 82.7% or 43 M EUR corresponds to the IGN whereas the CNIG has 17.3% or 9 M EUR. The total PSI sales represent 4% of the total budget in 2009, but 24% if only the CNIG component is considered.

The total FTEs have decreased steadily in the last five years from 785 in 2006 to 761 in 2009. However the volume of the CNIG personnel doubled in 2009 to 101 FTEs. That was because of the new mission undertaken since 2009 by the CNIG to harmonize different official databases, to manage the NSDI of Spain and to provide a central geo-information service:

In thousands Euros	2004	2005	2006	2007	2008	2009	Internal distribution 2009 (%)	Increase from 2004 to 2009 (%)
Human resources	*15,087.60*	*17,292.44*	*17,011.48*	*17,027.67*	*17,998.75*	*18,624.91*	*35.85*	*23.44*
Maintenance costs	*2,783.47*	*3,999.33*	*4,172.17*	*5,584.50*	*4,852.17*	*5,734.63*	*11.05*	*105.02*
Internships and funding of grants	*1,128.16*	*1,252.19*	*1,375.28*	*1,594.94*	*1,719.09*	*1,589.17*	*3.05*	*40.86*
Investments and capital transfers	*18,335.59*	*24,891.78*	*27,228.28*	*28,999.41*	*27,696.29*	*25,990.86*	*50.05*	*41.75*
Total IGN/CNIG	*37,334.82*	*47,435.74*	*49,787.21*	*52,206.52*	*52,266.30*	*51,939.57*	*100*	*39.11*

The IGN staff is made up of three large groups: Central Services, Peripheral Services (astronomy and geophysical observatories that depend on Central Services), and personnel working in Regional Services that form part of government delegations. They are organizationally attached to the Ministry of the Presidency but functionally to the IGN through the CNIG. There are 495 persons working in Central Services, 104 working in IGN Peripheral Services and 162 working in the Regional Services of the government delegations. The entire staff of the IGN totals 761 persons.

The new pricing model has brought similar levels of income. Although fewer products have been sold since 2004 (see the table below), more services are being purchased (both marginal costs copies and commercial). There are more 'small payments' (many of which are very small) as opposed to a few large payments. The information is very popular and many citizens, companies, universities and administrations are using the material either only to view the information or through licenses to further exploit it.

The sales constitute only a small part (less than 4%) of the total budget of the IGN-CNIG. In future, this percentage could be even lower. The importance is to create the dynamic circulation of data in order to stimulate even more use of all types. Allowing SMES and more companies to access the data at a symbolic price creates added-value in terms or taxes, employment and growth. However, it is also important in the PSB's view to remind companies who use the information for commercial purposes that the originators have paid a high price for it: it costs over 16 M EUR a year to produce the geographical data. Therefore, PSI is charged to foreign companies which pay taxes in other countries, and this method is seen as a way to return some revenue to Spanish taxpayers.

Years	Sales from products	Sales from services	Total sales	Commercial expenses	Results from commercial operations
2004	*1,483,317.45*	*777,642.00*	*2,260,959.45*	*798,628.77*	*1,462,330.68*
2005	*1,957,688.07*	*383,772.34*	*2,341,460.41*	*540,127.15*	*1,801,333.26*
2006	*1,440,616.17*	*444,885.81*	*1,885,501.98*	*438,213.33*	*1,447,288.65*
2007	*1,398,237.12*	*807,312.34*	*2,205,549.86*	*498,497.94*	*1,707,051.52*
2008	*951,379.36*	*2,111,675.59*	*3,063,054.86*	*1,137,233.41*	*1,925,821.45*
2009	*638,112.06*	*1,511,957.94*	*2,150,000.70*	*1,315,791.24*	*834,209.46*

Funding of the National SDI Geoportal and its coordination has been assumed solely by the IGN. In general, funding from the IGN for the National SDI Geoportal and NSDI activities was 1,300,000 EUR per year during the 2006-2009 period.

The geoportal and the coordination of IDEE are funded by the State general budget that is assigned to CNIG. The annual expenses for the implementation and the maintenance of the geoportal were 1.3 M EUR per year between 2005 and 2009.

Currently, the National SDI Geoportal accesses over 1,400 OGC Web services and over 15,000 geo-information layers.

The 'Download Centre' is the CNIG portal page where all or most of the digital geographic information generated by the National Geographic Institute can be downloaded. The services, the visualization and download portal cost about 1.5 M EUR to be maintained. This includes equipment and services like the rental of additional servers (currently there are over 120 servers to maintain reliability at 99.5%). So, over five years, the costs have been around 7 M EUR: about half of this has been spent in services and half in equipment. The centre expects that these costs will start decreasing over time since the initial, strong years of investment have now taken place. However, the servers' component of the equation is still quite expensive. This financing comes from the public budget received, whereas money earned from sales is reinvested into improving the quality and size of the services. Currently, the Download Centre has over 16 types of products to be downloaded and over 28,455 geo-information datasets.

5.8.7 Impacts on the re-users

In the beginning, the PSI pricing policy for re-users was based on cost-recovery of the CNIG management. However, it has positively evolved from a policy based on commercial high prices for purchase of the entire database to a more pro re-user policy that permits different types of purposes (commercial and non-commercial) and different types of re-users needs. (Re-users can purchase large or small quantities of PSI depending on their needs.)

The CNIG has provided some figures from a survey replied to by 54,675 of its users. It clearly shows that there is a very diverse typology of re-users that benefit from the online PSI for non-commercial purposes, including a large number of SMEs.

	Total survey responses by user group	*%*
General Administration	*4,986*	*9.12*
Local Administration	*1,099*	*2.01*
Autonomous regions	*1,246*	*2.28*
Large enterprises (> 250 employees)	*1,427*	*2.61*
Medium enterprises (between 51 and 250 employees)	*1,239*	*2.27*
SMEs (<50 employees)	*1,704*	*3.12*
Micro SME(<10 employees)	*2,191*	*4.01*
Other	*3,529*	*6.45*
University	*11,033*	*20.18*
Individual user	*26,221*	*47.96*
Total	***54,675***	***100.00***

The total number of users and re-users has increased dramatically during the last year. For instance, the volume of downloads and the visits to the Download Centre has doubled since October 2010. This means that SMEs which were previously not clients now have access to the data and constitute the majority of the commercial clients. The number of clients has increased over four-fold since 2008: there are now over 40 companies. Prior to 2008, only a few multinationals and large Spanish companies paid for the PSI despite using it mainly for non-commercial/corporate purposes. Before 2008, there were no SMEs which purchased the data since they could not afford the initial investment. Today, in contrast, the large majority of the commercial re-users are SMEs: they can now access the services either for free if there is no commercialization of the data, or *a posteriori*, contribute to a percentage of the profits gained in their business model. This is established on a case-by-case basis with the CNIG.

Some other statistics show a high increase of users/re-users since the alteration in pricing policy in 2008:

1. The number of petitions addressed by business (licenses) from 3/2008 until 2/2010:
    a. By personal service: 3,325 (were marginal cost price applies)
    b. By Download Centre (automated, for free): 165,257.
2. The number of customers / users:
    a. Those served by personal service (were marginal cost price applies): 934
    b. Those directly using the Download Centre (automated, for free): 37,417.
3. The number of new services developed (which are nine):
    a. Download Centre: http://centrodedescargas.cnig.es/,
    b. Web viewers to specification standard WMS, WMTS OGC, WMS-C:
    c. SIGNA: www.ign.es/signa/
    d. IDEE: www.idee.es :where in 2010 over 1,400 services can be accessed .
    e. IDEAGE: www.ideage.es
    f. CartoCiudad: www.cartociudad.es
    g. Non-standard web map viewer: IBERPIX (www.ign.es/iberpix/)
    h. Web applications (Atlas, Historical Maps)
    i. Web access to Geodetic and geophysical data.

The association of Spanish re-users, ASEDIE, has provided the study team with good feedback regarding the CNIG policy change. They expect even higher levels of re-use to emerge in the future as a result of the new services that have been launched.

5.8.8 Key sources

- Desk research.
- Face-to-face interview with the CNIG director (Sebastian Mas Mayoral).
- Interviews with re-users (ASEDIE).

5.9 Spanish Cadastre (ES – geographic PSI)

Case study author: Mar Negreiro Achiaga (Deloitte Consulting)

5.9.1 Key message

The Spanish Cadastre is a pioneer public sector organization in terms of its facilitation of access and re-use of its PSI for free for both commercial and non-commercial purposes. It has evolved from being a government tax collection and real estate security service to being a socially valuable tool (its data is used in an increasing number of new applications and services). This approach has led progressively to a huge rise in demand for the data, with millions of visits and requests to download the cadastre's PSI.

A new download model has been recently introduced following the entry into force of the Spanish Sustainable Economy Act. Since April 5, 2011 the cadastre has implemented a new service which enables mass PSI downloads, under a simple and clear re-use license model provided for free. The impacts on re-users are already quite visible. This service has been very successful in its first weeks of life: by summer 2011, it already had over 1,152 registered re-users**.** Similarly the data from the first two weeks of activity as compared to the week prior to the implementation of the service shows very interesting results. For instance, the weekly volume of alphanumeric data download increased in only one week by 19 fold, from 67 to 1,203, and the total number of downloads of digital maps by eight-fold, from 275 to 2,101. Meanwhile, the total downloads increased nearly ten-fold from 342 to over 3,300.

There was also a large increase in the number of private companies downloading data as a result of their use of the new licensing service: these have increased over 15 fold, from 147 to 2166.[65] Prior to this change in the service, the cadastre was selling the PSI at a high fee and using a very outdated charging model which involved several transactions. As a result, very few companies used the model and very little revenue came from it: revenue was only 134,536 EUR in 2010 and about 343,000 EUR in 2008.

Now. geographic information, and especially cadastral information, is being used to develop many new products associated with a large variety of activities. The cadastral information is increasingly in demand by businesses and citizens for many uses. They include, among others, fleet management, market analysis, site location, geo-postal services, and infrastructure design and management.

[65] See annex for further information on the data increases in the first two weeks of service.

Before the re-users' license service was introduced, the cadastre had already experienced some very remarkable positive effects from the high demand of users accessing and consulting its electronic office. Over four and a half million digital certifications were provided online per year (compared to about 180,000 offline), with over 20.8 million visits to the electronic online office and over 64.7 million consultations.

5.9.2 Key economic indicators

Indicator	Year 2011
PSB	Spanish Catastro
Total budget	Estimated at 109 M EUR
FTEs	2,731 civil servants and 143 temporary (compared to 2,815 and 233 in 2007)
Turnover from PSI sales	Not applicable
Cost recovery rate	Not applicable
Re-use facilitation	2.2 M Euro (about 2% of the total budget).
FTEs involved	11
Costs	650K(costs FTE)+1.1M(infrastructure)+450K(maintenance)=2.2M
Re-use impact	
Number of consultations	20.8 M visits and 64.7 M consultations (prior to implementation of the re-users mass download portal on 5th April 2011)
Number of re-users	Since April 5, 2011 already over 1,152 registered unique profiles
Data Volume	124 M maps downloaded and four and a half million digital certifications (prior to re-users mass download portal) Downloads have increased from 342 to over 3,000 in only one week since mass download service was launched and in terms of volume from 759,722,343 to 27,380,347,434 Bytes.
Types of new services launched	Telecommunications, real estate, infomediary and geomarketing

5.9.3 Introduction

The Spanish Cadastre is a good case of an organization facilitating PSI re-use. It represents a pioneer PSB in Europe and, over time, its approach has resulted in a remarkable increase in the number and type of re-users.

The case of the Spanish Cadastre was selected because it has made good progress over the last decade in increasing the provision of access to geographical information for free to all type of users and re-users of PSI. This provision has been undertaken progressively: it started with access to consultation only of certain types of digital cadastral information. It has culminated, in spring 2011, with the implementation of a mass downloads online service implemented to facilitate re-use for free. It is anticipated that this move will expand the exploitation of the PSI for both commercial and non-commercial purposes.

Since the early 1990s, the Spanish Cadastre has met its public task by collecting information in digital format, as both a government tax collection and a real estate security service. From the beginning, the cadastre opted for the use of open formats such as XML: this is a key feature of its success. It means the provision of a useful and open data format that users and re-users can easily exploit.

These data were already available in digital format for internal purposes and exchanges within the Spanish administration authorities: it facilitated decision-making about the provision of access to the data by external users for free. Since the data were already digitalized, the extra efforts to open up the information to third parties seemed worthwhile – given the high demand that this could create and indirect economic and social effects. Indeed, the PSI has now been accessed by millions of users.

During the cadastre's years of operation, there has been a dramatic increase in use of data that has been stimulated by a progressive increase in the services offered. These were provided according to this timeline:

- In 2003, the Cadastral Virtual Office (OVC) was created. Some cadastral information was made available online.
- In 2004, all cadastral mapping was available online.
- In 2005, the Web Map Server (WMS) was launched.
- In 2006, a Web Feature Service (WFS) was implemented for registered users.
- In 2007, more interactive services for citizens and government were created.
- In 2008, new services were made available with SOAP (which allows more effective searches).
- In 2009, a four-dimensional Interchange Format KML was implemented.

- In 2010 the Electronic Office of the Cadastre (SEC) was created to replace the OVC. Since 2010, this Electronic Office allows electronic land registration procedures and provides editable WFS and other formats for public administrations.
- In 2011, with the adoption of the Sustainable Economy Act, every re-user may obtain editable WFS and other formats (maps and alphanumeric information in interoperable formats) through licensing.

5.9.4 Organization, governmental structure, tasks

The office of the Spanish Cadastre is under the umbrella of the Spanish Tax Office. It receives 100% of its funding through the general state budget to meet its public task of collecting and publishing the cadastral information of the Spanish territory (with the exception of the Navarra and Basque Country regions).

One key feature distinguishes the Spanish Cadastre from many other European cadastres: it also collects information for tax purposes. It has evolved from being a government tax collection and real-estate security service to being a socially valuable tool. This data is now used in an increasing number of new applications and services.

As part of the cadastre's public task, it has to protect personal data: it restricts access to the name of owner and the assessed value of the property to the government and to the actual data subjects.

The total number of FTEs has decreased steadily in the last four years due to organizational restructuring. This is partly explained by the high usage of the virtual office services, such as the digital certificates. Currently there are 2,731 civil servants and 143 contract officers, compared to 2,815 and 233 in 2007. Out of the total FTEs, 11 are in charge of facilitating the re-use of PSI.

5.9.5 Budget, costs, revenues

The cadastral budget foreseen for 2011 is about 109 million EUR. There has been a substantial decrease in it partly due to general reduction in the Public Administration following the financial crisis (it was 218 million EUR in 2010).

The cadastre revenue model is fully integrated within the overall state budget. Traditionally, this has allowed the coverage of all costs without any cost-recovery model. The cadastre had to take a decision whether to continue to offer the PSI for free to re-users (as it is doing) or to recover part of the cost (as other Member States' cadastres do today).

At least three reasons influenced the cadastre in offering the data for free. Given the demand and the potential use of the cadastral data to create indirect economic effects (such as new jobs and products), and the cadastral philosophy to maintain an open administration, the cadastre opted for a for free model. It seemed difficult to the cadastre personnel to identify an amount to be charged for the use of cadastral information without creating discrimination among users. It found it too great a contradiction to propose to seek economic compensation for access to cadastral information when its public task is to collect the data anyway for purposes of fiscal control. The cadastre also estimated that the cost of bureaucracy in determining the pricing, management, and invoicing of the system would be greater than the economic benefit derived from exploiting the data. In fact, the Spanish cadastre does not produce or sell any value-added services on the market.

Until 2011, the cadastre operated fee pricing for the PSI for commercial re-users. However, the model used was a very outdated one, which required several transactions. As a result, very few companies used it and little revenue came from it: as an example, the revenue was only 134,536 EUR in 2010 and about 343,000 EUR in 2008.

A study by KPMG, conducted under the auspices of the Spanish presidency of the EU in 2010, undertook a cost-benefit analysis of the service. It estimated that the cadastre's online access and digital certifications provision was saving Spanish tax-payers at least 157 million EUR a year, which is much more than the cadastral budget of 118 million during 2010. Another study conducted by RSO and Cap Gemini for the European Commission in 2009 went much further. Its cost-benefit analysis showed that the cadastre's electronic office was saving the Spanish tax-payer about 7,758 million EUR.

The annual costs of the digital service provision and the visualization of the portal infrastructure are about 1.1 million EUR per year, which is financed from the cadastre's public budget. In addition, there are two other costs to be considered. There are an estimated 11 FTEs who provide and facilitate the electronic service and its PSI re-use, whose salaries are about 650,000 EUR a year. An additional 450,000 EUR are estimated to be spent on system maintenance. In total, re-use facilitation costs about 2.2M EUR (or about 2% of the total budget of the cadastre in 2011).

5.9.6 Re-use policy and pricing

The Spanish cadastral approach is very accessible, mainly because from the beginning it was designed based on an open system. The electronic office has been its main platform for disseminating data over the Internet.

Public dissemination of cadastral information has been governed by the Spanish Sustainable Economy Act since March 22 2011. This law establishes the policy for PSI re-use and dissemination. It lays out the free nature of this information for both non-commercial and commercial re-users and how to define the economic considerations for its general use. Since April 5, 2011, the cadastre has implemented a new service which allows PSI mass downloads under a simple and clear license model. This technical tool has been enhanced by implementing an online licensing model, which clearly and simply defines a set of rights and obligations assumed by the government, citizens and companies that re-use cadastral information. The online license regulates issues such as intellectual property rights, responsibility for new products or services created by companies, and the criteria for re-use and subsequent marketing. The download procedure is conceptually very similar to those offered by airlines, hotels, theatres and other businesses via the Internet. It involves users' completing four steps: product selection, electronic identification, acceptance of the terms of the license and download. Thus data, such as large volumes of cadastral information, including all digital cartography, are easily accessible and secure.

The current framework is clearly a pro re-users policy which encourages all parties to access the information for free online and to re-use it for any purpose, although it also lays out a number of complementary rights and obligations. The copyright remains with the cadastre and any re-user has to add value to the PSI to be able to launch a new product or service. Simply reproducing the cadastral information, without adding any value, is not permitted.

5.9.7 Impacts of the re-use policy

According to the cadastre, the information generated as a result of the cadastral activity in combination with the potential provided by the development of the information society, has a great interest for businesses and citizens. It enables companies to operate in their sphere of business, contribute to economic growth and job creation, and provides citizens with an element of transparency and democratic participation.

It is clear that there is a significant demand from companies regarding information that relates to the Spanish territory, ownership structure, property features and people. Real-estate is not a static figure, but is constantly changing, particularly in certain regions of Spain. This results in the need to update cadastral information regularly so as to ensure that it corresponds to reality.

The re-users who were interviewed (i.e ASEDIE), who mainly represent infomediary companies, mentioned that they are very satisfied with the quality and framework conditions of the PSI re-use policy of the Spanish cadastral office. They appreciate that the

cadastre organizes regular awareness sessions at which it explains how to use the services and how to improve them. Moreover the cadastre has stated that the increase in transparency of the system has resulted in many users telling it about errors in the data or potential improvements. This feedback from the users improves the quality of the data.

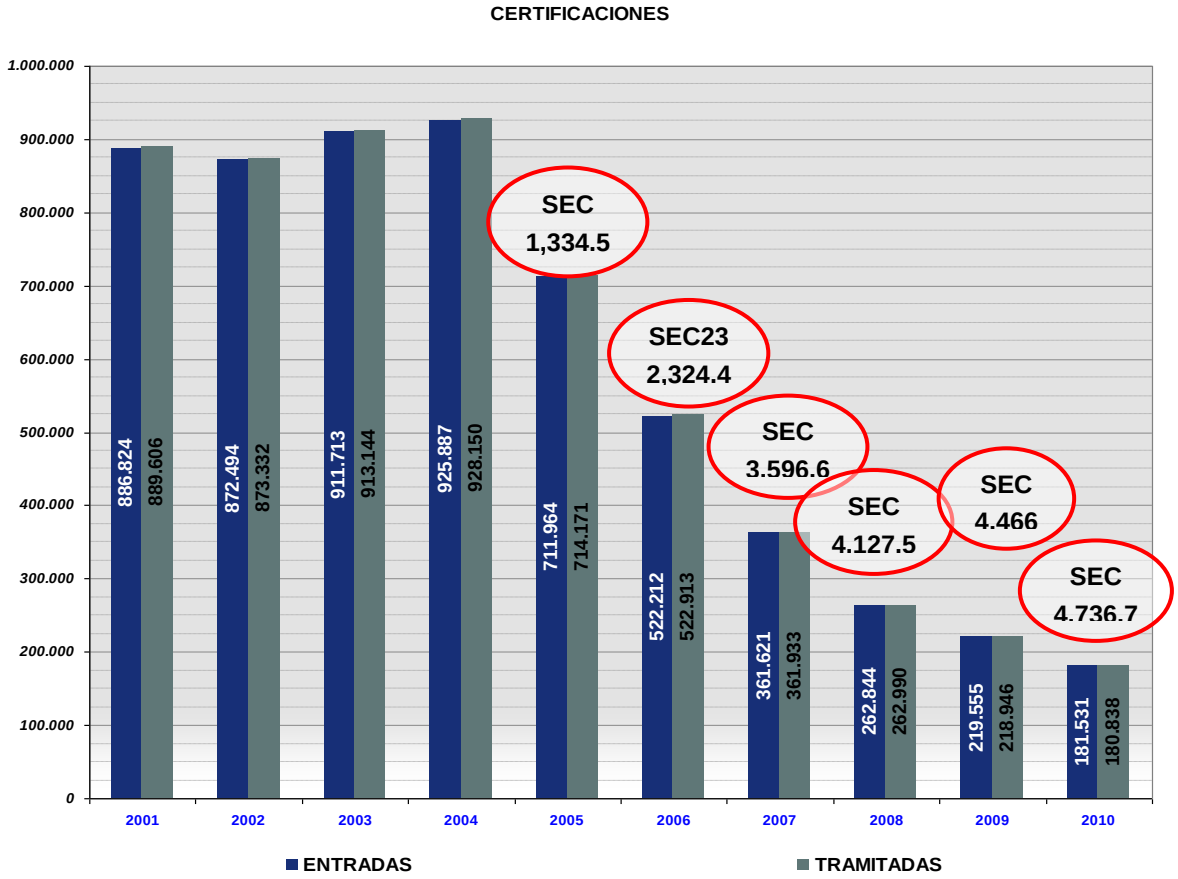
The Spanish cadastre's for free pricing model for its PSI has led to some very clear and positive effects. During its first two weeks of life, the new system already had over 1,152 registered re-users**.** Similarly the data from the first two weeks of system activity as compared to the week prior to the implementation of the service show very interesting results. The weekly volume of alphanumeric data downloads increased 19 fold in only one week, from 67 to 1,203, and the total number of downloads of digital maps by eight-fold, from 275 to 2,101. Meanwhile, the total downloads increased nearly ten-fold from 342 to over 3,300.

There was a considerable growth in private companies downloading data and using the new licensing service: they have increased over 15 fold, from 147 to 2,166.[66] The public administration increase was also important, increasing from 19 to 570 downloads. This is especially noteworthy since the public administration was already using the mass-downloads service for some time (in a sense it acted as a pilot case to test the reliability and quality of the service).

Prior to the introduction of the re-use licensing service, online consultations were also very high. In only 2009, the cadastre's digital portal had over 20.8 million visits that consisted of 67.4 million consultations and downloads of over 124 million maps. Similarly, there were about four and a half million digital certificates issued. This is clearly illustrated in the figure below. In light blue are the certification applications made in person handled by the offices of the cadastre, while the red circle indicates the number of certifications obtained online through the Service of Electronic Cadastre (SEC) since its foundation.

[66] See annex for further information on the data increases in the first two weeks of service.

Figure 23: Evolution of the issuance of cadastral certifications (both paper and electronic) between the years 2001-2010



The types of re-users include, among others:

- Real estate agents.
- National, regional and local governments.
- Businesses commercialising products and services based on the PSI in the market.
- Organizations and citizens using the PSI for non-commercial purposes.

Other than 'typical' re-users such as notaries or local administration, the Spanish Cadastre is encountering an increasing number of examples of new companies, applications and re-uses of its PSI. Generally the use of the data can help large companies and SMEs to generate new jobs which also open up new lines of products or services. A publication entitled *Monográfico usuarios de la información catastral* included many examples of these uses. There are new geo-marketing possibilities emerging thanks to the use of the cadastral PSI. For instance, an SME selling swimming pool products is able to target only those houses with a swimming pool, since this data is embodied in the cadastral database. Other efficient uses of the data include a faster infrastructure deployment (up to 40% improvement in some cases) in the case of the AVE high-speed train and in electricity line system

deployment. Other innovative uses include the online real-estate service called *Idealista* which uses the database to identify and describe more accurately properties in its own database.

Generally, as a case study, the Spanish Cadastre highlights that its cadastral information has never been in as much use as it is today. This is due partly to its increasing efforts to make the data available for free online in accessible formats, and also to the increasing pervasiveness of ICT which is helping all members of Spanish society (and elsewhere) to use the digital information available to their own benefit.

5.9.8 Key sources

- Desk research.
- Publications: 'Monográfico Catastro, Políticas Publicas y Actividad Económica, numero 69 Agosto 2010' and 'Monográfico usuarios de la información catastral numero 67 Diciembre 2009'. 'Benchlearning Study on impact measurement of eGovernment', 2009 RSO and Cap Gemini' for the EC.
- Face-to-face interviews with the director, deputy general director, international affairs officer and portal manager
- Interviews with ASEDIE re-users.

5.9.9 Annex

RESUMEN ESTADÍSTICO			
CONCEPTO	**DURANTE SEMANA ANTERIOR APERTURA AL PÚBLICO EN GENERAL (31 de Marzo a 5 de Abril)**	**DURANTE LA PRIMERA SEMANA DE APERTURA AL PÚBLICO EN GENERAL (6 a 12 de Abril)**	**DURANTE LA SEGUNDA SEMANA DE APERTURA AL PÚBLICO EN GENERAL (13 a 20 de Abril)**
SEGUNDOS SERVICIO MAX	94	6.804,00	56.066,00
SEGUNDOS SERVICIO MIN	0	0	0
SEGUNDOS SERVICIO MEDIA	5,59	67,1	183,45
SEGUNDOS GENERACION ZIP MAX	46	3.605,00	108,00
SEGUNDOS GENERACION ZIP MIN	0	0	0
SEGUNDOS GENERACION ZIP MEDIA	1,18	3,4	2,03
SEGUNDOS DESCARGA ZIP MAX	78	6.804,00	56.066,00
BYTES/SEGUNDO DESCARGA ZIP MAX	1.581.712,32	22.873.242,50	4.638.650,68
BYTES/SEGUNDO DESCARGA ZIP MIN	33.638,03	173,3	16,96
BYTES/SEGUNDO DESCARGA ZIP MEDIA	461.007,78	463.970,52	503.358,56
SEGUNDOS DESCARGA ZIP MIN	0	0	0
SEGUNDOS DESCARGA ZIP MEDIA	4,4	63,41	181,57
LONGITUD BYTES ZIP MAX	91.050.482,00	146.203.506,00	179.615.608,00
LONGITUD BYTES ZIP MIN	727	328	711
LONGITUD BYTES ZIP MEDIA	2.221.410,36	10.391.023,69	7.708.434,84
BYTES/SEGUNDO SERVICIO MAX	1.167.313,87	22.873.242,50	4.638.650,68
BYTES/SEGUNDO SERVICIO MIN	1.151,00	26,98	16,96
BYTES/SEGUNDO SERVICIO MEDIA	363.516,23	383.322,01	393.120,22
TOTAL BYTES SERVIDOS	759.722.343,00	27.380.347.434,00	23.711.145.554,00
NUMERO DE DESCARGAS TOTAL	342	3.071,00	3.304,00

DESGLOSE DE NÚMERO DE DESCARGAS POR PRODUCTO CATASTRAL			
PRODUCTO CATASTRAL	**NÚMERO DE DESCARGAS DURANTE SEMANA ANTERIOR APERTURA AL PÚBLICO EN GENERAL**	**NÚMERO DE DESCARGAS DURANTE LA PRIMERA SEMANA DE APERTURA AL PÚBLICO EN GENERAL**	**NÚMERO DE DESCARGAS DURANTE LA SEGUNDA SEMANA DE APERTURA AL PÚBLICO EN GENERAL**
Ficheros CAT (Catastro alfanumérico)	67	822	1203
Ficheros de cartografía en formato Shapefile	275	2249	2101

DESGLOSE DE NÚMERO DE DESCARGAS POR ÁREAS DEL CUESTIONARIO

SECTOR PROFESIONAL	NÚMERO DE DESCARGAS DURANTE SEMANA ANTERIOR APERTURA AL PÚBLICO EN GENERAL	NÚMERO DE DESCARGAS DURANTE LA PRIMERA SEMANA DE APERTURA AL PÚBLICO EN GENERAL	NÚMERO DE DESCARGAS DURANTE LA SEGUNDA SEMANA DE APERTURA AL PÚBLICO EN GENERAL
Otros	26	262	209
Administración pública	19	570	402
Empresa pública	150	476	172
Universidades o Centros de Investigación		101	76
Empresa privada	147	1207	2166
Profesional autónomo		450	264
Organización no gubernamental		5	15

ACTIVIDAD PRINCIPAL DESARROLLADA	NÚMERO DE DESCARGAS DURANTE SEMANA ANTERIOR APERTURA AL PÚBLICO EN GENERAL	NÚMERO DE DESCARGAS DURANTE LA PRIMERA SEMANA DE APERTURA AL PÚBLICO EN GENERAL	NÚMERO DE DESCARGAS DURANTE LA SEGUNDA SEMANA DE APERTURA AL PÚBLICO EN GENERAL
Otros	33	502	810
Servicios informáticos	2	665	884
Gestión medioambiental		245	340
Gestión agraria/forestal	7	218	132
Infraestructuras públicas		188	58
Planificación urbana o regional	153	428	173
Arquitectura y urbanismo		285	255
Mercado inmobiliario y tasación		57	48
Sector eléctrico		52	90
Sector gasístico o petrolero		2	7
Suministro de agua o alcantarillado		55	
Elaboración de productos digitales basados en información territorial	147	268	468
Seguridad o protección civil		6	6
Educación o sanidad		94	31
Transportes		6	2

PROPÓSITO DE LA DESCARGA DEL PRODUCTO CATASTRAL	NÚMERO DE DESCARGAS DURANTE SEMANA ANTERIOR APERTURA AL PÚBLICO EN GENERAL	NÚMERO DE DESCARGAS DURANTE LA PRIMERA SEMANA DE APERTURA AL PÚBLICO EN GENERAL	NÚMERO DE DESCARGAS DURANTE LA SEGUNDA SEMANA DE APERTURA AL PÚBLICO EN GENERAL
Otros	32	669	1001
Generación de Sistemas de Información Geográfica	95	1534	1407
Comunicaciones (telefonía, antenas, TV, etc.)	147	113	17
Creación de cartografía o callejeros para navegadores digitales		75	46
Gestión de patrimonio inmobiliario	68	214	94
Gestión de flotas de vehículos			4
Creación / gestión de redes de suministro (agua, gas, electricidad, etc.) o alcantarillado		99	76
Localización de emplazamientos, muestras de mercado, etc.		163	501
Ayudas públicas (agricultura, vivienda, estudios, etc.)		37	30
Valoración de inmuebles / seguimiento del mercado inmobiliario		100	71
Tributación inmobiliaria		67	57

5.10 Dutch Cadastre (NL – geographic PSI)

Case study author: Marc de Vries (Citadel Consulting)

5.10.1 Key message

The Dutch Cadastre is a dynamic example of a PSB that has developed an entrepreneurial mindset over the last decade. It has steadily expanded its activities and enhanced its position as the key PSB in the field of geographic information in the Netherlands.

To a large extent, this expansion relates to activities which are regarded as authentic public tasks. However, the subsequent abundant availability of high-quality data – in particular cadastral datasets – has also allowed the cadastre to develop products which, according to re-users, are in direct competition with those of the private sector. It is alleged that the cadastre now experiences a cost advantage due to its combination of the public registration task and its provision of data to re-users.

Central to this question is the large discrepancy among the various interpretations of what is the public task of the cadastre. According to the cadastre, its public task is the equivalent of those tasks described in the statutory framework (which mentions, and allows, 'economic' activities).[67] The cadastre considers it to be its statutory task (*wettelijke taak*) to create and provide derivative information products. Hence, the cadastre is of the opinion that: first, the PSI Directive does not apply to this use and it cannot be regarded as re-use by the cadastre, since the data exploitation is done under the public task and, second, it has no re-users, as intended by the PSI Directive, since all its provision of data is undertaken under the public task. Conversely, others, in particular re-users, put forward two arguments: first, the public task is not the equivalent of the statutory task; and, second, since market activities are, by definition, outside the public task, as a consequence, the cadastre should observe the statutory framework that is in place.[68]

The economic interests related to this issue are not insignificant: the part of the cadastre's income that is generated by non-public sector users amounts to around 20.5 M EUR (2010),

[67] Provided these economic activities are aligned with the other statutory tasks and the Ministry has approved them.

[68] To address the semantic issues deriving from this discrepancy, in this case study, when terms from the PSI Directive are used they are *placed between brackets*: (market) activities and (re-)users to underline the cadastre's position on these matters.

which accounts for over 7.5 % of its entire budget.[69] Legally speaking, if alternative sources of data were to exist, these re-users would have the choice of buying the data elsewhere. This is in opposition to those users, such as civil notaries engaged in the transfer of properties, who must rely on cadastral data under statutory rules.

On the policy-making side, there seems to be some support for (re-)users,[70] although there is also an appreciation of the fact that the cadastre needs to be able to continue its high-quality level of public task performance. In this context, suggestions have been made instead, first, to increase the tariffs on registrations so as to allow for lower charges on (re-) use and, second, to apply marginal costs-oriented regimes towards (re-)users for non-cadastral data. An example includes topographical data and basic registrations like the register for Addresses and Buildings (known as the BAG). However, in times of plunging property sales, an argument such as this may prove to be a hard sell politically.

Nevertheless, quite recently the Dutch legislator has adopted new rules on economic activities[71] of PSBs including its own sales of PSI. Hence, these discussions are likely to become more prominent and may in fact serve as an interesting source of inspiration for the review of the PSI Directive.

[69] Typically, these users are project developers, financial institutions, credit control companies and law firms. According to the cadastre, around 15 of these users (out of a total of 11,700) are reselling the raw data, as a publisher, creating a turnover of 0.15 M EUR. Other users are using the data merely as a peripheral contribution to their core activities (accounting for 17 M EUR) mostly through Kadaster On-line, the online service of the cadastre that provides direct online access to the cadastral registrations. Around 2.85 M EUR is generated through the sale of its own added-value products, see paragraph 5 for more details.

[70] Obviously, this particularly concerns those that seek to add value and resell large data sets (publishers of geo-information-related database products).

[71] 'Economic activities' not 'market activities' is the term used in the new law on Market and Government (*Markt en Overheid)*, see last paragraph.

5.10.2 Key economic indicators

Indicator	Year 2010		
	Figures on total organization (including other activities)	Legal certainty products (cadastral data)	Topographical data (Top10)
PSB			
Turnover	261 M EUR	210 M EUR	23.9 M EUR
Costs	234 M EUR	174 M EUR	22.5 M EUR
Result	27 M EUR	36 M EUR	1.4 M EUR
# FTEs	1,943	1,445	187
(Market) activities PSB		*Only usage that is non mandatory*	
Turnover from (re-)users		20 M EUR	0.5 M EUR
- from added-value products		2.85 M EUR	
- from sales raw data:			
○ others (banks etc)		17 M EUR	
○ true resellers		0.15 M EUR	
Costs		17 M EUR	0.5 M EUR
Result		3 M EUR	0
# FTEs involved (direct and indirect)		140	4
Users		Only usage that is non mandatory	
# of users		11,700	99
- # of true resellers (raw data)		15	
- Other re-users		11,685	

5.10.3 Introduction

Traditionally, the Dutch Cadastre maintains public registers which record who owns what rights to land and buildings in the Dutch territory and their characteristics (it also includes such equipment as ships, aircraft and subterranean networks). The registers guarantee legal certainty with regard to who owns what, and they specify the precise location of property.

In addition to these traditional tasks, over the last decade, the cadastre has assumed various other responsibilities. These include activities which are typically public task-driven (e.g., the registration and issuing of topographical information, management of the national provision of access to municipal public law restrictions, administration of the national facility for the Key Registers for Addresses and Buildings (BAG), and management of the Cables and Pipelines Information Centre (KLIC)). It has also developed activities aimed at creating and providing information products, mainly based on its cadastral data (and the data of others). It has been alleged that these activities compete on the market with the products of private sector parties. Moreover, the cadastre's (re-)use policy (at least for its cadastral data), is based on a restrictive licensing model: the (re-)user is prohibited from reselling the data in its basic form. To ensure this, the cadastre relies on invoking its copyright and database rights.

However, recent years have been quite trying for the cadastre – the number of deeds registered and incomes associated with this activity have fallen by almost 30%. They have led to the cadastre taking substantial cost-saving measures: for example, it has closed down nine of its 15 regional offices. In addition, the Ministry is increasing its grip on the cadastre. Regulatory measures, such as the new law on Market and Government, may be placing constraints on activities that could be considered economic activities.

5.10.4 Organization, governmental structure, tasks

The Dutch Cadastre, established in 1832, was part of the Ministry of Finance until 1974, after which it became part of the Ministry of Housing, Spatial Planning and the Environment (VROM, now called the Ministry of Infrastructure and Environment (the Ministry)). In 1994 it was turned into a 'Non-Departmental Public Body' (ZBO), which essentially created some financial, organizational and legal distance between it and the Ministry. However, in 2007, the Ministry decided to increase its grip on the cadastre and applied the 'Framework Law on Non-Departmental Public Bodies' (*Kaderwet* ZBOs) to the cadastre. This framework law specified who had the capacity to nominate board members and to approve the multi-annual plans and budgets.

The cadastre considers its mission to be: "to foster legal certainty within the movement of property (including ships and aircraft), to optimize the geographic information infrastructure and to effectively inform society in these areas, all at the lowest possible cost."

The cadastre's primary customers are notaries, the real-estate sector, financial institutions, public authorities (ministries, water boards, municipalities and provinces), utility companies,

the geographic sector, the construction sector and private individuals. Each year, the cadastre provides these groups with information on about 20 million different occasions. It does so particularly through Kadaster On-line, which provides direct access to the cadastral registrations via the Internet, in addition to other channels. In 2010, the cadastre's total operating income amounted to 261.6 M EUR. It employed a total of 1,943 FTEs, spread over six locations. Its head office is in Apeldoorn.

The majority of rules that are applied to the cadastre are embedded in various legal acts. They include the Land Registry Act (*Kadasterwet*), the Land Registry Organization Act (*Organisatiewet Kadaster*), the Rural Areas Planning Act, the legislation regarding the Key Registers of Addresses and Buildings (*BAG*), the Disclosure of Public Law Restrictions Act and the Underground Cables and Pipelines Information Exchange Act. Under this regulatory framework, the cadastre makes a distinction between its statutory tasks (*wettelijke taken*) and secondary activities (*nevenactiviteiten*). From the point of view of income, the cadastre's secondary activities (international consultancy and services for the Large-Scale Base Map of the Netherlands, the so called 'GBKN') are insignificant. They were around 5 M EUR in 2010 in comparison to its statutory tasks which raised around 255 M EUR in the same year.

The objectives and tasks of the cadastre are detailed in articles 2a and 3 of the Land Registry Act. As the differing interpretations of these provisions are crucial for a proper understanding of the basis for the market activities of the cadastre, they are elaborated on in the section of this case which focuses on impact on (re)users.

5.10.5 Funding and costs

To a very large extent, the financing of the cadastre is a tariff-based. The table below gives a breakdown of the profit and loss of the cadastre in 2010 classified according to the main areas of operation (in millions of EUR).

Indicator	Turnover 2010	Profit 2010
'Legal certainty products' (cadastral duties levied in accordance with Article 108 of the Land Registry Act)	210	36
'Topography' task assigned to the cadastre by the national government	23.9	1.4
'Land Use and Area Development' task assigned to cadastre by the national government	13.1	- 9.9
'Cables and Pipelines Information Centre (KLIC)' task assigned to the cadastre by the national government	9.5	1.5
Total statutory tasks	256.5	28.6
Secondary activities	5.2	-1.3
Total	261.6	27.3

Ninety per cent of the turnover (and an even larger amount of the margin) results from 'the legal certainty products', in the form of cadastral duties levied, and the topographical tasks. The table below offers further details about the turnover of these two tasks.

Indicator	Turnover 2010	% Turnover	# of users
Legal certainty products (cadastral data)	130 M EUR	62	1200
- Turnover registration task			
- Turnover for provision data:	15 M EUR	7	600
- to other PSBs	45 M EUR	21	8,200
- to non-PSBs (where use is mandatory)	20 M EUR	10	11,700
- to non-PSBs (where use is not mandatory)	2.85 M EUR	1	2,000[72]
- from added-value products	0.15 M EUR	0.07	15
- to true reseller (raw data)	17 M EUR	9	11,680
- to others (raw data)			
Total	210 M EUR	100	20,500[73]

[72] Most of these 2,000 are also buying raw data. They are only counted once in the total of 11,700.
[73] Since the 1,200 users creating the turnover of the registration task are also users under the heading of the provision of data, they have only been counted once.

Topographical data (Top10)			
- to other PSBs	23.4 M EUR	98	357
- to non-PSBs	0.5 M EUR	2	99
Total	23.9 M EUR	100	

In 2010, income from the legal certainty products accounted for over 75% of the entire cadastral turnover (and, in essence, almost all of its profit). A further breakdown of figures demonstrates that the levies for registration (the intake task) amounted to 130 M EUR. The provision of data (the provision task) by the cadastre generated 80 M EUR. Of these 80 M EUR, 15 M EUR came from public sector users, whereas the other 65 M EUR was charged to parties outside the public sector. According to the cadastre, about 45 M EUR of this income was generated by around 8,200 organizations such as civil notaries, bailiffs, real estate agencies and mortgage agencies. These (re-)users must rely on these data: they have no alternative, as statutory rules oblige them to use these cadastral data and no other source. The other 20 M EUR comes from around 11,700 total (re-)users. Legally speaking, these (re-) users would have a choice of source of data (were an alternative source to exist). They are composed of project developers, financial institutions, credit control companies and law firms. Of the latter group, according to the cadastre, around 15 clients are actually reselling the data, as a publisher, and generating an income of 0.15 M EUR.[74] All other (re-)users are using the cadastral data merely as a peripheral contribution to their core activities, and accounting for a cadastral income of 17 M EUR. Finally, the last element of revenue is yielded by added-value products created by the cadastre that amount to 2.85 M EUR. This includes sales amounting to around 0.35 M EUR, generated by approximately five re-sellers of these cadastral value-added products.[75]

In 2010, the turnover related to the sales activities of topographical data amounted 23.9 M EUR (yielding a profit of 1.4 M EUR). In terms of users, around 15% are from the private

[74] Examples of such re-sellers of raw data are:

- Arcadis BV
- Landmark BV which offers current and historical environmental risk management information and desktop mapping solutions for the property industry
- Infoservice Hoogbruin which is an intermediary service providing all sorts of re-packaged cadastral data.

[75] For instance, re-sellers like NBWO BV (for the provision of services to banks for the value assessment of property) and Pect b.v. (which provides a service called '*Woningwizard*' so that purchase prices of real estate can be retrieved through SMS).

sector (the rest are internal users within the Dutch public sector), in particular companies active in the GIS sector and utility companies that turnover around 0.5 M EUR.

On its sales side, the cadastre employs around 18 account managers. Thirteen of these account managers are active with clients outside the public sector, more particularly: five deal with civil notaries, one with bailiffs, two with housing corporations, one with utility companies, one with financial institutions, one with real estate agencies and two with other (re-)user groups.

5.10.6 Re-use policy and pricing

The fundamentals of the re-use policy deal with the pricing of products for re-use and legal limitations as to (re-)use of data.

Pricing of products for (re-)use

All rates and prices charged by the cadastre are set in accordance with the cadastre pricing scheme (*Regeling tarieven Kadaster*). This scheme determines the time at which new prices and rates take effect. These prices are subject to negotiations that are approved by the Ministry. Furthermore, as a rule, the tariffs are to be set in such a way that, on a multi-annual basis, there is a balance between turnover and costs.

Looking at the two main turnover generators, there are fundamental differences. The charges for the legal certainty products are fully tariff-based. This is the case whatever the nature of the service provided, whether it is registration or provision, and whatever the nature of the client, public or private, mandatory or non-mandatory use. No funding is provided from the general budget. As a consequence, because the financial crisis hit the Dutch economy hard in 2007 and in subsequent years, the financial situation of the cadastre deteriorated significantly: the number of deeds registered dropped whereas costs did not fall in proportion. By the end of 2009, the cadastre's equity capital amounted to just 10.5 M EUR, which was 49.2 M EUR lower than the structural reserve agreed with the Ministry. Therefore, the organization implemented major cost-cutting measures, including a substantial centralization of activities and closure of regional offices. At the same time, the rates for registration were increased quite dramatically a number of times. This rates increases accounted largely for the cadastre's financial recovery in 2010.

Conversely, the financing of the topographical data collections has been subject to fundamental change. Since 2009, the acquisition and administration costs of the Key Register Topography have been financed from a budget provided by the Ministry instead of

returns from sales to (re-)users. Accordingly, internal use within the government is no longer charged. (Re-)use by non-PSBs is charged against a rate of 42,500 EUR for the full data set and an extra 10,000 EUR per year for associated data. (Before 2008, the price for the full data set amounted to 750,000 euro per year.) The current re-use price was set in 2008 and has not been changed since. However, the significant decrease in pricing has not led to an increase in users or usage by the private sector. This is confirmed by private sector parties which claim that they rely instead on other, free collections of data, such as Google Maps and Open Street Map, which now cover the entire Dutch territory.

Legal limitations as to (re-)use of data

From a legal perspective, the cadastre's (re-)use policy (at least for its cadastral data), is based on a restrictive model. According to Article 9 of the – soon to be revised – General Terms and Conditions applicable to all agreements signed between the cadastre and any (re)-user in relation to products to be delivered by the cadastre in condensed form:

- "The User shall be allowed to reproduce the delivered product, in addition to the agreed manner of use, exclusively for use within the application and for purposes of backup and security
- Without prior permission in writing, the User shall not be allowed to transfer products or copies thereof to third parties, to supply them to third parties either alone or in combination with other products, or to make them available to third parties in any other way."

This is backed up by Article 10 of the General Terms and Conditions which stipulate in condensed form:

- "All intellectual property rights, including copyrights and database rights, in relation to the products to be delivered, including preparatory material and related materials, in the broadest sense of the term, are held by the Cadastre.
- Without prior permission in writing, the User shall not be allowed to publish or reproduce the information products in their entirety, in an unmodified or unprocessed form, or render them suitable for consultation or reproduction on the Internet, unless the User has received permission in writing and/or the product has been enriched with data not originating with the Cadastre in such a manner that a product as intended in section 1 has become no more than a subordinate element of the total of data obtained thus and as a result cannot be selected in an independently recognisable manner.
- Furthermore the reproduction or processing of a product is allowed insofar as this is done to use the relevant product in the User's organisation or operations."

According to the cadastre, it needs to rely on these rights to preserve the data quality and to prevent the building up of 'shadow' registrations that would affect the degree of trust in the cadastral registration.

5.10.7 Impacts of the re-use policy

Over the past ten years, the cadastre's tasks have been expanding quite significantly. These tasks include activities which are typically public task-driven (e.g., management of the national provision of access to municipal public law restrictions, administration of the national facility for the Key Registers for Addresses and Buildings (BAG), management of the Cables and Pipelines Information Centre (KLIC), and the registration and issuance of topographical information). They also involve activities aimed at creating and providing information products, based on cadastral data (and the data of others): thus, there is competition in the marketplace with the data of private sector parties.

Private sector parties – in particular those that are re-sellers of cadastral data, publishers of geo-information-related databases and information products – have expressed their concern with regard to these activities. In essence, the cadastre and private sector parties have fundamentally differing points of view on the (market) activities that the cadastre should undertake. Stating its case, the cadastre refers to its statutory basis laid down in article 2a and 3 of the Land Registry Act.

Under article 2a, the cadastre has four objectives:

- To promote legal certainty in respect of property subject to registration not only in law, but also in economic transactions and administrative dealings between private individuals and public bodies.
- To promote an efficient geographic information infrastructure.
- To ensure effective provision of information to the government to aid in the proper completion of tasks prescribed by public law and to support compliance with statutory obligations by public bodies.
- To support and promote economic activities.

According to article 3 of the act, to fulfil these objectives, the nine tasks of the cadastre include in a compressed form:

- the maintenance of the public registers and the cadastral registration system and the maintenance of registers for ships and aircraft , and the provision of information from those records to society (since 1832);
- the fulfilment of advisory tasks related to rural planning (since the early 20th century);
- the registration and issuing of topographical information (since 2004)
- the maintenance of the National Triangulation Network (since 1930);
- the management of the national facility for municipal public-law restrictions (since 2007);
- the management of the BAG national facility (since 2009);
- the simplification of the provision of information about cables and pipelines (since 2008);
- enhancement of the accessibility and interoperability of the data collected;

- the creation and provision of information through the processing of data, as far as this is not incompatible with the objectives laid down in article 2a above.

On the basis of particularly this last point, the cadastre considers it to be its statutory task (*wettelijke taak*) to create and provide derived information products. Accordingly, it holds the view that the exploitation of its PSI (and the associated added-value) created under these tasks, does not fall under the scope of the PSI re-use regime, in particular the PSI Directive and its Dutch national transposition, since these are performed under the tasks described in the statutory regime.

However, these publishers argue that the cadastre is misinterpreting the PSI re-use rules. According to them, the exploitation side of the statutory tasks is in fact a concealed market activity. Thus, the cadastre should return to its basic public tasks and should refrain from these activities.

An illustration of this is the controversy which concerns the 'Landinkaart' product. Briefly described, in 2007 Arcadis BV, a private sector provider of geo-information products and consultancy services, launched a product called '*Landinkaart*'. It was essentially a report that provided specific information on certain plots of land and thereby allowed potential buyers to assess the environment of the specific plot.[76] In creating this service, Arcadis BV gathered data from various sources, including municipalities and the cadastre (such as the cadastral map and the cadastral explanatory notes). According to Arcadis BV, it launched its product at a competitive price of 65 EUR per address which was delivered in PDF format to clients who were mostly real estate agencies. In 2008, the cadastre launched '*het Woningrapport*', a similar product, which was not only considerably cheaper at around 25 EUR but was also slightly ahead of the 'Landinkaart' product. It was more advanced than the Lindinkaart product because it included up-to-date data that, according to Arcadis BV, the cadastre would then only provide a few days later to third parties. Since Arcadis BV was unable to compete under these circumstances, it pulled its product from the market in 2010.[77]

This sensitive issue was also flagged up in the last audit of the cadastre, carried out by PriceWaterhouseCoopers in 2010.[78] In paragraphs 69 and 70, the report says: "(...) 69. The

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[76] Landmark BV launched a similar product during the same year, but was caught up in a legal battle with the municipality of Amsterdam on the price of its data.

[77] In response, according to the cadastre, this case is not representative since it is normally quite reticent to develop and launch products that are in direct competition with those of market parties.

[78] Final report third evaluation of the cadastre "*Een driehoeksmeting op het Kadaster: sturing, financiering en kwaliteit bedrijfsvoering*", 9 August 2010, available in Dutch at: *https://zoek.officielebekendmakingen.nl/blg-87214.pdf*

Cadastre operates in the geoinformation-domain on the basis of its policy framework and its mission. However, these leave substantial margins for interpretation by the cadastre. This leads to anxiety with commercial entities to whom it is less clear how to consider the cadastral activities in various fields (e.g. as a provider of intermediate products, public sector service provider or a market party). The regulatory framework applicable does not give clear guidance on these matters either. As a consequence, in the coming years, this will remain an issue.

In this context, the implementation of the 'Market and Public Sector' law (*Markt en Overheid*) will also impact the activities of the cadastre. This law was adopted by the Dutch legislator in March 2011, after years of political discussion. The law imposes a code of conduct upon PSBs that undertake 'economic activities', prohibiting them from using public funds for economic activities unless this is necessary in the public interest. Furthermore, a PSB may not use its PSI, generated under the public task, for economic activities that are not aimed at its execution of the public task unless this PSI is also made available to third parties.

In the case of the cadastre, the task of ascertaining the economic character of the activities lies with the Minister of Infrastructure and Environment. The Dutch Competition Authority is responsible for monitoring compliance.

5.10.8 Final observations

There are a number of recent developments that need to be borne in mind. They include the cadastre's dramatic plunge in turnover in 2007-2009, the upcoming statutory changes and the increased grip of the Ministry. As a result, it seems likely that the role and tasks and the cadastre's basis for financing will be subject to review in the coming years.

Private sector parties have expressed the opinion that they would like the cadastre to become a hub, as a form of a shared service centre, which concentrates on its core (public sector) business: registration and distribution of its cadastral data and quality assurance of public sector geo-information data, including base registries such as the BAG. Such a service centre should provide a basic and shared data infrastructure that ensures proper data exchange and quality of data. Financing should be based on the tariff model where it concerns cadastral registrations, whereas (re-)use by third parties should take place based on (re-)use facilitation costs only, and the cadastre should stay clear any market activities. To cover the gap that results from the drop in its own exploitation by the cadastre, the Ministry should step in. Its actions would unlock the potential in the market, and allow for further cost cuts within the cadastral organization.

At the policy-making level, there seems to be some common ground in terms of the possible future role of the cadastre in the field of coordination and implementation of public sector geo-information-related activities. However, the reliable functioning of the cadastre in executing its public tasks properly remains its key objective. These costs should be financed on a tariff basis.

Examining the cadastre's last annual report, the organization does seem be in the process of reassessing its role. It states that, increasingly, it would like to seek collaboration in particular with market parties, at various levels through a 'strategic dialogue'.

In conclusion, it is beyond doubt that in coming years political decisions will be taken that will further determine the role and financing of the Dutch Cadastre. These are likely to include activities which seem to lie currently in the grey zone between the public task and market activities. Thus, they simultaneously set the scene for a (re-)use (charging) policy.

5.10.9 Key sources

- Background information available on the website of the Dutch Cadastre (www.kadaster.nl) and numerous official publications.
- Interview held with Ms B. Janssen and Mr D. Eertink, Strategy and Policy Department of the Dutch Cadastre, in Apeldoorn, the Netherlands, on April 12, 2011
- Interview held with Mr G. Koppelman, Head Advisory group Information management | Mobility Division and Mr D. van de Vlag, Senior project leader of Arcadis BV, in Apeldoorn, the Netherlands, on April 12, 2011
- Interview held with Mr N. Hooijman, Head policy geo-information of the Directorate for National Spatial Planning of the Ministry of Infrastructure and Environment, in The Hague, the Netherlands on April 5, 2011
- Interview held with Mr K. Keuzenkamp, Deputy director Services, Deregulation and Information Policy of the Ministry of the Interior and Kingdom Relations, The Hague, the Netherlands, January 19, 2011
- Interview held with Mr B. Van Loenen, Senior researcher at Delft University, The Hague, the Netherlands, February 9, 2011.

5.11 French Cadastre (FR – geographical PSI)

Case study author: Lionel Kapff (Deloitte Consulting)

5.11.1 Key message

The French Cadastre case study demonstrates that relatively high and non-market-oriented PSI pricing such as in the cadastre's old pricing model can prevent the commercial re-use business from evolving.

The case also shows that the French Cadastre was able to adopt a more market-oriented PSI pricing approach with drastic price cuts (of up to 97%) under a strict budgetary constraint (with no additional governmental funding).

Finally, it illustrates that the allocation of PSI sales revenues influences the incentive structure within a PSB. Under the cadastre's new pricing and licensing model, the PSI sales revenues will possibly flow back to the PSB while, in the old model, they returned to the general state budget. The reallocation of revenues creates incentives for the cadastre to improve the quality of its services to re-users and to adopt a market-oriented and reasonable pricing approach.

5.11.2 Key economic indicators

Indicator	Year 2010
PSB	French cadastre – DGFiP GF-3A
Total budget	Estimated at 162.5 M EUR
FTEs	Estimated at 3,250
Turnover from PSI sales	932,938 EUR
Cost recovery rate	0,6%
Re-use facilitation	
FTEs involved	23
Costs	4 M EUR (total for PSI portal 2003-2010)
Old pricing model	
Price per map	9.50 EUR
Price for full database	5.7 M EUR

New pricing model	
Price per map	Between 0.25 EUR and 8.10 EUR
Price for full database	305,770 EUR (commercial re-use); 166,190 EUR (internal re-use)
Re-users (old model)	
Number of re-users re-distributing the PSI with added-value	0

5.11.3 Introduction

The French Cadastre is managed by the Directorate General of Public Finance (*Direction Générale des Finances Publiques* – DGFiP) at the Ministry of the Budget, Public Accounts and Reform (*Ministère du Budget, des Comptes Publics, de la Fonction Publique et de la réforme de l'Etat*).

Since October 2008, the digitized cadastral map can be viewed without charge on the www.cadastre.gouv.fr website. For the re-use of cadastral maps, a partial cost-recovery model with a single price of 9.50 EUR per A0 map has been implemented.

In collaboration with the Agency for the Intangible Assets of the State (*Agence du patrimoine immatériel de l'État* – APIE), DGFiP has recently developed a new charging model for the cadastral map with lower and degressive prices. The central aim is to attract new geo-business re-users. The new model was to be codified and implemented by May 2011.

5.11.4 Organization, governmental structure, tasks, PSI portal

The French Cadastre collects two types of data:

1. The cadastral map
2. Property information (*données littérales*)

The cadastral map depicts the parcels of land and real estate in France. The figure below shows an extract from the digitized French cadastral map that is viewable and printable free of charge on the www.cadastre.gouv.fr web portal.

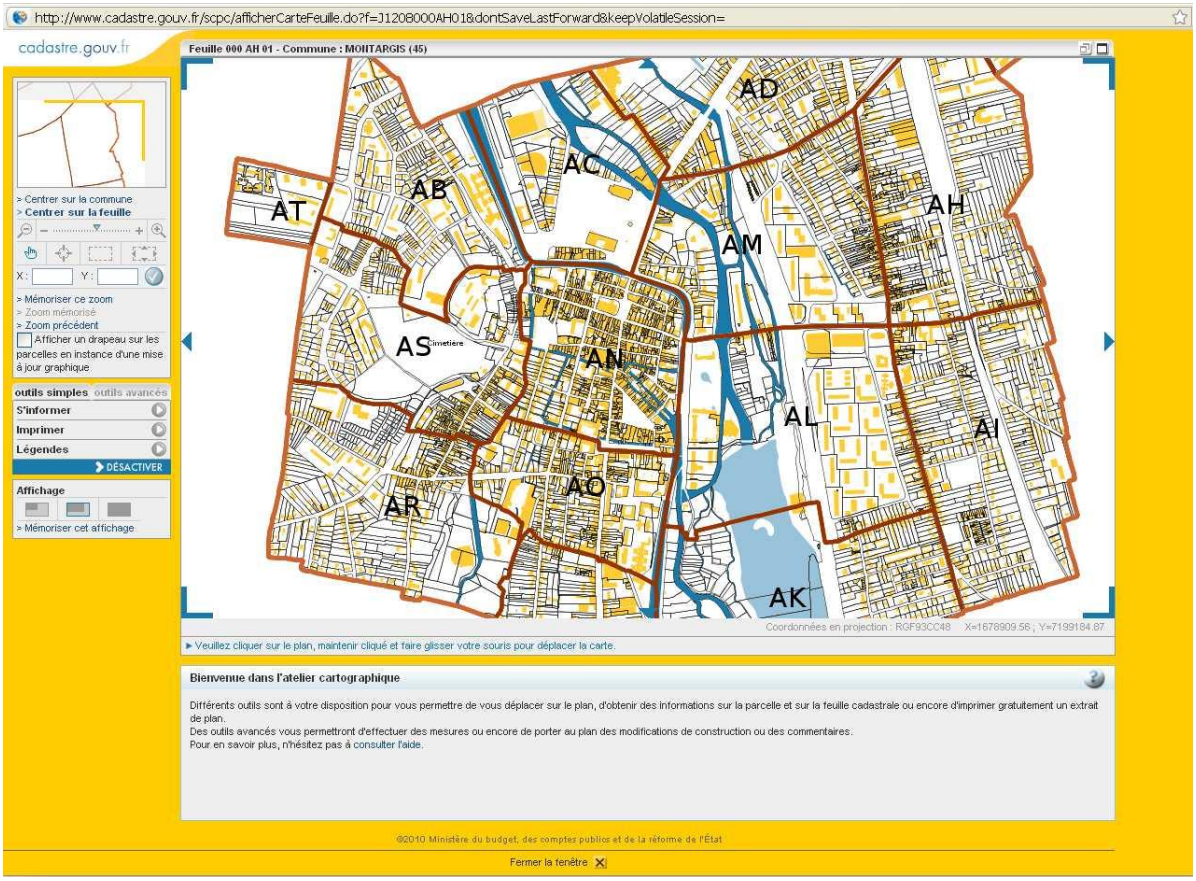


Figure 24: Extract from the French cadastral plan on the cadastre.gouv.fr portal

The cadastral map is available for commercial and non-commercial re-use. It is made fully available electronically (through downloads, CDs and DVDs) to all types of re-users on the cadastre.gouv.fr portal. Paper and plastic versions are also available on demand. The French cadastral map is subdivided into around 600,000 individual cadastral maps (*feuilles de plan*).

In addition to the cadastral map, the French Cadastre collects land and real estate property information (*données littérales*). The figure below shows an extract from the French land and real estate property register.

ANNEE DE MAJ	2009	DEP DIR	49 0	COM	007 ANGERS	ROLE	B	RELEVE DE PROPRIETE		NUMERO COMMUNAL	+00014

Propriétaire PBBHTJ ETAT MINISTERE DE L'ECONOMIE ET DES FINANCES
17 BD HENRI ARNAULD 49100 ANGERS
gérant,mandataire,gestionnaire PBBHTF DIRECTION DES SERVICES FISCAUX
17 BD HENRI ARNAULD 49100 ANGERS

PROPRIETES BATIES

DESIGNATION DES PROPRIETES							IDENTIFICATION DU LOCAL						EVALUATION DU LOCAL													
AN	SECTION	N° PLAN	C PART	N° VOIRIE	ADRESSE	CODE RIVOLI	BAT	ENT	NIV	N° PORTE	N°INVAR	S TAR	M EVAL	AF	NAT LOC	CAT	REVENU CADASTRAL	COLL	NAT EXO	AN RET	AN DEB	FRACTION RC EXO	% EXO	TX OM	COEF
92	CY	931		15 B	RUE DUPETIT THOUARS	2620	B	01	00	01001	0253668 L	A	C	H	MA	5M	1956		EP					P	

R EXO 1956 EUR R EXO 1956 EUR R EXO 1956 EUR
REV IMPOSABLE 1956 EUR COM DEP R
R IMP 0 EUR R IMP 0 EUR R IMP 0 EUR

PROPRIETES NON BATIES

DESIGNATION DES PROPRIETES						EVALUATION														LIVRE FONCIER
AN	SECTION	N° PLAN	N° VOIRIE	ADRESSE	CODE RIVOLI	N° PARC PRIM	FP/DP	S TAR	SUF	GR/SS GR	CLASSE	NAT CULT	CONTENANCE HA A CA	REVENU CADASTRAL	COLL	NAT EXO	AN RET	FRACTION RC EXO	% EXO	TC	Feuillet
90	CY	931	15 B	RUE DUPETIT THOUARS	2620	0440	1	A		S			91 27	0							
71	DK	171	16	AV DE CHANZY	1560		1	A		S			38 24	0							

R EXO 0 EUR R EXO 0 EUR R EXO 0 EUR
HA A CA REV IMPOSABLE 0 EUR COM DEP R
CONT 1 29 51 R IMP 0 EUR R IMP 0 EUR R IMP 0 EUR MAJ TC 0 EUR

Figure 25: Extract from the land and real estate property register of the French Cadastre

This property information is made available to citizens or companies only on paper. Owing to privacy protection rules, the availability of extracts from the register is strictly limited to personal use. Therefore, only 'reasonable requests' (a maximum of five extracts per week) are permitted. Authorities fulfilling a public task can, however, obtain the full database and electronic versions.

In France, the cadastral information is essentially used by the fiscal administration to identify real estate and determine local taxes. For this public task, the cadastre provides all local public authorities once a year with the cadastral database at zero cost. For other re-use purposes, public authorities can obtain cadastral information on a cost recovery basis (limited to the re-use facilitation costs).

The French cadastral map is not used to guarantee property as in other countries such as Germany. The cadastral map can only serve as a presumption of property ownership (*présomption de preuve de propriété*).

In addition to its headquarters at DGFiP in Paris, the cadastre has 300 local distribution offices in France. Each office distributes copies of the cadastral map of its administrative district. There are currently some efforts to centralize these services.

The advent of the cadastre.gouv.fr PSI portal in October 2008 was an important milestone in the process of modernization and centralization of the French Cadastre. The cadastral map was fully digitized for the web portal. The costs of these efforts were covered by the DGFiP and a number of volunteer local public authorities. These PSBs now receive quarterly a free copy of the cadastral map as compensation for their contribution to the digitalization.

The availability of the digitized cadastral map on the portal has substantially reduced the workload of the local distribution offices which now face fewer requests, notably from citizens.

All the modernization efforts of the cadastre were accompanied by consulting both actual and potential re-users of cadastral PSI. For re-users, notably from the geo-information business, the value of the cadastral data lies in its precision, coverage of the entire French territory and its currency (updates are available every two weeks).

The general conditions for re-use of the cadastral information allow for all types of internal and external re-use, particularly the mash-up with other data sets. Value-added products based on the cadastral map can be redistributed commercially or free of charge. Re-users always have to mention the origin and the production year of the data. The simple redistribution of the cadastral data without adding any value is, however, prohibited.

Adherence to the licensing conditions is not specifically policed by the cadastre. However, if the cadastre were to discover that re-users are not complying with the terms of the license, it would file a complaint at the Commission for Access to Administrative Documents (*Commission d'Accès aux Documents Administratifs – CADA*), the French PSI conflict resolution body that is authorized to fine re-users that do not adhere to re-use conditions.

The cadastre.gouv.fr portal was launched in October 2008. Users can view the entire French digitized cadastral map free of charge and without registration on the web portal. The free download of A3 and A4 cadastral maps is also possible. Registered users can order A0 cadastral maps (*feuilles de plan*) via the portal and pay online (with a credit card). The purchased PSI can either be downloaded directly from the portal or be delivered on CD/DVD in the case of large data quantities, for example, if the cadastral map for an entire *département* is ordered. It is also possible to order paper or plastic cadastral maps on the web site.

The cadastral data on the portal is updated regularly (every two weeks). At the end of 2010, 97% of all the data on the portal was updated within one month and 88% within two weeks.

The number of visits on the cadastre.gouv.fr portal is steadily increasing since it went live in October 2008:

- 2008: 5,785,225 visits
- 2009: 7,317,521 visits
- 2010: 9,549,348 visits

There are currently 70,715 user accounts (for registered users) that enable the purchase of PSI via the portal.

A steadily increasing number of A3 and A4 maps has been downloaded at zero cost from the cadastre.gouv.fr portal:

- 2008 (October – December): 10,158,958 maps
- 2009: 12,700,000 maps
- 2010: 15,061,164 maps

The number of sold A0 maps (price: 9.50 EUR per map) is also steadily increasing:

- 2008 (October – December): 6,948 maps
- 2009: 76,580 maps
- 2010: 98,204 maps

5.11.5 Budget, costs, revenues

The cadastral services of DGFiP employs between 3,000 and 3,500 FTEs. Between 1,600 and 1,700 FTEs work for the tax administration and 1,600 to 1,700 FTEs for the topographical services (mainly in data collection and processing).

Based on these figures, the total budget of the cadastral services can be estimated at 3,250 FTEs * 50,000 EUR/FTE = 162.5 M EUR. If one takes only into account the topographical services of the cadastre, the estimation yields a total budget of 1,650 FTEs * 50.000 EUR/FTE = 82.5 M EUR.

Since the launch of the cadastre.gouv.fr portal in October 2008, the following PSI sales revenues (from A0 maps) have been recorded:

- 2008 (October – December): 6,948 maps at 9.50 EUR = 66,006 EUR
- 2009: 76,580 maps at 9.50 EUR = 727,510 EUR
- 2010: 98,204 maps at 9.50 EUR = 932,938 EUR

Based on the cadastre's total budget estimation, the ratio of PSI sales revenues to total budget in 2010 is 0.9 M EUR / 162.5 M EUR ≈ 0.6%. If one takes only the topographical services of the cadastre into consideration, the ratio would be 0.9 M EUR / 82.5 M EUR ≈ 1.1%.

Currently, the PSI sales revenues flow back to the general state budget. That means that the French cadastre cannot reinvest the PSI sales revenues directly in the quality of its database or in the service offered to re-users.

Once the new pricing model (see below) has been codified, all PSI sales revenues will possibly go to the general budget of the IT services of the DGFiP. They can then inter alia be reinvested in the modernization of the IT systems of the cadastre. Even if there is a certain risk that the sales revenues from the cadastral map will drop with the new pricing model), the IT department of the cadastral service will perhaps receive additional funds due to the reallocation of PSI sales revenues.

The following table details the costs incurred from 2003 to 2010 by DGFiP for the implementation of the cadastre.gouv.fr portal and its intranet version 'ICAD':

Total costs of the cadastre.gouv.fr portal and its intranet version ICAD 2003-2010				
Year	**Internal HR costs**	**External HR cost**	**Costs for material and software**	**TOTAL**
2003	875.00 EUR	89,700.00 EUR	0.00 EUR	90,575.00 EUR
2004	25,550.00 EUR	45,000.00 EUR	30,594.00 EUR	101,144.00 EUR
2005	61,250.00 EUR	226,909.75 EUR	0.00 EUR	288,159.75 EUR
2006	103,425.00 EUR	818,786.15 EUR	11,169.00 EUR	933,380.15 EUR
2007	56,350.00 EUR	442,180.59 EUR	1,674,526.11 EUR	2,173,056.70 EUR
2008	159,600.00 EUR	136,972.26 EUR	52,716.47 EUR	349,288.73 EUR
2009	122,850.00 EUR	188,957.27 EUR	15,774.14 EUR	327,581.41 EUR
2010	150,017.00 EUR	305,168.47 EUR	69,738.96 EUR	524,924.43 EUR
TOTAL	679,917.00 EUR	2,253,674.49 EUR	1,854,518.68 EUR	**4,788,110.17 EUR**

Table 30: Total costs of the cadastre.gouv.fr portal and its intranet version ICAD

The re-use facilitation costs incurred for the implementation of the cadastre.gouv.fr portal are estimated at 4 M EUR.

It is estimated that 23 FTEs are involved in re-use facilitation:

- 6 FTEs for the management of the portal
- 3 FTEs for the maintenance of the portal
- 4 FTEs administrative overhead
- 10 FTEs for licensing, accounting and re-user helpdesk

5.11.6 Cadastral information provided by the Institut Géographique National (IGN)

Interestingly, the French Cadastre is not the only PSB in France that distributes cadastral PSI. The National Geographical Institute (*Institut Géographique National* – IGN) also sells cadastral information through its *BD Parcellaire* product.

This section compares both PSI products and describes the relationship between DGFiP and IGN.

In 2001, the IGN was entrusted by decree with the creation of a geo-database for France, called the Large-Scale Repository (RGE – *Référentiel à Grande Echelle*). The RGE consists of four databases:

- Topographic information
- Cadastral information
- Orthographic information
- Address information.

The DGFiP has concluded agreements with the IGN for a mutual exchange of data. These agreements were arranged in such a way that no money is transferred between the two PSBs – they exchange only their data.

Even though IGN's *BD Parcellaire* product and the cadastral map provided by DGFiP are based on the same data source – the cadastre – both PSI products have somewhat different characteristics:

- The DGFiP cadastral map is an administrative document produced for the tax authorities. It respects national administrative standards. The cadastral map is more precise (it contains more cartographic elements) and more up-to-date (particularly for rural areas) than the *BD Parcellaire*.
- IGN's *BD Parcellaire* is a geo-data product used for geographical purposes and is re-usable by geo-businesses. The IGN follows a somewhat commercial approach and proposes to re-users to reformat the data according to their needs (at a fee). The cadastral information of the *BD Parcellaire* is updated from time to time according to the economic potential of the data. For example, the cadastral information of the Paris region is updated at least once a year, whereas some rural regions with low economic potential were most recently updated five years ago. Therefore, a re-user that needs up-to-date cadastral information should instead rely on the DGFiP cadastral map.

DGFiP admits that the IGN *BD Parcellaire* product can be considered as a competitor in certain market segments where there is no requirement for the data to be highly accurate or up-to-date.

The price difference between the two competing products is huge. While the full cadastral map from DGFiP is currently priced at approximately 5.7 M EUR, a license for the entire *BD Parcellaire* database from IGN can be bought for 268,217 EUR (plus VAT and data transmission costs (*coûts de mise à disposition*)). It is important to note that the re-use conditions of IGN are more restrictive than those of the cadastre.

5.11.7 Re-use policy and pricing

The current pricing model of the French cadastre builds on a single price of 9.50 EUR per A0 cadastral map (‘*feuille de plan’*). There is no degressive element in the current pricing model. The price of the entire French cadastral map is 600,000 maps * 9.50 EUR/map = 5.7 M EUR. No re-user has ever bought the entire cadastral map.

Viewing the digitalized cadastral map on the cadastre.gouv.fr portal is possible at no charge. It is also free of charge to extract A3 and A4 cadastral maps in PDF format. These are generally satisfactory for private use.

Technically, it would be very difficult to build a full map of the French territory based on the free A3 and A4 cadastral maps. From time to time, DGFiP nonetheless faces cyber attacks that attempt to extract all the data available on the cadastre.gouv.fr portal. These attacks are handled by IP address blockages and degradation of the available data quality.

French communes receive a copy of the cadastral map once a year free of charge. This enables them to perform their different public tasks, notably the identification of real estate property and the determination of local taxes that are based on property. For other re-use purposes, public authorities can obtain cadastral information on a cost recovery basis.

Some territorial authorities (such as regions) receive a copy of the cadastral map four times a year free of charge if they had participated in the cadastre digitalization process prior to the launch of the cadastre.gouv.fr PSI portal in October 2008; otherwise they must pay for it.

The price of 9.50 EUR per A0 map on the cadastre.gouv.fr portal corresponds to the amount that is charged for a paper copy of a cadastral map (on a cost recovery base). When the digitalized cadastral map was put online, the pricing issue was not a central point for discussion. The cadastre has made great progress with the digitalization of the cadastral map: at the time that the map was digitalized it provided a considerable source of interest.

During the first years of operation of the cadastre.gouv.fr portal (from late 2008 to early 2011), the idea was to maintain the same sales price for a paper cadastral map and a digital version of the map. Some of the investments that were undertaken to implement and maintain the PSI portal could therefore be recovered. There are no specific PSI sales targets fixed by the central administration of DGFiP or any other authority. The only aim has been to recover re-use facilitation costs, i.e. the implementation and maintenance of the PSI portal.

Now that most of the portal implementation costs have been recovered, the French cadastre has rethought its pricing model. During late 2010 and early 2011, a new pricing and licensing model for the French cadastre has been developed by DGFiP in cooperation with APIE. The new pricing model will be implemented and codified by *arrêté* in mid-May 2011.

When determining the prices of the new model, DGFiP and APIE abandoned the cost-based vision of the current model and concentrated instead on the following factors:

- Market potential of the PSI
- Willingness to pay for the PSI of different types of re-users:
    - Commercial re-users (notably big geo-information business companies)
    - Non-commercial re-users
    - Citizens.
- Legal constraints of the PSI Directive (and its transposition into French law):
    - Prices need to lie somewhere between 'zero' and 'all costs plus a reasonable return on investment'.
- Budgetary constraints:
    - No additional government funds are available to finance the French cadastre.

APIE has a dedicated market survey department with five FTEs. It has undertaken a market study to determine the willingness of commercial re-users to pay for the cadastral map as well as the market potential of the PSI.

The new pricing and licensing model proposes a differentiation between commercial and non-commercial / internal re-use as well as a degressive pricing approach. The table below depicts the pricing structure of the new model.

Table 31: New pricing and licensing model of the French Cadastre

New pricing and licensing model of the French Cadastre (to be implemented in May 2011)			
Internal use and non-commercial re-use			
Pieces	***Price per unit***	***Price range***	
		Min	***Max***
1-200 maps	*5.50 EUR*	*5.50 EUR*	*1,100.00 EUR*
201-2,500 maps	*3.30 EUR*	*1,103.30 EUR*	*8,690.00 EUR*
2,501-5,000 maps	*2.20 EUR*	*8,692.20 EUR*	*14,190.00 EUR*
5,001-10,000 maps	*0.90 EUR*	*14,190.90 EUR*	*18,690.00 EUR*
More than 10,000 maps	*0.25 EUR*	*18,690.25 EUR*	*For full cadastral map: 166,190.00 EUR*
Commercial re-use			
Pieces	***Price per unit***	***Price range***	
		Min	***Max***
1-200 maps	*8.10 EUR*	*8.10 EUR*	*1,620.00 EUR*
201-2,500 maps	*5.50 EUR*	*1,625.50 EUR*	*14,270.00 EUR*
2,501-5,000 maps	*3.90 EUR*	*14,273.90 EUR*	*24,020.00 EUR*
5,001-10,000 maps	*1.60 EUR*	*24,021.60 EUR*	*32,020.00 EUR*
10,001-25,000 maps	*1.00 EUR*	*32,021.00 EUR*	*47,020.00 EUR*
More than 25,000 maps	*0.45 EUR*	*47,020.45 EUR*	*For full cadastral map: 305,770.00 EUR*

The legal framework (draft *arrêté*) of the new model, the new licenses and the new general usage conditions of the cadastre.gouv.fr portal have been developed by DGFiP to be coherent with the generic licensing model developed by APIE.

5.11.8 Impacts of the re-use policy

Currently, the main re-users of the French cadastral map are:

- Individual citizens (currently the most important re-users);
- Local actors such as professional land and real estate agents, construction companies, optical fibre cable companies and local public authorities;
- EDF, the partially state-owned French energy giant (for internal use);
- SNCF, the state-owned French railway company (for internal use).

There is currently no professional commercial re-use of the cadastral map that involves large-scale value-added redistribution of the cadastral PSI. No re-user has ever bought the entire cadastral map.

DGFiP has been approached by some major players in the geo-business who were very interested in the cadastral map because of its high accuracy and currency, notably with regard to the road and path network. However, these companies were not willing to pay 9.50 EUR per A0 map (≈ 5.7 M EUR for the entire cadastral map).

The reduced and degressive prices of the new model are expected to attract new commercial re-users that are very interested in the cadastral data but have so far not acquired the PSI from the cadastre due to its relatively high pricing. The idea was to reduce substantially the barrier to entry for the acquisition of the full cadastral map – from 6 M EUR to 300,000 EUR and thereby attract new commercial re-users, notably large geo-information companies.

The demand by citizens for non-commercial usage of the cadastral data is expected to stay about the same. Because of the price reduction, the PSI sales revenue from these users is expected to decrease by 200,000 EUR to 300,000 EUR.

In summary, the total turnover from data purchases is expected to remain stable, despite the substantial price cuts of up to 97%.

The DGFiP cadastral service will benefit in any case from this pricing as the data sales revenues will possibly be reallocated to DGFiP's IT department which will partly use the funds to modernize the cadastre's IT infrastructure.

The new pricing model does not foresee a specific approach to be applied to innovative start-up companies (*dispositif innovation*). Adjustments to accommodate this may, however, be made to the model at a later stage.

A model that allows start-up companies to pay a variable success fee (percentage of the turnover that the company generates with the PSI) as applied by the Working Committee of the Surveying Authorities of the States of the Federal Republic of Germany (*Arbeitsgemeinschaft der Vermessungsverwaltungen der Länder der Bundesrepublik Deutschland* - AdV) has been taken into consideration by DGFiP and APIE, but was finally not retained. The main reason was that such a system may create a high administrative burden for re-users and DGFiP. In a context of severe personnel reductions at DGFiP in the last years, DGFiP is not able to free additional cadastre employees to commit them to licensing and policing activities.

With regard to the provision of free cadastral services, such as in Spain, DGFiP underlines that zero cost pricing models may cause competition policy problems where private

companies have invested in data collection services which largely parallel those of the PSI holder. A switch to a zero cost pricing model from one day to the next may also cause a substantial additional demand. The public administration would find this demand difficult to manage because it could lead to important additional costs. Finally, in France, a shift to zero cost pricing would be resisted by the territorial public authorities which partly financed the digitalization of the cadastral map and now receive it for free four times a year. DGFiP and APIE, however, do not exclude a progressive shift to zero cost pricing.

5.11.9 Final observations

This case study on the French Cadastre yields some interesting insights that are discussed below.

First, the case demonstrates that the high fees of the current pricing and licensing model have prevented commercial re-use businesses to evolve. Particularly, no value-added services based on DGFiP's cadastral PSI have currently been developed. The current prices are based on the reproduction costs of paper and plastic maps and do not reflect the reduced costs of transmitting digital data. The prices are not market-oriented; they do not take into account the market value of the cadastral information and the willingness to pay of commercial re-users. For these reasons, no re-user has ever bought the entire cadastral map. Some of the large players in the geo-information business were very keen to obtain the cadastral map, but the price of 5.7 M EUR for the entire database inhibited them from developing a sustainable business model. The availability of a comparable product – the *BD Parcellaire* from IGN – at a price of approximately 300,000 EUR did not help the DGFiP to sell its PSI. This situation has led not only to lost opportunities vis-à-vis commercial re-use businesses but also represents lost PSI sales revenues for DGFiP. Such potential revenues could have been invested in the modernization of the cadastral database, the improvement of services for re-users or a reduction in prices. Recognizing the sub-optimality of this situation, DGFiP decided to review its pricing model substantially.

Second, the case also shows that the French Cadastre was able to adopt a more market-oriented PSI pricing and licensing model with drastic price cuts of up to 97% while respecting a strict budgetary constraint, i.e. no additional governmental funding. The new prices better reflect the market value of the PSI, the re-use facilitation costs incurred and the competitive position vis-à-vis IGN's *BD Parcellaire*. It can be expected that some of the major geo-information companies will purchase the full cadastral map at the new price of 300,000 EUR. It may, however, be regretted that the new model does not foresee any special offering for start-up companies and SMEs. While the barrier to entry for the acquisition of the full

cadastral map has been reduced substantially from 5.7 M EUR to 300,000 EUR, for some potential new entrants this may still be too high.

Finally, the case illustrates how the reallocation of PSI sales revenues to the PSB generating these revenues can improve the incentives within the organization. In the current model, all revenues go into the general state budget. This does not create any specific incentives for the cadastral services of DGFiP. In contrast, the revenues under the new pricing and licensing model may flow directly back to the IT department of DGFiP. There, they would be used, for example, to modernize the cadastre's IT infrastructure which would also benefit PSI re-users eventually. The cadastre would therefore have an incentive to improve the quality of its services to re-users and to propose a market-oriented, reasonable pricing if it desires to sell its PSI and secure additional funds for its modernization. More than previously, the cadastre would have an interest in consulting actual and potential PSI re-users and in satisfying their needs.

5.11.10 Key sources

- Desk research
- Face-to-face interviews with the several officials from DGFiP and APIE
    - Laurent PATTE, Directeur divisionnaire, DGFiP (Cadastre)
    - Cyrille GOULARD, Inspecteur Principal, DGFiP (Cadastre)
    - Jean-Claude MANIQUAIRE, Inspecteur Départemental, DGFiP (Cadastre)
    - Emanuelle GUILLIN, Inspectrice, DGFiP (Cadastre)
    - Kristof DE MEULDER, Project Manager, APIE

5.12 Italian Cadastre (IT – geographical PSI)

Case study author: David Osimo (Tech4i2)

5.12.1 Key message

The Italian Cadastre (AGTER) shows the rapid evolution and heated discussions stimulated by PSI in Italy. While the PSI directive was adopted into Italian law in 2006, until 2010 cadastral information was excluded from the definition of PSI. Decisions over the pricing policy of PSI for re-use and value-added services are made in the Ministry of Economy and Finance, and regulated by strategic triennial agreements with AGTER. These agreements emphasize the need for AGTER to maximize revenues from PSI, and these revenues then go directly to the Ministry. There is no information available about how the pricing is established. A further element of transformation is the ongoing decentralization of the cadastral function towards the Italian local authorities.

Between 2005 and 2010, several key decisions have been taken that profoundly affected the market for re-use of cadastral data. Examples include the introduction in 2005 of a re-user tax for each re-sale transaction; the provision of value-added services to end-users (banks) previously offered by re-users, combined with an increase of 550% of raw data for re-use; the release of bulk raw data (*elenco soggetti*), a dataset previously re-sold with a margin by re-users; an increase of 20% of data costs for re-use; and the non-availability of bulk raw data for re-use on cadastral information.

One-off consultations of the data are free to registered users (whether citizens, public authorities, real estate associations or research institutes) at http://www.agenziaterritorio.it. For professional users of data that might need several forms of cadastral data and/or more continuous use of services over time, AGTER adopts a partial cost-recovery model for all the fee-based services, with the exception of the consultation of real estate mortgage data. In this case, the price is regulated by law and revenues go directly to the Italian Treasury.

Re-use is regulated by specific agreements that foresee a re-use tax of 1,000 EUR a year for cadastral data. AGTER revenues from re-use have reached 3.3 million EUR and constitute 0.5% of its total costs, while 1% of its labour force is dedicated to the facilitation of re-use. There are about 100 re-users and the total market is estimated at 100 million EUR. The

market is composed of large companies such as Experian and CRIBIS as well as many SMEs, which provide services to banks and companies. [79]

As a result of the cadastral pricing policy, re-users claim that the overall re-use market has declined substantially during the last years (a decline of about 40% between 2004 and 2010). It is suggested that this has had a detrimental effect on the possible launch of innovative services (re-users are mainly being innovative vis-à-vis their own internal processes so as to ensure that increases in the cost of PSI cost are not passed on to their customers). According to AGTER, this is simply due to an efficiency gain in the agency core business processes rather than a form of unfair competition due to its dominant position progressively acquired over the last seven years. At the same time, AGTER sees its intervention into the market as a stimulus for re-users to move forward and offer additional added-value services that it is not providing. It explains the decline in industry re-use revenues as being due to the fact that most of the services undertaken by re-users simply overcame inefficiencies in the cadastral services. In parallel, the definition of personalized value-added services as a core tasks of AGTER has been changing over the years.

This controversial discussion has paved the way for approximately 44 court cases. So far 50% of these cases have been decided in favour of re-users (while some pricing and services decisions have been withheld, so that price decisions and services have often not been fully implemented).

Furthermore, this case illustrates how the lack of reallocation of PSI sales revenues to the PSB generating these revenues limits the incentives for the cadastral services of AGTER to develop new services.

5.12.2 Key economic indicators

Indicator	Year 2010[80]
PSB	Italian Cadastre
Total budget	Estimated at 666 M EUR[83]
Personnel	Estimated at 9,330[2]
Turnover from PSI sales	3,300,000[84] EUR
Cost recovery rate	0.5[85]%

[79] Professional users such as lawyers and notaries are not included in these sums.
[80] Balance sheet of year 2010 approved by the AGTER management committee and under the approval of the Italian Government.

Indicator	Year 2010[80]
Online services facilitation[81]	
FTEs involved	100, of which: 38 for real estate observatory (OMI[86]) activities 47 for cadastre re-use facilitation free of charge 15 for cadastre re-use facilitation fee based
Costs for improving and maintaining online services[82]	28.7M EUR (total for PSI portal 2009-2011)[87]
Pricing model	
OMI PSI data	
• Price per geographical area	1,500 EUR/semester
• Price for the whole national territory	2,200 EUR/semester
Cadastre PSI data	
• Price per online access	1,000 EUR /yr (commercial re-use tax) + 200 EUR (agreement registration) + 30 EUR/yr per password
• Price for full database	(not applicable)
Re-users[88]	
Number of re-users	Less then 100
Total market value of re-users	Around 100 M EUR

[83] The data have been considered as estimates since they have not been formally approved by the Italian Treasury.

[84] This is related to AGETR online services provided under specific agreement to users and re-users (of which about 100 units in year 2010). This amount does not involve the revenues derived from AGTER services related to real estate advertising that are subject to the payment of the mortgages tax. In the year 2010 this amount has been equivalent to 141 million Euros (of which more than 85% derive from online access to SISTER, the AGTER cadastral information system), that directly go to the Treasury and are not consolidated into the AGTER balance sheet. It also does not include the OMI revenues that are very limited: they do not exceed 50k€/yr since mostly theae services are provided free of charge.

[85] This percentage is purely indicative since the AGTER statutory mission does not foresee any cost recovery action.

[81] These services are also used by re-users. At the present time, AGTER has not estimated how many FTEs are dedicated only to re-users.

[82] Same comment as above.

[86] OMI - Osservatorio del Mercato Immobiliare; Real Estate Market Observatory

[87] AGTER investment over the last ten years was several times higher that that foreseen for the period 2007-2009.

[88] Based on interview with Rossanigo – ACIF.

5.12.3 Introduction

The Italian Agenzia del Territorio (AGTER) was set up as a result of the reform of the Ministry of Economy and Finance. It began operating on 1 January, 2001 (d.lgs. 31st march 1998, n. 112 concerning delocalization of the Local Public Bodies' competencies and d.lgs. 30th July 1999, n. 300 which was further modified by art. 19 d.lgs 31st may 2010, n.78). AGTER is now undergoing profound structural changes as cadastral activities in Italy are decentralized.

Since 2004, digitalized cadastral data can be viewed, partially without charge, on the http://www.agenziaterritorio.it website. In parallel, AGTER has developed re-user services that are based on a partial cost-recovery model. The access cost of the cadastral data includes a 1,000 EUR a year re-use tax, 200 EUR a year for administrative expenses and 30 EUR a year per password, all of which contribute to the implementation and maintenance of the AGTER information system. At present, no full database purchase policy has been implemented. The real estate observatory (OMI) database can be purchased at the price of 1,500 EUR per semester for a single geographical area, and at 2,200 EUR per semester for the whole national territory. Currently, the pricing model strategy is evolving. This is due to several ongoing legal conflicts, such as the 2010 Italian Antitrust Authority decision that has condemned AGTER for its dominant position on the real estate information market.[89]

The case study falls under objective B of POPSIS because the pricing model of the Italian Cadastre aims at a partial recovery of the cost. The cadastre can be categorized as being in the geographical PSI sector.

5.12.4 Organization, governmental structure, tasks

The core activity of AGTER is the provision of the real estate register aimed at simplifying relationships with users and the integration of the information systems related to fiscal and real estate property information. Pricing policy and decisions regarding market services to be provided are fully defined by the government (the Ministry of Economy and Finance). AGTER functions according to triennial agreements with government that determine its goals and functioning.

In particular, at the time of the original adoption of the PSI directive, cadastral information was excluded from the definition of PSI. The last two triennial agreement with the Ministry emphasized the need for the agency to maximize revenues from PSI: among the strategic objectives of 2004 were the "increase the variety and revenues from market services", while the 2006 objectives included the aim to "develop innovative services offered on the market"

[89] "Corte d'appello di Torino", sentence 218/219 of year 2010 related to a misapplication of PSI re-use.

the purpose of which was to increase profitability of services offered to the market. AGTER collects two types of data:

1. The cadastral data which is available in the following five datasets:

    a. A cartographic database, containing about 340,000 maps in vector format. AGTER is one of the Italian state cartographic bodies;
    b. A land cadastre database, containing about 82 million rural parcels;
    c. A building cadastre database, containing about 63 million real estate urban units;
    d. A plans database, containing graphic information related to each real estate urban unit (information which is not common in the other European cadastral systems).
    e. 45 million automated notations and about 40 million notations in digital format of real estate rights and mortgages are collected by the AGTER information system. It gathers deeds and related notations (summaries of deeds, submitted by an attesting official when asking for transcription or inscription) which are mainly concerned with the transfer of ownership and other rights and the raising and write-off of mortgages.

2. Real estate data, available in the following two datasets:

    a. About 340,000 surveying datasheets containing information related to the characters of buildings in 1,280 municipalities (information provided by the real estate market observatory);
    b. More than 180,000 real estate quotations related to 31,000 homogeneous surveying zones, quotations worked out for 17 building typologies and concerning all the 8,100 or so municipalities throughout the Italian national territory (information provided by the real estate market observatory).

Private citizens can access free of charge and consult online the cadastral data related to the above points 1a, 1b, 1c and partially 1d at the www.agenziaterritorio.it website. AGTER is completing a new service[90] for public administrations, citizens, professionals and re-users that is aimed at providing an integrated view of all the datasets available for consultation and usage. In particular, the revised system will integrate administrative and census archives with cartography and real estate quotations. These services, which will be partially free of charge, will enable consultation of cadastral maps, property plans data, real estate data and fiscal data.

[90] Document presented by the AGTER director to the parliamentary commission for fiscal federalism implementation on: "real estate integrated datasets". Rome, 1st December 2010.

According to AGTER's mission, the agency performs the following statutory activities (see the above art. 66 of the d.lgs n.122/98):

Activities

- Cadastre, cartography and real estate rights and mortgages registration services;
- Setting up and updating of a nationwide comprehensive real properties register;
- Integration between the cadastral activities and those under the competence of local government institutions, thus promoting the decentralization of the cadastre functions.

Additional activities have been developed by AGTER starting from these statutory activities:

- Management of the Real Estate Market Observatory;
- Supply of technical appraisal services;
- Achieving fairness in the real estate taxation field;
- Actions aiming at reducing tax avoidance and evasion.

The AGTER organization is composed of seven Central Directorates, three of which are charged with services management and are located in Rome, 15 Regional Directorates and 103 Provincial Offices. Thus, a widespread institutional presence throughout Italy is provided.

Thanks to the direct efforts of AGTER personnel in local offices and the contribution of the local authorities, cadastre data are updated daily, making the databases managed by the SISTER system very powerful for all segments of users. A logical schema of the cadastre data management between AGTER and the Italian municipalities is illustrated in the figure below.

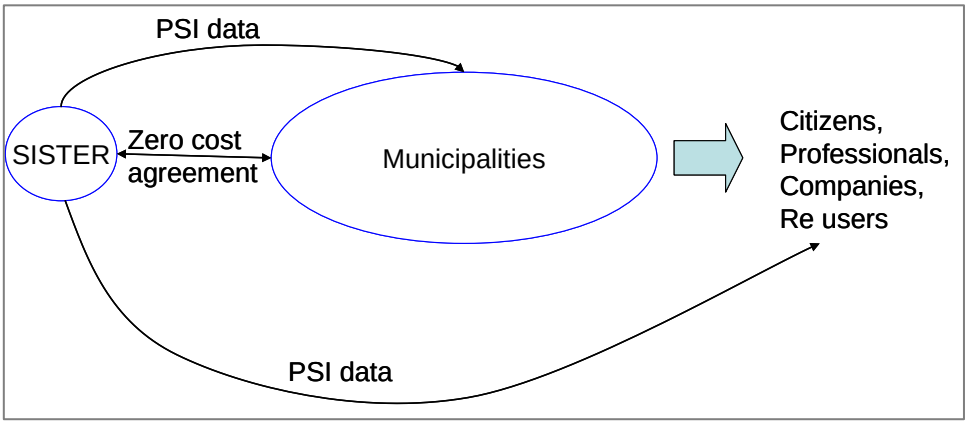


Figure 26: A representation of cadastre data management between AGTER and the Italian municipalities (source: authors)

The second key activity of the Italian cadastre is the management of a real estate market observatory called the OMI. OMI is dedicated to the detection and elaboration of real estate

market techno-economic information; monitoring of the rental market and the publication and statistical valorization of the AGTER OMI's archives. OMI archives constitute a very powerful source of information: it is very useful for researchers, public and private institutions and citizens. It is updated every semester by AGTER.

The following figure illustrates an example of the online data made available by OMI through the AGTER portal[91].

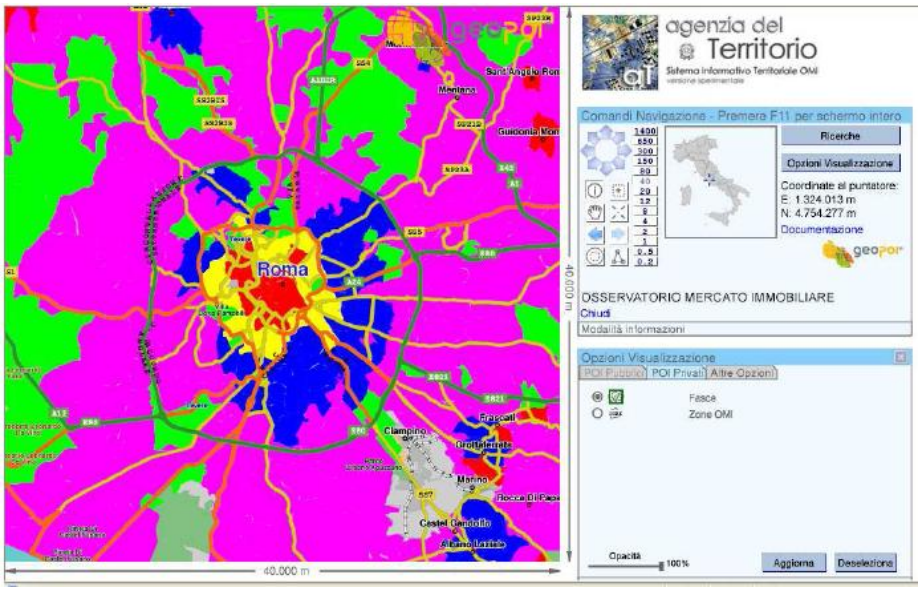


Figure 27: An example of the online data made available by OMI

The information contained in the OMI database is provided by agreements with real estate intermediary associations such as FIAP, FIMAA, CNI, ACI, ASSILEA.[92] From this perspective, the OMI database contains raw data**.** The figure below illustrates how the OMI database is updated, how the raw data are generated and then re-used.

[91] Relation of the Director of AGTER to the parliamentary commission on: "thematic in depth analysis of AGTER databases". Rome, 25 February 2009.

[92] Respectively, the F*ederazione Italiana Agenti Immobiliari*, *Federazione Italiana Mediatori Agenti d'Affari*, *Automobile Club d'Italia*, *Consiglio Nazionale Ingegneri*, and the *Associazione Italiana Leasing*.

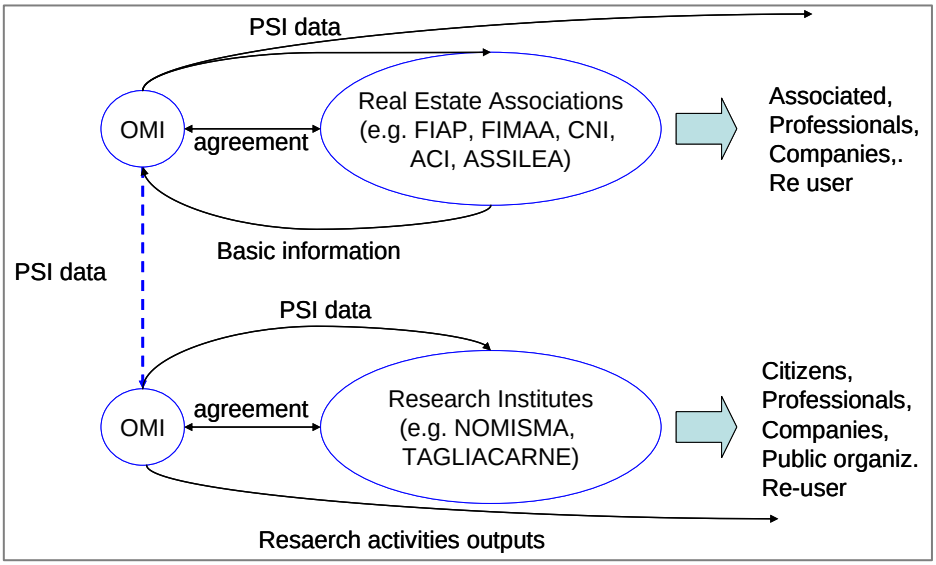


Figure 28: An illustration of the way the OMI database is updated, raw data generated and re-used

In terms of personnel, over the last six years AGTER has been reduced to no more than 9,330 members of staff[93]: a decrease of 25% from 2001 to 2010.

5.12.5 The PSI portal of the Italian cadastre: www.agenziaterritorio.it

As part of its mission, AGTER has been investing heavily in the improvement of its services to the public. Its online portal was launched in December 2003. It is composed of two sites:

- The institutional site, containing a subset of cadastral information helping users to perform their fiscal duties. This site also allows the perusal of single data on the OMI database for free;
- SISTER, a website dedicated to professional users to which access is regulated by specific agreement.

At present, users cannot download cadastral maps but they can have access to all other cadastral data, according to the free and fee-based pricing policies described previously. The free download of cadastral maps will not be possible until a full alignment between geographic maps and cadastral maps is completed. Different sizes of physical, cadastral map can be purchased at the local branches of the AGTER and at the municipalities' offices.

Users can download real estate market information, fee-based for personal usage or for re-use. The PSI purchased that derived from OMI can either be downloaded directly from the

[93] Relation of AGTER Director to a parliamentary commission on: "Management and usage of cadastre datasets". Rome, 10 October 2007.

portal or delivered on CD/DVD in the case of large data quantities, e.g., if the real estate market information for the whole Italy is ordered.

The cadastral data available on the AGTER portal is updated on a daily basis, thanks to the information collected directly by the agency and provided by the municipalities, citizens and professionals. Real estate transactions are automatically registered in the AGTER datasets through a direct connection with notaries' offices and other offices in charge of this activity. Real estate market information is updated every six months.

The usage of the AGTER online portal is increasing steadily in contrast to access to the AGTER front office, as can be seen from access statistics from 2003 to 2006:

- 2003: 27.7M access of which 44% consist of online access;
- 2004: 30.7M access of which 57% consist of online access;
- 2005: 34.3M access of which 67% consist of online access;
- 2006: 42.2M access of which 71% consist of online access.

There are currently around 100,000 user accounts (for registered users) that enable the purchase of PSI via the portal. They are almost equivalent to the number of companies that have signed a yearly agreement with AGTER for accessing its databases. The following table illustrates the variations between 2009 and 2010 for online access by users to the cadastral databases. In 2010 79% of the cadastral services were requested through online access: the online channel is becoming the most important communication means for AGTER and its users.

	2010	**2009**	**Δ%**
Cadastral services			
Real estate unit elaborated by automatic process	3,746,000	3,950,000	-5.16%
Front office services related to paper based requests	828,000	816,000	1.47%
Real estate cadastre database access	91,686,000	84,310,000	8.75%
% of online channel (Sister)	79%	77%	2.59%
Cadastral certificate provided paper based	21,000	22,000	-4.54%
Real estate advertising services			
General services	3,957,000	4,194,000	-5.65%
Of which on line	82%	82%	0.00%
Mortgage services	50,658,000	48,785,000	3.84%
Of which on line	85%	83%	2.41%

5.12.6 Trends in the quality of data and services

AGTER undertakes periodic customer satisfaction interviews with public sector users, professionals and citizens to understand user perceptions of its service quality. At the present time, the level of satisfaction of all the three categories of users is quite high in respect to online access to PSI data. Only around 7% of users are unsatisfied by AGTER's online services, as is shown in the following figure.

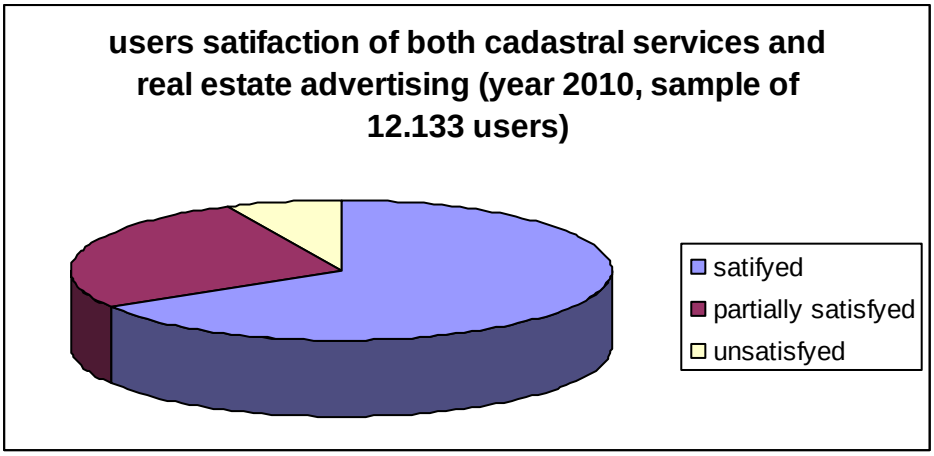


Figure 29: User satisfaction with AGTER online service provision

AGTER also maintains a 'barometer' of data quality to monitor the quality of its data, based on the criteria of digitalization, standardization and coherence. This index shows a continue improvement of the quality in recent years. The next figure shows AGTER data quality for the period 2005-2010.[94]

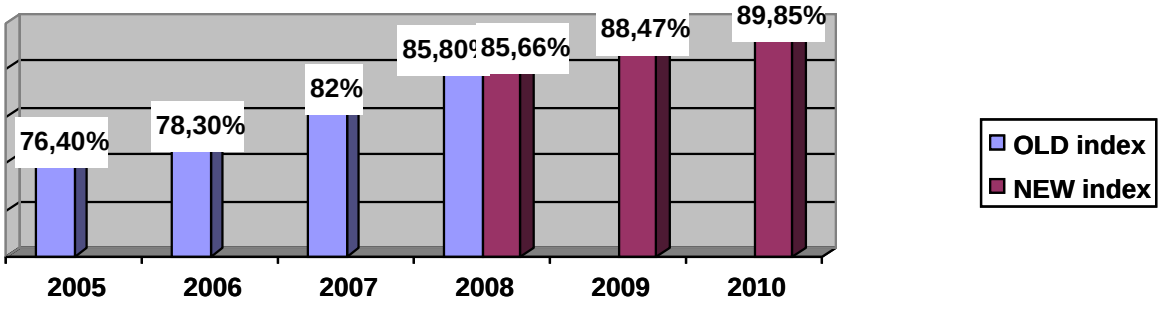


Figure 30: Steady improvement in the AGTER data quality index, 2005 to 2010

In particular, in the past decade, AGTER has undertaken a major effort to catch up with delays in data cleaning. The backlog of data for cleaning was overcome within five years.

[94] Relation of the Director of AGTER to the parliamentary commission on: "thematic in depth analysis of AGTER databases". Rome, 25 February 2009, updated with the data provided in face to face interview..

One of the strong points of AGTER activity is the real-time update of the cadastre database through SISTER. The large effort invested by AGTER in achieving this result is now being repaid by the high level of satisfaction of the users in terms of their access to cadastral online services. Moreover, the low level of dissatisfaction – less than 10% – is mainly related to two issues: limited access capability to AGTER portal and a usability problem with the agency portal. In only a few cases do users perceive problems with the quality of AGTER datasets.

5.12.7 Budget, Costs, revenues

AGTER is an autonomous public body with its own managerial, organizational and operational autonomy. Its economic and financial capability is regulated by a three-year agreement with the Italian Ministry of Economy and Finance that is also responsible for defining AGTER's statutory mission and assessing the degree of progress in achieving the agency's yearly managerial objectives.

Despite the fact that the decentralization law is still not implemented, during the last six years the number of AGTER personnel has been reduced to no more than 9.330 units,[95] with a decrease of 25% from 2001 to 2010 as reported in the following table. No increase in personnel is expected over the upcoming mid- to long-term time horizon.

AGTER workforce										
01/01/01	31/12/01	31/12/02	31/12/03	31/12/04	31/12/05	31/12/06	31/12/07	31/12/08	31/12/09	31/12/10
12,504	12,433	12,048	11,525	11,231	11,065	10,768	10,365	10,103	9,646	9,330

According to the data provided by the agency, almost 45% of employees work for cadastral and cartographic services while 20% are employed on work for the real estate register. OMI-related activity involves almost 4% of the employees, while consultancy activities represent about 6% of the total. Finally, the administrative services are around 25% of the total.

Starting from the same information sources, the cadastral and cartographic services productive hours are around 5M a year; those related to the real estate registry are 2.2M a year; the OMI productive hours are around 0.3M a year and the consultancy services around

[95] Presentation of the AGTER Director to a parliamentary commission on: "Management and usage of cadastre datasets". Rome, 10 October 2007.

0.5M a year. There is no information available on the division of costs for the facilitation of data re-use.

Using the above figures and assuming 1,400 productive hours/year, the FTE for cadastral services are 5M hours/year / 1,400 hours/year = 3.571 FTE; while the FTE dedicated to OMI activities are 0.3M/year / 1,400/year = 214 FTE; real estate registry FTE are 2.2 M/year / 1,400 hours/year = 1,571 FTE.

Assuming also an average gross salary around of 47.000 €/yr (total personnel costs[96] 458,631,000/9,800 employees = 46,680€/yr), the cadastre service cost are 3,571 FTE x 47,000€/year per FTE = 167,837,000 €/year; the OMI cost is around 10,058,000€/year; the real estate registry cost is 73,837,000€/year.

Since the launch of the AGTER portal, the following PSI sales **revenues** have been recorded:

- Revenues due to agreement for **cadastre data** access for re-use = 3.3M€/year;[97]
- Revenues due to agreement **for cadastre data** access with re user = very limited and not included into the yearly balance sheet;
- Revenue from **OMI databases** = very marginal and equivalent to few tens of thousands EUR;[98]
- Tax due for real estate mortgage data access (141M€ of which 85% through online access to AGTER services).[99]

Based on the cadastre's total budget estimation, the PSI sales revenues/total budget ratio is 3.3M€/666[100]M€= 0.5%. If one takes only the topographical services of the cadastre into consideration which is the bulk of revenues from users (and only a few tens of re-users), the ratio would be 3.3M€/158M€= 2%.

For OMI the PSI sales revenues/total budget is very marginal, and therefore has not been calculated.

At the present time, the main PSI sales revenues are related to real estate mortgage data access and they flow back to the general state budget. This means that the Italian Cadastre

[96] A three-year agreement between Italian Ministry of Treasury and AGTER, signed in Rome on 3 August 2009.

[97] Year 2010 balance sheet.

[98] Since the revenue is very marginal it has not been considered in the analysis.

[99] This revenue goes back to the Ministry of Economy and Finance and it is not considered in AGTER balance sheet.

[100] Year 2010 balance sheet.

has very limited resources to reinvest PSI sales revenues in improving the quality of its database. However, every three years, the Italian Ministry of Economy and Finance provides AGTER with a specific budget of around 50M € for the improvement of the AGTER ICT system. Most of this budget is used by AGTER to improve and maintain its datasets and the related Information systems. For example for the three year period of 2009-2011, the total budget dedicated to the PSI database improvement was allocated as follows:[101]

- 3.9 M€ for the cadastral information system improvement;
- 1.7M€ for archive dematerialization;
- 2.1M€ for new online services;
- 21M€ for improving the existing information system.

The main software development activities related to improvement and maintenance of the PSI databases and information systems. These activities are managed through a third party contract with SOGEI[102], a public company charged with providing services to Italian public agencies.

5.12.8 Re-use policy and pricing

Traditionally, the re-use of cadastral PSI in Italy has evolved gradually and has often been facilitated by EU legislation. Key decisions with regard to re-use, pricing and provision of services are taken by the Government, while the agency is responsible for the delivery of the service only.

The 2005 budgetary law established that re-use was not allowed without explicit and formalized agreements; additional taxes would have to be paid to AGTER for each access to the re-users database by final customers; and sanctions were provided for non-compliance. This provision (which was removed in 2007) led to a multiplication of legal cases against AGTER: 30 cases were brought forward by 68 companies, which estimated total damages of 16 M€. So far, the 22 decisions are equally shared in favour and against AGTER.

The original adoption of the PSI directive in 2006 excluded cadastral information from PSI – a provision that was then abrogated in 2010.

A second area of conflict has been the introduction in 2006 by AGTER of a free value-added service for banks, regarding personalized monitoring services (a service previously provided by re-users) while at the same time increasing the cost of raw data for re-use by 550%, for an estimated damage (by experts named by the companies) of 16 M€. As a precaution the

[101] Three years agreement between Italian Ministry of Treasury and AGTER, signed in Rome on 3 August 2009.

[102] http://www.sogei.it

Courts have stopped the service and are allowing re-users to use the previous pricing model. With regard to the 14 pending cases, five decisions have been taken, three in favour of re-users and two of AGTER. A heated policy discussion has taken place on whether the service could be considered as part of the institutional mission of the Agency.[103]

A further element has been the decision of government, in 2007, to release at zero costs of the "*elenco soggetti*" service, which was previously provided as a value-added service by business information players. Again since 2007 the prices of data for re-use have been increased by 20%.

These examples show the importance of the issues at stake, but also that the business information industry is concerned with both the cost of the data and of the services provided by AGTER: while they are in favour of low cost raw data, they oppose zero cost for value-added data since they regard it as unfair competition.

However, AGTER considers that a fundamental part of this activity is the real-time updating of all the cadastre data, as well as the maintenance of a high level of data quality and a wide coverage of the need of citizens, professionals and companies that have limited needs of access to cadastre information. From AGTER's perspective, its policy related to PSI data represents more of an efficiency gain in terms of AGTER management process in favour to citizens and local authorities than the achievement of a dominant position in the PSI market. Therefore AGTER considers its online service as a method for providing real-time and high quality data as a stimulus for re-users to develop innovative services with PSI data provided by AGTER. It does not see it as a method for acquiring market share that already belongs to re-users.

The **current pricing model** of the Italian cadastre distinguishes between cadastre PSI data and OMI PSI data.

Cadastre PSI data

AGTER Pricing policy of re-use data[104]:

- Public administrations → **zero cost charging model**
- Citizens that need viewing single cadastral information → **zero cost charging model**

[103] U. Fantigrossi, Sui dati pubblici alegga lo spettro del monopolio, *Italia Oggi* 17/8/2007

[104] www.agenziaterritorio.it . In the pricing policies have been excluded the tax due for the access to real estate mortgage data.

- Professional and companies → access to SISTER is subject to an agreement. The cost of the agreement is based **marginal cost charging model: 200€ "una tantum" for administrative expenses related to the agreement registration; 30€ per password/year for contribution to the implementation and maintenance of the AGTER information system.**

- **Re-users →** access to SISTER is subject to an agreement. The cost of the agreement is the same as above, plus and additional tax for *re-use* for the cost of 1,000€/year.[105]

While OMI has two kinds of pricing policies datasets:

- **zero cost for data sets related to:**
  - **real estate market quotation from the second semester 2009**
  - **average rural land quotation (estimated by the 31st of January of each year)**
  - **average real estate sales volumes**
- **cost recovery for data sets related to:**
  - **real estate market quotation from year 2002.** The data are provided on a CD ROM in access format or text. The cost recovery is €2,200.00 (VAT excluded) per semester and for the whole national territory, or €1,500.00 (VAT excluded) per semester per geographical area.
    Special agreement is foreseen for professional in charge for public activities. In this case single data are zero cost based, while the whole datasets is subject to the normal cost recovery price.
  - **Real estate sales per each municipality/suburban area from year 2000. The cost is €1,000.00 (VAT excluded) per year.**
    Special agreement as above.
- **Special agreements with real estate intermediaries associations.** Under such an agreement the associations provide information that AGTER aggregates. It then makes available the updated datasets to associations at **zero cost.** Associations become **re-users** of the raw data provided by AGTER. Associations have implemented several business models in re-using such raw data which are either zero cost or fee-based. They are under investigation and will become available during the first week of May 2011. The most common model is a *cascade business model* involving all the local branches of each agency in a *do ut des* relationships: the branches closer to the local areas provide information to the upper branches and they receive **raw data from AGTER** related to their local area where they operate.
- **Special agreement with research institutes.** AGTER provides **zero cost OMI raw data** to research institutes such as the NOMISMA and TAGLIACARNE Institute for their own research activities, under a special agreement that has been finalized so that

[105] Communication of AGTER Director on commercial re-use of cadastre data and information. Rome, 26 July 2007.

AGTER receives in return *ad hoc* studies and publications from them. The research institutes can then use such **raw data** for further studies and consulting activities, becoming **re-users** of such data. In that case, there are different business models in place. These models are under investigation and will be provided during the first week of May 2011.

- **Special agreement with public bodies.** AGTER provides **zero cost OMI raw data to ISTAT** (the national institute of statistics) under a similar agreement of the other research institutes described above. ISTAT is a **re-user** of OMI data for its own purposes. **As reimbursement ISTAT provides publication and statistics to AGTER.**
- **Special agreement with public bodies.** AGTER provides **zero cost raw data to AGENTRATE** (the fiscal public agency). This is a dual agreement aimed at combating evasion and tax avoidance. AGENTRATE is a **re-user** of AGTER raw data.

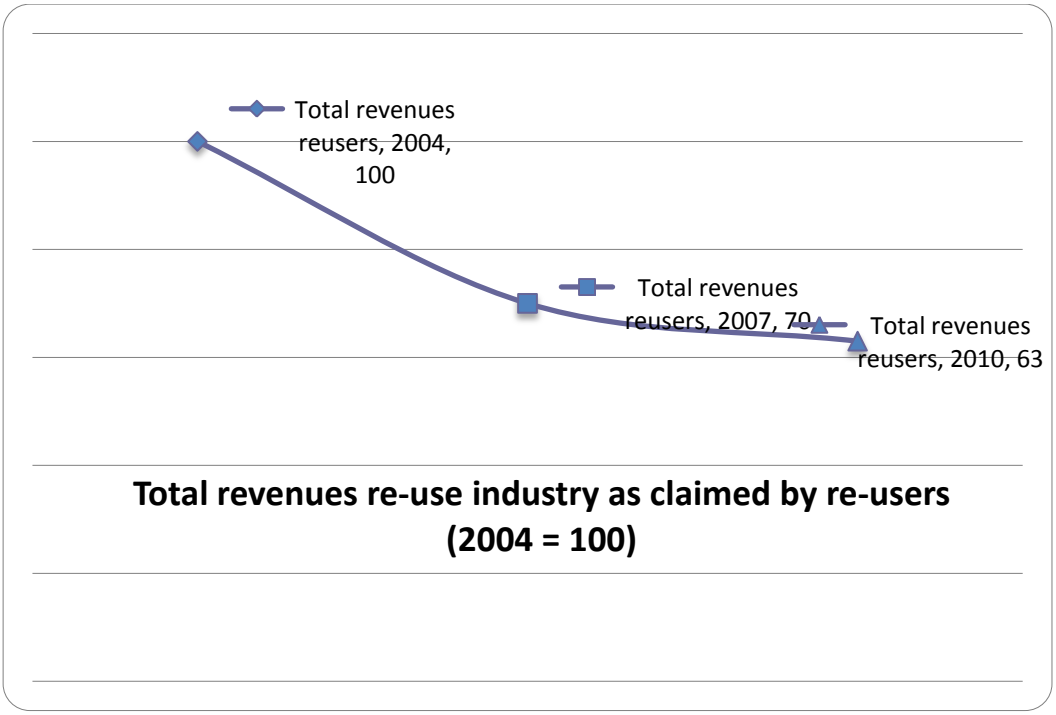
Currently, besides the final customers, the main re-users of the Italian cadastral map and OMI database are:

- Local actors such as professional land and real estate agents, construction companies, optical fibre cable companies and local public authorities
- Research organizations (both public and private)
- AGENTRATE (the fiscal agency of Italian government)
- POSTE ITALIANE
- Business information companies.

5.12.9 Impacts of the re-use policy

The re-users market is composed of professional organizations such as law firms, and business information players. This second group, is the most important and is composed of about 200 companies, divided between large established international players such as Experian, CERVED and Crif (an Italy-based international player) and a set of Italian-based SMEs and micro-enterprises. These companies offer value-added services combining business information from different sources, of which AGTER is one of the more important.

In 2004 the re-users' market was estimated to be about 150 M€/year. After the pricing decisions and value-added services provision was introduced, the turnover for the re-users has progressively decreased: the volume of transactions in 2007 was 20% lower than that of 2004 and for the year 2009/2010 it was 10% less than in 2007, reaching a total of 100M EUR and about 1,500 employees. In particular, some banks, which represent the largest segment of the market for these companies, have switched to using free services provided by AGTER.



According to re-users, this increase in prices has led them to concentrate their innovative efforts in optimizing their business processes and in reducing their operation costs, and keeping the prices of services to final customers as low as possible. For the same reason, few innovative services are expected to be built from the re-users point of view in the coming future. However, these companies appear to have been in the past leading users of ICT and developers or providers of **innovative services**: for example, Datahouse claims that **since 1997** most of its revenue has come from Internet-based services (source www.datahouse.it).

At the present time, the re-user tax per transaction has been suspended and it has been substituted by a yearly tax of 1,000€ per re-user for AGTER cadastral data. However, AGTER does not consider the previous re-user tax per transaction as an action that will lead to displacement. Rather, it views it as a tentative rebalancing of the multiple uses of PSI data by re-users. For example viewing data related to mortgages requires a payment per access according with Italian law. If the mortgages data is downloaded by re users, it could be re-used without any further payment even if it is due by law.

5.12.10 Final Observations

This case study on the Italian Cadastre yields some interesting insights.

AGTER has adopted a clear policy to allow any kind of user free access to peruse a single item of data in its databases. The case demonstrates that AGTER has not foreseen a pricing policy for selling the full cadastral database. On the contrary, the agency prefers to have set

up a pricing model based on pay per use access which differs according to the different types of user.

The AGTER strategy of a real-time updating process of the cadastral database prevents it being provided to potential re-users, while at the same time enabling a high quality of data to be available to citizens, professionals, companies and re-users.

However re-users seem to be penalized in providing established services, based on PSI data, to their customers, following AGTER's decision to allow free database access to large parts of its cadastral database. Since the introduction of AGTER's online services in 2004 and the possibility of free access, it is estimated that the re-user market has diminished by about 50 million €/year. In 2001, the market size was thought to be about 150 million €.[106]

According to AGTER, this is simply the result of increasing efficiency in its business processes rather than any unfair competition due to its dominant position progressively acquired by the agency over the last seven years. At the same time, the agency sees its intervention into the market as a stimulus for re-users to move forward and produce the added-value services that AGTER currently does not provide.

In order to discourage re-users from becoming simply re-sellers of cadastral data, in 2005 AGTER introduced a re-user tax for every re-sale transaction. This pricing policy has created a further barrier for re-users, which were already providing an identical service. However, AGTER does not consider this re-user tax per transaction as a displacement action but rather more as an attempt to rebalance the multiple uses of PSI data made by re-users.

The situation is quite controversial and is still subject to the judgement of the Italian Courts. As a precaution, they have stopped some services and allowed re-users to use the previous pricing model. At the moment, only a re-user tax of 1000 €/year has been foreseen for re-users.

The current pricing policy for PSI information highlights a clear strategy on the part of AGTER to reach a high quality for its cadastre datasets. This is going to be achieved thanks to the introduction of a near real-time information updating process and with a very strict quality check of the data. This policy, on the contrary, does not permit the transformation of the potential added-value of cadastre data into revenues for AGTER suitable for reducing its dependency from the Italian Treasury in financing ICT investments. A different situation arises in the case of the OMI pricing policies where the available PSI is potentially interesting

[106] Data gathered during the interview conducted with Emilio Rossanigo – Ribes Spa

to re-users. However, for the moment, no added-value services have been created for these PSI datasets.

Finally, the case illustrates how the lack of reallocation of PSI sales revenues to the PSB generating these revenues, does not create incentives for the cadastral services of AGTER to develop new services on PSI.

5.12.11 Sources used

- Face-to-face interview with Luca Montobbio the manager in charge of AGTER organization and personnel.
- Interview with Emilio Rossanigo who is responsible for the real estate service provider - Ribes Spa and secretary of ACIF (a business association of re-users)
- Interview with Raimondo Iemma, domain expert
- Decision of Italian Court and Competition Authorities
- Desk research
- Grey literature (auditions of the Director of AGTER to the Italian Parliament)
- Website of re-users

5.13 Ordnance Survey (UK – geographic PSI)

Case study author: Paul Foley (Tech4i2)

5.13.1 Key message

Ordnance Survey is a good example of a Trading Fund organization that has developed considerably between 2010 and 2011 to accommodate the UK Transparency Agenda and to provide mapping and address information free through its OS OpenData service.[107] As the OpenData products were launched fairly recently, their impact is relatively unknown but there is some initial evidence from re-users that more people are using the free data.

Since April 2010, Ordnance Survey has provided three tiers of information and maps across four key product categories: topographic mapping, address locations, route networks and consumer mapping – this three-tier structure is described by Ordnance Survey as a 'freemium' model. The lowest tier provides the least-detailed information across all four product categories free. The middle tier provides more detailed information and users pay for access. The upper tier provides premium information at the most detailed level.

Re-users suggest that the recent provision of free information has increased uptake by a variety of users. This, in turn, has led to an expansion in technical support by re-user organizations to use the free data by end-users. Re-users suggested this has also led to an increase in their own value-added services based on free information or associated mapping products.

Ordnance Survey allows developers and re-users to access samples of all three tiers of information free to see if they can develop an app or service. Fees for commercial exploitation of subsequent developments, alone or in partnership with Ordnance Survey, are then agreed on the basis of the products used and likely usage levels.

To encourage innovation of Ordnance Survey products and services, it established an Open Innovation programme called GeoVation. This provides seed funding and other support for sustainable business ventures based on geographical information.

Ordnance Survey has approximately 200 developer partners and 1,250 direct commercial customers. In March 2011 there were 1,386 active web sites using the Ordnance Survey OpenSpace application programming interface (API).

[107] http://www.ordnancesurvey.co.uk/oswebsite/products/os-opendata.html

5.13.2 Key economic indicators

Indicator	2004/5	2009/10
Income	**£115.0m**	**£114.3m**
Income by sector (%)		
Public sector and utilities	N/A	£73.8m
Commercial markets	N/A	£21.0m
Consumer sales	N/A	£17.6m
Operating Costs	**£105.7m**	**£116.2m**
Staff (Staff as % operations)	£54.5m (51.6%)	£55.1m (47.4%)[a]
other	£51.2m	£42.8m
Permanent staff (avg. monthly)	**1,473**	**1,292**
Operations (%)	1,003 (68.1%)	958 (74.1%)
Sales and marketing (%)	213 (14.5%)	155 (12.0%)

Use

Since April 2010 maps from four product categories have been provided free. It is too early to provide information about the uptake of this free service. However, there were 1,386 using the OS Openspace ® API at the end of March 2011.

65% of income from the sale of PSI is derived from public sector organizations and utilities.

Ordnance Survey has about 500 private sector partners. Of these, approximately 200 are developer partners. There are around 350 licensed partners who receive data directly.

There are about 1,250 direct commercial customers: these include paper map trade wholesalers and retail partners. Sales of maps and digital data to consumer users make up about 15% of the re-use market.

Re-users have suggested that the reduction in price of data (and opportunity for increased margins by re-sellers) has been welcomed by the re-user market. Greater availability of free data has led to an expansion in the use of this information and the need for more support and value-added services from those operating in the re-user market.

[a] Staff costs quoted in 2009/10 Annual Report also include exceptional 'early release costs' of £18.3m. These are excluded in the above table.

Source: Annual Reports

5.13.3 Introduction

In 1791, the Government realized that the south coast of England needed to be comprehensively and accurately mapped in case of invasion. So it instructed its Board of Ordnance – the defence ministry of the day – to carry out the necessary survey work. That historic decision led to the mapping of the whole of Great Britain in detail, and is also the source of the name 'Ordnance Survey'.

Today Ordnance Survey is a dynamic, self-financing £114 million-a-year civilian organization. It is at the forefront of the digital economy, producing digital mapping products and paper maps for business, leisure, administrative and educational use. Ordnance Survey is a non-ministerial government department and an Executive Agency responsible to the Secretary of State for Communities and Local Government. It covers its costs by selling products and services, and by licensing others to use the data it has collected. It operates as a Trading Fund[108] under the Government Trading Funds Act 1973[109] and The Ordnance Survey Trading Fund Order 1999.

Ordnance Survey is best known for its paper maps. There are around 650 different recreational and leisure maps that cover every corner of Britain. Even though digital mapping data accounts for around 90% of business, Ordnance Survey still sells around 2.5 million paper maps every year. Consumer sales in 2009/10 amounted to £17.6 million (15.4% of its income). As well as consumer sales, Ordnance Survey also has more than 500 private-sector partners that generate £26.3 million in income (23%).

As there is a geographic aspect to 80% of all the information that is collected in Britain – from the location of people, buildings, and postcodes to administrative boundaries – the potential for linking and analyzing different sets of information is enormous. This has been one of the key drivers towards providing Ordnance Survey information free.

The uses of Ordnance Survey information in the private sector continue to grow. These include improving the targeting of marketing effort, calculating instances of insurance fraud, providing location-based services on smartphones, and developing satellite navigation ('satnav') products and services as well as transport logistics systems.

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[108] Trading funds are established with Her Majesty's (HM) Treasury's agreement. They are set up where more than 50% of the trading fund's revenue will consist of receipts in respect of goods and services provided by the trading fund, and where the responsible Minister and the Treasury are satisfied that the setting up of the trading fund will lead to "improved efficiency and effectiveness in management of operations".

[109] 1973 http://www.legislation.gov.uk/ukpga/1973/63

Geographic information is used to help deliver efficiencies in a range of public services, from saving money through reorganizing public transport routes and identifying areas of health service deprivation, to helping the police detect crime patterns and catch criminals.

5.13.4 Organization, governmental structure, tasks

Ordnance Survey works closely with the Department for Communities and Local Government as Communities and Local Government ministers act as the government's shareholder for Ordnance Survey. Ordnance Survey works closely with the government to develop strategies, and significant developments concerning Ordnance Survey are reported to Parliament by Communities and Local Government Ministers. These Ministers have delegated the day-to-day management of their shareholding to the Shareholder Executive, with whom Ordnance Survey also works very closely.

The Trading Fund status for Ordnance Survey was established on April 1, 1999 under The Ordnance Survey Trading Fund Order 1999 (SI 1999 No. 965)[110]. Section 4(1) of the Government Trading Funds Act 1973 provides that a trading fund established under the Act shall be under the control and management of the responsible Minister. In discharge of their function in relation to the fund, it shall be their duty:

A) To manage the funded operations so that the revenue of the fund:

(i) Consists principally of receipts in respect of goods or services provided in the course of the funded operations; and

(ii) Is not less than sufficient, taking one year with another, to meet outgoings which are properly chargeable to revenue account; and

B) To achieve such further financial objectives as the Treasury may from time to time, by minute laid before the House of Commons, indicate as having been determined by the responsible Minister (with Treasury concurrence) to be desirable of achievement.

The Secretary of State for Communities and Local Government established (with Treasury concurrence) financial objectives for the Ordnance Survey Trading Fund for the three year period from April 1, 2007 to March 31, 2010. These required Ordnance Survey to achieve a return of 5.5% for the financial year to March 31, 2008, 6.0% for the financial year to March 31, 2009 and 6.5% for the financial year to March 31, 2010.

[110] http://www.legislation.gov.uk/uksi/1999/965/pdfs/uksi_19990965_en.pdf

Against these targets, the Ordnance Survey Annual Reports record a surplus for 2007/8 of £20.12 million (17% of turnover) and dividend payments to government shareholders of £3.7 million (3.1% of turnover). In 2008/9 the surplus for the year was £12.51 million (10.7% of turnover) and dividend payments were £4.8 million (4.1% of turnover). In 2009/10 profit for the year was £12.04 million (10.8% of turnover) and dividend payments were £4.8 million (4.2% of turnover). The annual reports suggest that surpluses have exceeded the rates of return targeted by government.

It must be noted that the UK cadastral system varies from the system prevalent in many parts of Europe. In Europe, markers in the ground frequently indicate boundaries. In the UK, boundaries are marked on maps. For this reason UK maps have a higher level of resolution than those in many other countries. For example, in France, mapping undertaken by the Institut Géographique National is limited to 1:10,000. Ordnance Survey large-scale data in the Ordnance Survey (OS) MasterMap product suite is presented at scales of 1:1250 (urban geographies), 1:2500 (developed rural geographies) and 1:10,000 scale (mountain and moorland areas). This level of accuracy and precision is necessary for many users, and data at this level of granularity provides the de facto cadastral map for land registration under the general boundaries model for Great Britain.

Direct comparison of Ordnance Survey with cadastral organizations in many parts of Europe could therefore be misleading because Ordnance Survey maps are produced to a higher degree of resolution. The maps also record topographical and other features that some cadastral organizations do not record.

5.13.5 Budget, costs and revenues

The 2009/10 Annual Report states that Ordnance Survey employs 1,292 people, of which 155 (12%) are involved in sales and marketing of PSI data and services. Since 2004/5, staff costs have decreased as a proportion of operating costs from 51.6% to 47.4% in 2009/10. During the same period, the average salary (wages and salaries divided by the number of staff) appears to have risen from £26,420 to £32,199 (an increase of 21.9%).

The budget and longer-term financial projections are developed internally by Ordnance Survey on a commercial basis on an annual cycle. Projections are based on expected demand and agreed at shareholder and Ministerial level. Commercial management, and close monitoring of regularly updated forecasts, lead to appropriate actions to manage business performance and to develop appropriate business opportunities. While the government can negotiate and/or approve business plans, day-to-day management is carried out by

Ordnance Survey; the agency has a relatively high degree of functional and financial independence.

A review of Annual Reports shows that total Income has remained relatively stable over the last five years, ranging from £118.2 million in 2007/08 to £114.3 million in 2009/10. Operating costs over the same time period have fluctuated from £96.1 million in 2007/08 to £116.2m in 2009/10. Of the total income in 2009/10, £112.5m (95%) was attributable to trading revenue, of which £73.8 million (65.6%) was derived from public sector organizations and utilities, £21.0 million (18.7%) from commercial markets, and £17.6 million (15.6%) from consumer sales.

Interviews suggested that among private sector end-users who used paid-for data in 2009/10 (turnover of £114.3 million) in the period prior to the launch of OS OpenData, approximately 40% were large businesses, 30% SMEs, and 30% consumers. The voluntary sector makes up less than 1% of end-users, but it is an increasing user of free data and related services.

Ordnance Survey operates a process of continuous revision for the largest and most detailed OS MasterMap data. This data lies at the heart of all Ordnance Survey products. Significant changes are mapped within six months of Ordnance Survey becoming aware of their completion. Cyclic revision programmes supplement this process on two- to ten-year cycles depending on geographical location and degree of change.

During interviews, Ordnance Survey staff explained that costs are incurred in providing data free. Data are collected in great detail for each location through the MasterMap. Since the free products provide less detail, preparation of these maps requires some of the information to be stripped out. All of the details are collected in a single pass, and this becomes the premium-tier data or products. From this, certain elements are removed to yield the middle-tier offerings, before a final round of detail removal leaves the first-tier of (free) data or products.

Ordnance Survey is a vertically integrated business. For the most part, it makes its data available at the first point of usefulness, across four key product categories. Therefore, for the purposes of this study, its staff did not distinguish between raw and processed data. Instead, all references to 'raw data' were taken to mean ‘data’. Ordnance Survey has undertaken extensive work on raw/processed and upstream/downstream models, supported by expert advice from L.E.K. Consulting, PricewaterhouseCoopers, Deloitte and

other well-known international consultancies. It has concluded that the distinction between raw and processed data is not valid in the Ordnance Survey context.

5.13.6 Re-use policy and pricing

Ordnance Survey operates a market-based, not a marginal cost, pricing model. The current model is driven by the value perceptions of users, and this applies equally to the commercial agreement with UK Government which underpins the delivery of 'free at the point of use' data sets for all. A wholly free model would eliminate revenues and require a 100% Grant-in-Aid subsidy from the government.

Two significant changes have recently been made in Ordnance Survey's pricing policies.

1. OS OpenData: This was introduced in April 2010 and provides 'free at the point of use' data sets that are licensed under the UK's Open Government license for public sector information.[111] It allows unrestricted use and re-use by all, including commercial firms. Funding is provided under a commercial agreement with central government to fund this free data provision. The Government's objectives for OS OpenData are to support:

   a) the UK Government's desire to engage more fully with citizens, including through a transparency agenda, by making it easier for citizens to identify locations associated with information gained from and about government;

   b) to stimulate economic activity by allowing innovators to create new products and services that will use and add value to Ordnance Survey's geospatial data.

The benefits to Ordnance Survey have been to allow the simplification of other commercial licenses, and to enable a positive engagement with solution developers and the third sector[112] community. For existing users, the key benefit has been a reduction by Ordnance Survey in the price of many of its data sets. New users can trial and develop commercial concepts at no initial charge. It is, however, too soon after the date on which OS OpenData service became available to discern the extent of new initiatives.

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[111] http://www.nationalarchives.gov.uk/doc/open-government-licence

[112] This is the voluntary sector or community sector – social activity undertaken by organizations that are non-profit and non-governmental.

2. New Pricing and licensing structure: A new and simplified range of Ordnance Survey licenses was launched between October 2010 and April 2011. The aim has been to remove much of the perceived confusion and restrictions associated with past licensing regimes. The key principle underpinning the new model is to assign a set of rights and prices appropriate to different user requirements. Thus the same data may have very different pricing depending on how it is used and the associated value generated.

The United Kingdom Report on the re-use of Public Sector Information published by the National Archives in 2010[113] sets out the UK position regarding the context and activities for geographical information in the UK. The report notes that the INSPIRE Directive requires that a spatial data infrastructure across Europe should be developed. The two sets of regulations to implement the directive for England, Wales and Northern Ireland (SI 2009/3157[114]), and Scotland (SSI 2009/440[115]), came into force on December 31, 2009.

The UK Location Programme, which operates through the Location Council,[116] leads on the implementation of initiatives that will ensure compliance with the directive. Location data will be made available through data.gov.uk and will be shared, used and re-used under the UK Government Licensing Framework.

The National Archive report notes that the mapping data produced by Ordnance Survey underpins a wide range of PSI applications. For this reason, the activities of Ordnance Survey and the re-use of the mapping data that it produces have been the subject of a detailed review. A number of government initiatives have flowed from this review process.

A new business strategy for Ordnance Survey was announced in April 2009 as part of the Trading Funds Assessment and the Budget Report 2009.[117] The strategy confirmed that, as a government trading fund, Ordnance Survey would continue to be self-funded and generate revenue by licensing the data it produces. However, it also recognized that there was a need to make it easier for customers and re-users to access its data and services. The strategy balanced the need to maintain the highest quality standards with the need to stimulate

[113] The National Archives. 2010. *The United Kingdom Report on the Re-use of Public Sector Information: Unlocking PSI potential*. http://www.nationalarchives.gov.uk/documents/information-management/psi-report.pdf
[114] http://www.legislation.gov.uk/uksi/2009/3157/pdfs/uksi_20093157_en.pdf
[115] http://www.oqps.gov.uk/legislation/ssi/ssi10-12
[116] http://location.defra.gov.uk/category/location-council
[117] http://webarchive.nationalarchives.gov.uk/+/http://www.hm-treasury.gov.uk/bud_bud09_index.htm

innovation in the geographic information market and to make the data more widely available.

As part of this process, a number of initiatives were developed with a view to maximizing the re-use of Ordnance Survey data. These included:

- Extending the use of the mapping service for non-commercial purposes;
- Releasing more content, for example, data relating to official boundaries;
- Creating an Ordnance Survey innovation network that encourages the development of products based on Ordnance Survey mapping data;
- Facilitating the development of products based on Ordnance Survey mapping data, including for commercial purposes.

In November 2009, it was announced that certain Ordnance Survey data sets would be freely available. The Department for Communities and Local Government consultation document, *Policy Options for Geographic Information* from Ordnance Survey,[118] was then released.

Following the consultation, in April 2010 Ordnance Survey released, free of charge, a range of its key mapping data sets and products via Ordnance Survey OpenData. In all cases, even for OS OpenData, the data is licensed through standard licenses and is free at the point of use.

Premium paid-for data can either be licensed directly from Ordnance Survey or through a Licensed Partner who can supply both basic products and value-added solutions utilizing Ordnance Survey data.

Public sector users are licensed under collective purchasing agreements. The most recent of these, the Public Service Mapping Agreement (PSMA) commenced on April 1, 2011. Under the PSMA all public sector users in England and Wales have access to data 'free at the point of use', in principle funded centrally through the Department for Communities and Local Government. This agreement complements a similar pan-public sector agreement which has operated in Scotland since April 2009.

There are three standard license agreements:

- Collective Purchasing Agreement (e.g.: PSMA / One Scotland);
- Framework Contract – Direct; and
- Framework Contract – Partner.

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[118] www.communities.gov.uk/documents/corporate/pdf/1411177.pdf

Data provided to users by Licensed Partners under the Framework Contract – Partner is then subject to a royalty that depends on which of the following additional contracts is used:

- Distribution;
- Navigation;
- Printed Products;
- Viewing/Tracking/Scheduling;
- Consumer Applications and Websites.

Ordnance Survey licenses restrict use to the agreed end-user purpose only and the data are usually only available for use by the end-user. It is incumbent on the user to respect copyright conditions and acknowledge the origins of the data in outputs.

Ordnance Survey has a relatively easy-to-use website that focuses on the needs of four different groups of users – public sector, business, leisure, and education and research.

The main data sets[119] are:

- OS MasterMap product family: Topography Layer, Integrated Transport Networks, Address Layer2 and Imagery Layer – the most detailed master map of Great Britain output from the National Geographical Database;
- Boundary-Line – administrative and electoral boundaries;
- LandPlan – topographic mapping and raster data;
- 1:25,000 scale Colour Raster data / OS Explorer paper map series;
- 1:50,000 scale Colour Raster data / OS Landranger paper map series;
- OS VectorMap product family: Local; District;
- Code-Point / Code-Point with Polygons – postal code area information;
- Land-Form PROFILE / PROFILE Plus / Land-Form PANORAMA – terrain data at various resolutions.

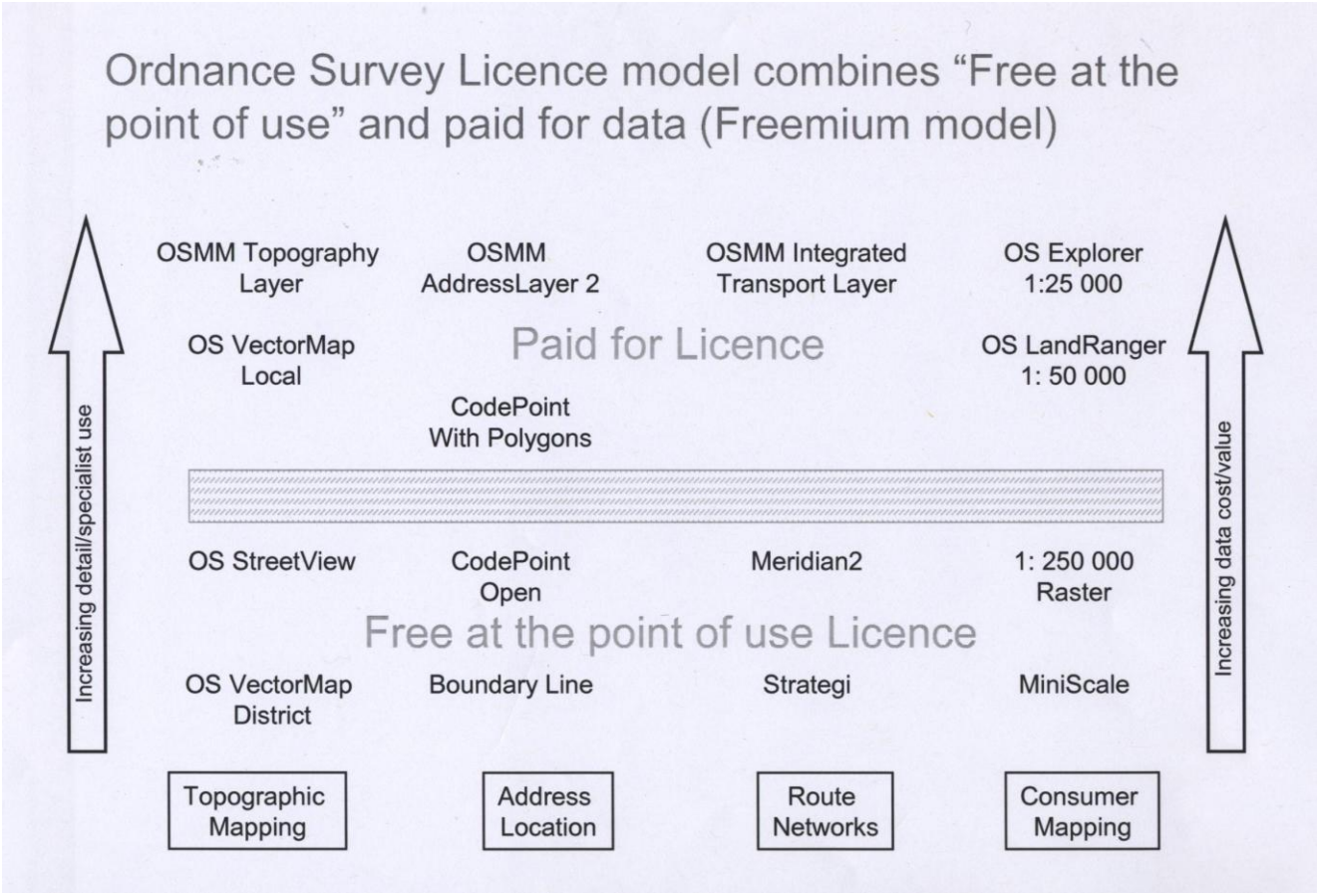
A price list for all Ordnance Survey products can be found at www.ordnancesurvey.co.uk/oswebsite/docs/ordnance-survey-business-portfolio-price-list.pdf. However, as noted above, data are provided at variable costs depending on use. The pricing methods also take into account the number of terminals that users might possess, the proportion of Great Britain that the map covers, and the number of years a contract is signed for (4% discount for two years, 8% for three years).

Ordnance Survey now operates a three-tier pricing model for products. The figure below shows the structure of this model. At the base level are 'free at the point of use' products in

[119] The name Ordnance Survey and all Ordnance Survey product names are trademarks (registered or unregistered).

four different product areas (topographic mapping, address locations, route networks and consumer mapping). In the middle is the lower level of paid-for products. The upper tier consists of the most detailed mapping products and the most expensive maps.

Figure 31: Representation of the Ordnance licensing model for the four key product areas



The approach ensures that for each of the four types of map, a free version is available for use. Access to free Ordnance Survey data is obtained through OS OpenData, which was launched on April 1, 2010.

5.13.7 Impacts of the re-use policy

During 2009 Ordnance Survey launched OS Openspace, which provides access to a range of mapping products free to web developers and entrepreneurs. This approach is founded on the principle of promoting innovation and allowing people to experiment with Ordnance Survey data. It uses a piece of software code, the OS OpenSpace API, which requires no knowledge of geographic information systems, to provide the necessary functionality to interact with a map. OpenSpace provides an easy way to get Ordnance Survey mapping embedded in a website or online application, with the ability to plot routes, pan and zoom through mapping scales, and search using place names or postcodes.

A series of workshops was held to provide hands-on experience of the product, focusing on topics such as how to create and add content to web maps, and how to use boundary data with other data sets to create mash-ups. Up until spring 2011, 5,000 developers, including outdoor leisure enthusiasts, community groups, charities, small businesses and local authorities, have registered to use the service. In March 2011 there were 1,386 active web sites using the Ordnance Survey Openspace API.

Throughout 2010, OS OpenSpace was continually enhanced and improved. One key development was the introduction of OS OpenSpace Web map builder, a simple tool that allows users to add markers, routes and search functionality to their web map without having to write a single line of code. Revised terms of use to allow greater access to Ordnance Survey data to create new mash-ups were also adopted. The range of applications has diversified greatly from being mainly outdoor recreation websites to include the provision of public services, environmental and community projects.

Among the OS OpenSpace mash-ups already created by developers is a Big Lottery Fund[120]-supported project looking into the benefits of fishing – The Assynt Angling Research website.[121]

Ordnance Survey also launched OS OpenSpace Pro, which is designed for use with high-volume and commercial websites. One of the first fully commercial applications to use OS OpenSpace Pro is an innovative mobile phone device called Locatorz[122], that determines a person's location to within 10 metres.

Interviews with re-users suggested that, in general, the wider availability of free data has led more people to use this resource, and re-user organizations and businesses have developed or enhanced the level of support they provide to these users to enable them to use the free data effectively. An indirect effect reported by one re-user has been that more of their users are now expecting more free information, and they are questioning why some of the business's core data sets of aerial images are not also provided free. This business is now more closely aligning its aerial images alongside Ordnance Survey data (both free and paid-for) to provide value-added services to their users. The company said that their main client base was 30 to 40 small- to medium-sized end-user businesses that use their data to provide online services to their customers.

[120] The Big Lottery fund distributes millions of pounds from the UK National Lottery to good causes
[121] http://www.assynt.anglingresearch.org.uk
[122] http://news.bbc.co.uk/1/hi/technology/8338946.stm

However, one re-user that also sold maps suggested that their map sales had decreased a little since the free data was made available.

Since April 2010, Ordnance Survey has provided free and unrestricted access to a large range of maps and geographical information as part of the Making Public Data Public[123] and Smarter Government initiatives. In addition to supporting democratic accountability, the goal is to stimulate digital innovation in the re-use of data to develop applications and solutions, drive new markets and unlock new potential for jobs in existing and new technologies.

Since April 2010, Ordnance Survey has made a range of mapping data available free to foster innovation and to support government transparency. Anyone, from entrepreneurs and web developers to ramblers, can download data from the OS OpenData service to help them build applications underpinned by geography. Postcode and administrative boundary data sets are among those freely available and have already been used in a variety of interesting and innovative ways. For example, the UK Fraud Prevention Service has used OpenData to uncover new trends and visualize their fraud data in ways not seen before. OpenData applications have also been used to map pupil numbers by ethnicity, and to develop a bridge weight and height app, and apps to find local recycling and waste disposal sites.[124]

The final piece of the Ordnance Survey open innovation programme is GeoVation – an initiative that was set up to provide seed funding for sustainable business ventures based on geography. First established in October 2009, GeoVation helps entrepreneurs and developers bring their map-based ideas to life by running themed challenges. Each challenge aims to encourage ideas with a social, environmental or economic benefit, and culminates in a 'Dragons' Den'[125] style showcase where shortlisted entrants go head-to-head to secure investment. It is evident this is not part of the official public task for Ordnance Survey, but it does support the UK government transparency agenda to encourage the use of data.

Ordnance Survey and user interviews suggested that many partners and end-users who rely on high-accuracy, high-value data prefer a paid-for model, as it provides a better guarantee of long-term sustainability. The US experience of declining public subsidy, and past experiences in Ordnance Survey (when the organization was significantly dependent on

[123] http://www.cabinetoffice.gov.uk/content/making-public-data-public
[124] http://blog.ordnancesurvey.co.uk/category/os-opendata/page/2/
[125] This is a popular UK-originated television series in which entrepreneurs compete to receive business angel funding for their innovative new services and products: http://en.wikipedia.org/wiki/Dragons_Den

public funding which was then substantially reduced in periods of national austerity) are often quoted.

OS OpenData provides 'free at the point of use' data sets licensed under the UK's government Open Government license. This allows unrestricted use and re-use by all, including commercial firms.

5.13.8 Final observations

The UK market for geographical information is mature and largely well-defined. Developments in the market focus mainly on those sectors and segments that do not traditionally use geographical information, but that are coming to realize the benefits of applying geographical information approaches to their services and applications.

Within the public sector there is a long and continuing drive to seek efficiencies from the use and sharing of location-based data, which has resulted in many often-quoted examples of efficiency, cost savings and service enhancements. It is, however, too early to determine the extent to which the availability of OS OpenData has contributed to these developments.

The launch of OS OpenData, coupled with a number of innovator-supporting initiatives by Ordnance Survey, including the OS OpenSpace API and the GeoVation programme, have provided some innovative stimulus. In a short time, these have led to the development of a number of relatively low-key, location-oriented services for citizens along the lines of "where's my nearest?", "how do I find?" and "I wish to report …". However it is too early to define or quantify any significant economic benefit from the launch of OS OpenData, or to judge whether such developments would have taken place regardless of the OS OpenData initiative.

5.13.9 Sources used

- Desk research
- Interviews:

Philip Watts	Ordnance Survey	Head of Corporate Affairs
Peter ter Har	Ordnance Survey	Director of Products
John Carpenter	Ordnance Survey	Head of Product Management
John Kimmance	Ordnance Survey	Head, Business Sales and Support
Neil Sutherland	Ordnance Survey	European Policy Adviser
Mark Williams	Bureau Van Dijk	Analyst
Katrina Downs	InfoUK	Analyst
Peter Bonham	Getmapping	Business Manager

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UK Government Licensing Framework http://www.nationalarchives.gov.uk/information-management/government-licensing/the-framework.htm

5.14 Deutscher Wetterdienst (DE – meteorological PSI)

Case study author: Lionel Kapff (Deloitte Consulting)

5.14.1 Key message

This case study demonstrates how the German National Meteorological Service (DWD) has gradually shifted from a profit-oriented commercial strategy in the 1990s and early 2000s to a PSI strategy that re-focuses the PSB's operations on its core tasks, prohibits the operation in certain commercial areas such as the media sector, and provides an increasing amount of meteorological data free of charge to all types of re-users.

The ongoing policy transition process has so far yielded a strong increase in PSI re-use. At the same time, it has also attracted fierce opposition from some private meteorological service firms such as the Association of German Private Meteorological Service Providers (VDW), an interest group that concentrates its lobbying efforts on limiting the free provision of PSI by DWD. Indeed, VDW fears that free PSI (beyond primary and processed data) would undermine its members' business models.[126]

It appears that commercial re-users that offer high value-added solutions do not oppose the free provision of PSI. Consequently, it can be argued that, once most commercial re-users adapt their business models to DWD's more open PSI policy by innovating and offering more value-added products and services, the opposition to free PSI will fall silent.[127] For their part, commercial re-users will expect all PSI to be available free of charge or priced to recover the re-use facilitation costs only.

[126] VDW position papers are available on http://www.wetterverband.de/. See for example VDW (2010): *Der Wettbewerb auf dem Wettermarkt* or VDW (2009): *Der DWD im Wettbewerb mit privaten Wetterdienstleistern*.
[127] The DILA (FR) case study shows a comparable pattern. When the public sector body began to provide legal PSI free of charge to end-users on its *Légifrance* web portal, commercial re-users had to review their business models. They had to offer more value-added services to end-users in order to keep their customers.

5.14.2 Key economic indicators

Indicator	Year 2009
PSB	DWD
Total budget	214.9 M EUR
Total revenues	50.5 M EUR
Turnover from PSI sales	9 M EUR, including: • 2 M EUR from raw data • 2 M EUR from processed data • 5 M EUR from value added services
Cost recovery rate (from PSI)	4.2%
FTEs	2,427
PSI re-use	
Pages viewed on DWD web portal (2007)	774.6 M
Commercial re-users served by DWD	20-30
Re-use market players	20-25 larger companies + one-person companies
Re-use market size (estimated)	30 M EUR turnover p.a., 300-400 FTEs

5.14.3 Introduction

Germany's National Meteorological Service, the *Deutscher Wetterdienst* (DWD), is a PSB with partial legal capacity under the authority of the Federal Ministry of Transport, Building and Urban Development (*Bundesministerium für Verkehr, Bau und Stadtentwicklung* – BMVBS). DWD's headquarters are situated in Offenbach am Main.

As the National Meteorological Service of the Federal Republic of Germany, DWD participates at an international level in the field of meteorology. For instance, it is active in the framework of organizations such as the World Meteorological Organization (WMO), the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT), and the European Centre for Medium-Range Weather Forecasts (ECMWF).

DWD currently provides most of its PSI based on a pricing and licensing model that aims at partial cost recovery. Yet, a significant and growing subset of DWD's PSI is provided free of charge to re-users on the DWD website and on an FTP server. The free data sets are 'essential' weather information which is disseminated as part of DWD's public service mission (*Daseinsvorsorge*). DWD is pursuing a gradual data liberalization strategy by providing more and more meteorological PSI free of charge to all types of re-users. The definition of essential data goes beyond the scope of the WMO resolution n° 40. The free

provision of PSI has led to a strongly increasing number of data downloads and a rising number of re-users. However, the free provision of PSI is resisted by some re-users who provide low value-added internet services and fear the collapse of their business model.

Since 2003, DWD has significantly reduced its commercial activities. In particular, it has left the provision of customized weather services to the media entirely to the private sector.

5.14.4 Organization, governmental structure, tasks, PSI portal

Article 4 of the DWD Law (*Gesetz über den Deutschen Wetterdienst*) defines the public task of the German National Meteorological Service. DWD's duties include:

- "The provision of meteorological services for the general public or for individual customers and users, especially in the fields of traffic, trade and industry, agriculture and forestry, the building industry, public health, water management including preventive flood control, environmental protection, nature conservation and science;
- The meteorological safeguarding of aviation and shipping;
- The issuance of official warnings of weather occurrences that could become a danger for public safety and order, especially concerning the impending danger of floods;
- The short- and long-term registration, monitoring and evaluation of meteorological processes, structure and composition of the atmosphere;
- The registration of the meteorological interaction between the atmosphere and other areas of the environment;
- The forecasting of the meteorological processes;
- The monitoring of the atmosphere for radioactive trace substances and the forecast of their transport;
- The operation of the necessary measuring and observation systems for fulfilling the before-mentioned duties;
- The holding in readiness, archiving and documentation of meteorological data and products; and
- The participation in the international co-operation in the field of meteorology and fulfillment of the obligations resulting therefrom."

DWD and BMVBS regularly conclude multi-annual target agreements. The current target agreement for 2010-2015 fixes DWD's main strategic goals. The document also clarifies DWD's core tasks and its relation with private PSI re-users:

- "DWD ensures a basic information supply (*Grundversorgung*) of the public with meteorological data, products and services.

- DWD supports the exploitation of value-creation potentials by private / commercial re-users of meteorological information.
- DWD ambitions a constructive collaboration with private service providers and other institutions where the meteorological information goes beyond the scope of basic information supply of the public."

The exact delimitation of DWD's public task is highly politicized. While nearly all politicians support the general idea of DWD's public service mission (*Daseinsvorsorge*), its scope is controversial and discussed regularly. For instance, when DWD wanted to reduce its specific weather services for wine growers in the framework of cost-cutting efforts, the PSB faced severe opposition from politicians from wine-growing regions that wanted these services maintained. Typically, the scope of the public task has been broadened following political initiatives. For example, beginning in the 1970s, new medical weather services were added to the public service mission of DWD. These notably include pollen forecasts introduced in the 1970s and 1980s, and heat warnings established in 2004 after the exceptionally hot year of 2003. Further, following the 2010 Icelandic ash cloud incident, politicians have insisted on a detailed observation of such phenomena by DWD. With the provision of such new public services, some new private re-use businesses are also re-distributing correspondingly evolved PSI. These re-users often oppose the free dissemination of the PSI as this undermines their business model.

DWD itself has very limited autonomy with regard to the interpretation of the scope of its public task. Politicians, however, can control the range of DWD's public task when determining the public funding on DWD's budget lines in the yearly Federal Budget Laws.

Similar to most European National Meteorological Services, DWD operated actively in the market in the past. Notably between 1995 and 2003, DWD pursued – in line with the general political orientation of that time – a commercial strategy that aimed at reducing the burden for taxpayers by operating profitable commercial activities.

In 2003, the commercial strategy of DWD was changed by politics. Since then DWD has reduced its commercial activities significantly in order to redirect its focus on its core public tasks. In particular, DWD has entirely withdrawn from the provision of customized weather services to the media as of 2003. The driving forces of the paradigm shift in 2003 included:

- Political pressures for cost cuttings and workforce reductions;
- DWD's willingness to reduce pressures from the Federal Ministry of Finance that was the sole beneficiary of DWD's commercial revenues;

- Decreasing profitability of commercial activities owing to increasing competition in the media market; and
- Political willingness to build a private PSI re-use industry.

In 2010, revenues from invoiced value-added services (5 M EUR) accounted for only 3% of the public sector body's total budget.

The current philosophy is to collect and provide only data and services that are needed by the public sector in order to fulfil its public task. PSI is provided to re-users as a by-product of DWD carrying out its mandate. DWD does not customize value-added services to re-users or other customers. Such tasks are left to the market. DWD only provides raw data and services that were produced for the public sector or within DWD's public service mission. Further, DWD does not aim at generating profits. The fees for certain types of PSI aim at partial cost-recovery because of the budgetary constraints of the Federal government.

DWD offers market-oriented services only where other providers do not meet the demand, or where DWD is predestined to do so owing to its specific competences and its legal basis. Such cases include weather forecasts for specific road and sea networks as well as expert opinions for legal disputes.

DWD employed 2,427 FTEs in 2009. In recent years, the PSB has made significant efforts to cut costs and to reduce its workforce (2008: 2,385 FTEs; 2007: 2,415.5 FTEs; 2002: 2,626.5 FTEs).

There is no strict separation between DWD's data collection activities under the public task and the activities undertaken to facilitate the re-use of PSI for third parties. There is no specific accounting for the re-use facilitation costs (*Bereitstellungskosten*) at DWD. The non-technical DWD workforce attributed to the re-use facilitation of DWD's PSI includes four FTE wholesaling personnel for private meteorological service providers, six FTE service personnel for re-users from research, and about 20 FTE service personnel for other re-users in the six DWD regional offices.

In general, there are no systems or products that are specifically dedicated to PSI re-users. For DWD, the public service mission (*Daseinsvorsorge*) is central. Private re-users or researchers do not receive any extra products – they receive only the data that is generated for the public task. PSI re-use can be seen as a by-product of the public task. Specific services to re-users such as re-formatting data according to specific needs or other customized services are an exception and are charged for on a cost-recovery basis.

Since 1996, DWD has been offering basic information free via its website www.dwd.de. During this period, the amount of information has varied and is now defined as the basic information supply (*Grundversorgung*).

Since 2003, DWD has been providing value-added services and products for a fee via an online shop on www.dwd-shop.de. The prices of these services are fixed in the DWD price list (see below).

Figure 32: DWD's PSI web portal

Since November 2006, DWD has maintained an open FTP server from which PSI can be downloaded free of charge. Nowadays all DWD PSI that is free of charge – that is, the basic information supply (*Grundversorgung*) – is available on this FTP server together with both metadata and documentation. The server contains essential meteorological data from DWD and other National Meteorological Services, as well as additional DWD PSI, all of which can be re-used free of charge on the sole condition that the source of the data be cited. The volume of primary and processed data has increased by 25% from 2002 to 2007. Before November 2006, re-users had to register to access the free PSI and pay a monthly flat fee of 125 EUR.

The number of users of the open FTP server tripled from 2,000 in 2008 to 6,000 in early 2011. The strong increase can be explained by the addition of contents, namely PSI of the value-added service type, which is targeted to the general public within the scope of the public tasks of DWD. Users need to provide only an email address for identification. For this reason, a detailed analysis of the user group is not possible. In 2007, DWD could identify FTP users from 24 different countries.

For 140 EUR per month re-users can buy premium access to another FTP server. The premium access guarantees a higher availability of the server as well as a re-user help desk.

Depending on the type of data and the preferences of the licensees, DWD provides re-users with PSI via different channels, such as downloads from the DWD web portal and from the DWD FTP servers, or the active transmission of data to customers' FTP servers.

In order to respond better to re-users' needs, DWD has created market-oriented data-packages – for example, a package of all synoptic observations of DWD, or a package of all the output from the COSMO-EU-Model – leading to a growing demand.

DWD has steadily expanded the supply of data and products that are free of charge. For example, the number of synoptic observations that are free of charge has increased from 28 stations with only four observations per day in 2003, to 62 stations with hourly observations in 2007, and to 76 stations in 2011.

In general, the demand for PSI has increased in recent years. From 2002 to 2007, DWD registered an increase in PSI sales revenues of nearly 50% for synoptic data, of nearly 75% for radar data and of nearly 25 % for numerical model data. Also, DWD's websites – where visitors can, inter alia, download free data sets, pictures and charts – have experienced a growing demand – from 7,471,592 hits and 69,023,347 page impressions in 2002, to 32,815,668 hits and 774,617,612 page impressions in 2007.

5.14.5 Budget, costs, revenues

DWD's entire budget comes from the federal state budget. DWD's total budget (*Kapitelausgaben*) has been decreasing in recent years:

- 2010: 214,930,000 EUR
- 2009: 224, 150,000 EUR
- 2008: 240,454,000 EUR
- 2007: 241,715,000 EUR
- 2002: 232,425,000 EUR

After increasing in the early 2000s, DWD's requirement for public funds (*Steuermittelbedarf*) has now stabilized:

- 2010: 156,477,000 EUR
- 2009: 173,622,000 EUR
- 2008: 172,064,000 EUR
- 2007: 183,019,000 EUR

- 2002: 159,946,000 EUR

DWD's total revenues (*Kapiteleinnahmen*) have been decreasing in recent years, notably due to a reduction of EUROCONTROL fees and DWD's withdrawal from the media market. Approximately 80% of DWD's revenues come from regulated EUROCONTROL fees from the aviation sector.

- 2010: 58,453,000 EUR
- 2009: 50,528,000 EUR
- 2008: 68,390,000 EUR
- 2007: 58,696,000 EUR
- 2002: 72,478,000 EUR

In 2010, approximately 15% of DWD's total revenues came from PSI sales and commercial activities (9 M EUR in total). The following table provides an overview of PSI revenues in 2009 and 2010.

	2009	2010
Revenues from raw data (*Daten*)	546,000 EUR	586,000 EUR
Revenues from processed data (*Produkte*)	1,649,000 EUR	1,816,000 EUR
Revenues from value-added services (*Spezialdienstleistungen*)	6,982,000 EUR	6,647,000 EUR
Total PSI revenues	9,177,000 EUR	9,049,000 EUR

Table 32: DWD's PSI revenues in 2009 and 2010

Apart from collecting primary and processed data (*Daten* and *Produkte*), DWD is also entitled to produce PSI that has some value-added such as severe weather warnings. The vast majority of such value-added services (*Spezialdienstleistungen*) from DWD falls within the domain of its public tasks and, therefore, is subject to the PSI Directive.

It is very important to note that DWD is not allowed to keep the revenues from its PSI sales (or any other revenues that it generates). All revenues flow directly back to the federal state budget. The German Federal Budget Law allocates funds to the DWD in order to cover the costs of all its activities – including the facilitation of PSI re-use for third parties. These funds sum up to DWD's total budget. On the other hand, the Federal Budget Law also stipulates target revenues from different DWD activities – for example from PSI sales (9 M EUR in 2010) and from EUROCONTROL fees (42 M EUR in 2010). These revenues flow back completely to the federal state budget. Even if DWD were to exceed its target revenues from

the Federal Budget Law, it could not retain the additional revenues and, for example, reinvest them in the quality of its services. In essence, DWD is not financially independent like other nations' Meteorological Services such as Météo-France.

DWD's budget lines with available funds and income lines with expected target revenues are determined by the Federal Budget Law which is drafted by the Federal Ministry of Finance in collaboration with the other Ministries – the Ministry of Transport, Building and Urban Development in the case of DWD – and then voted on by the federal parliament (*Bundestag*). Depending on the overall budget constraint of the federal government, the Federal Ministry of Finance expects more or less revenue from the DWD. In times of severe budget restrictions, DWD faces some pressure to increase its revenues – i.e. its contribution to the federal state budget – by increasing its PSI prices.

There is a general de-coupling between any negotiations about funds with regard to the various budget lines and expected revenues on the income lines. On the one hand, BMVBS and the parliament control DWD's activities by providing more or less funding on its different budget lines. On the other hand, the taxpayer's direct cost for DWD's activities is minimized by imposing certain revenue targets on the income lines.

There have been debates in Germany around the possible introduction of one-line budgeting (*Globalbudgetierung*) for certain PSBs. However, all legislative attempts at a federal level to introduce this new budgetary principle, which would have given more financial autonomy to DWD, have failed. Many parliamentarians fear that one-line budgeting could substantially reduce their influence in budgetary matters and they therefore resist any change. It is very improbable that one-line budgeting will be introduced at federal level in the coming years.

5.14.6 Re-use policy and pricing

Article 6 of the DWD Law provides the guiding principles of DWD's charging policy:

- "The DWD shall be managed in such a way that expenditure not covered by revenue is to be kept as low as possible.
- The DWD shall charge a remuneration for the provision of its services.
- The amount of the remuneration shall be fixed by the Executive Board in a price list based on standardized cost calculation methods, if necessary raised on account of the economic value or reduced on account of a special public interest or international agreements.
- The prices for value added services, which exceed the basic services, shall be calculated in such a way that a positive total gross profit is attained. The prices for data and products shall be completely included in this calculation.

- The DWD shall be obliged to prove compliance with its responsibilities at regular intervals by means of an independent auditor."

Furthermore, the 2010-2015 DWD-BMVBS target agreement clarifies the charging conditions for meteorological PSI that is considered to be part of the basic information supply (*Grundversorgung*) that is ensured by DWD:

- "The basic information supply of weather forecasts and consulting services for the public, weather surveillance, and weather warnings for the public are at the core of DWD's public task. The general public has a particular interest in this meteorological information which justifies discounted fees or even a provision free of any charges. This notably includes up-to-date weather information for the general public."

The 'essential' meteorological data that DWD provides free of charge as a basic information supply goes well beyond the definition of essential data found in WMO resolution n° 40. WMO resolution n° 40 has, however, triggered DWD's decision to gradually provide more and more PSI free of charge to all kinds of re-users.

In general, the idea that a large range of PSI is provided at no charge is compatible with the German idea of a governmental public service mission (*Daseinsvorsorge*), and is widely supported by politics. However, DWD underlines that it is a political question how far the scope of this public service mission extends, i.e. how much PSI is provided free of charge and how much the taxpayers should pay for the free provision of PSI.

In addition to the DWD Law and the BMVBS-DWD target agreement, DWD's pricing policy follows the general pricing guidelines of the German Inter-ministerial Committee for Geo-Information (*Interministerieller Ausschuss für das Geoinformationswesen* – IMAGI). These guidelines ensure the application of core principles such as non-discrimination, fair competition and transparency of costs.

DWD's price list for 2011 employs a number of price-determining factors that are depicted in the following figure.

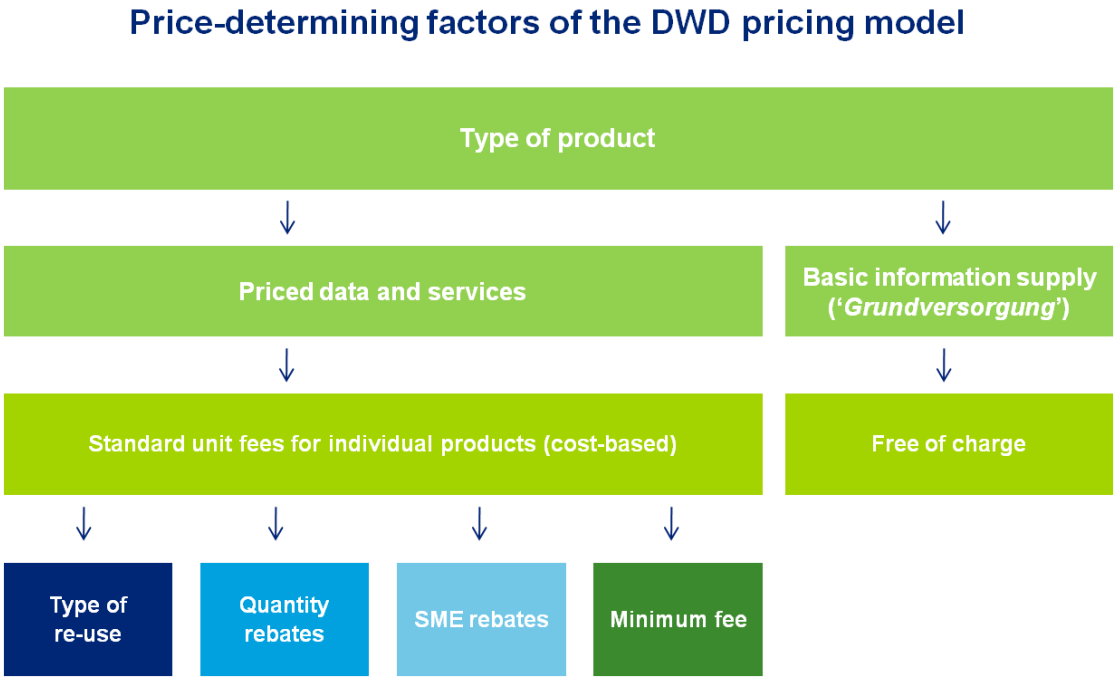

Figure 33: Price-determining factors of the DWD pricing model

First, DWD's pricing model distinguishes between (1) PSI products that are provided to re-users at a fee, and (2) PSI products that are part of DWD's basic data supply under its public task (*Grundversorgung*) and which are therefore free of charge. For each of the standard PSI products sold by DWD, the 2011 price list provides a standard unit fee that is used to calculate the price. DWD's standard unit fees have been determined by DWD's controlling department based on direct and indirect costs for each specific product. The prices do not aim at a full recovery of all costs, but at specific partial cost recovery rates (*Deckungsbeiträge*). In addition to that, DWD takes market conditions into account when determining its prices, as well as when developing new product offers.

Second, the prices calculated on the basis of the standard unit fees (unit fee * quantity) are subject to specific rebates and surcharges depending on the type of (re-)use, the quantity purchased, and the fraction of PSI costs in the re-user's total turnover (SME rebates).

As depicted in the table below, the DWD price list distinguishes different types of (re-)use by different actors which lead to rebates or surcharges with regard to the standard unit fee. Generally, the more rights a private re-user is granted, the higher the fees will be.

Type of (re-)use	Pricing impact
Private re-use by citizens	Standard unit fee (price category 1)
Internal re-use in a single company	Standard unit fee (price category 1)
Internal re-use in a group of companies	Surcharge (price category 2)
Commercial external re-use	Surcharge (price category 2)
Use by German public sector bodies	Rebates or data are provided free of charge (only for use within the public task)
Universities and research institutes	Rebates or data are provided free of charge

Table 33: Types of (re-)use and pricing impact

All prices are also subject to rebates for large quantity purchases with several quantity thresholds depending on the type of PSI.

Further, in order to reduce barriers to entry, DWD (like other members of the Economic Interest Grouping of the National Meteorological Services of the European Economic Area (ECOMET)) scales prices according to the turnover of commercial re-users. Smaller companies therefore pay less for a specific dataset than larger ones. The table below shows how the SME rebate is determined. Depending on the relation between a company's total turnover generated by products and services based on DWD's PSI and its total yearly fees paid to DWD, a company may obtain rebates of up to 66.6%. This is the case for companies whose turnover is lower than three times their total yearly PSI fees paid to DWD (Group 1).

Company groups	Pricing factor
Group 1: **Company turnover < 3* total fees**	= 0.33 → 66.6% rebate
Group 2: **3 * total fees < company turnover < 9 * total fees**	= Company turnover / (total fees * 9) → Scaled rebate
Group 3: **Company turnover > 9 * total fees**	= 1 → No rebate

Table 34: Determination of SME rebates

DWD takes into account the turnover of the year before last. This is notably beneficial for new entrants. For companies that did not exist two years ago, a nominal turnover of 140,000 EUR (200,000 EUR from 2012) is used.

Finally, DWD's price list sets a minimum fee of 25 EUR for certain PSI products.

As specified in Article 6 of the DWD Law, an independent auditor regularly verifies the public sector body's price calculations. The most recent auditor's report, dating from 2010, has approved the correctness of DWD's price determination.

DWD signs licensing agreements with all re-users acquiring its PSI to clarify re-use conditions and rights. The administrative costs for licensing are included in the fees. In cases where administrative costs would be disproportionate to the total sales revenues, DWD can decide to provide the PSI free of charge as a basic information supply service. This is particularly the case for data sets with a very low demand.

For PSI that is provided as a basic information supply (*Grundversorgung*) free of charge, no licensing agreements are signed. In these cases, the general re-use conditions do not contain any restrictions on re-use beyond the requirement that re-users cite the origin of the data.[128]

DWD supports research and education activities by providing data and products free of charge. Most requests from research and educational establishments concern archived measured data. If needed for specific scientific studies and, in particular, for meteorological training purposes, DWD also supplies real-time measured data, numerical analyses as well as real-time forecasts and/or radar data free of charge.

The question whether DWD should provide all its PSI free of charge is a political one that cannot be answered by the PSB itself. Such a policy choice would probably be heavily opposed by many private sector re-users that re-distribute the PSI with relatively low added-value, as they would probably lose many of their clients if the data were to be freely available from the PSB (without advertisement). In order not to destabilize existing re-use businesses by sudden price changes, DWD has implemented a balanced, market-oriented pricing policy that gradually shifts to more and more free offerings. In the case of free provision of all meteorological PSI, DWD does not anticipate an explosive growth in private re-use businesses, primarily because essential meteorological PSI is already available free of charge.

There is an argument that costs for data collection and re-use facilitation could also be covered indirectly by corporate taxes from commercial re-users – instead of a direct recovery from licensing fees. However, DWD explains that while this seems to function well in certain countries, it would be contrary to German budgetary laws and principles. Indeed,

[128] See www.dwd.de/grundversorgung for further information on DWD's basic information supply.

according to the benefit taxation principle (*Äquivalenzprinzip*), those who benefit more from government expenditure (that is, on the provision of meteorological information) should pay a fee to partially support such expenditure. The licensing fees flow directly to the federal state budget: they thereby directly reduce the tax burden on the public.

5.14.7 Impacts of the re-use policy

DWD's most important re-users include:

- Universities and research institutes
- Energy utilities
- Agricultural sector
- Shipping and offshore industry
- Private sector road maintenance
- Private households (citizens)
- Internet content providers
- Private meteorological service providers.

DWD provides primary and processed data to 20-30 private meteorological service providers. Not all German re-users of meteorological PSI buy it from DWD. Indeed, the DWD data can be acquired from all ECOMET members. On the other hand, DWD also sells data to re-users from other Member States.

DWD argues that the market for private weather services in Germany has been saturated for several years. There had been strong growth in the private sector meteorological market from 1995 to 2005, but the market has since stagnated. The growth in previous years has its origin more in general technical developments than in DWD's PSI policy.

At present, 16 service providers are members of the commercial re-users' interest group *Verband Deutscher Wetterdienstleister e.V.* (VDW); many of them are customers of DWD. VDW claims to represent 90% of all German meteorological service providers. Its members include one-person companies as well as internationally active market players. In total, VDW's 16 member firms have a yearly turnover of about 30 M EUR and employ about 200 persons.

DWD estimates that there are 300-400 FTEs active in the German private sector meteorological market. A large majority of these work for one-person companies, but there are also 20-25 larger players.

The largest commercial re-users active in the German market include *Jörg Kachelmann Produktions AG* (CH) with its German branch *Meteomedia GmbH*, *MeteoGroup* (NL) with its

German branch *MC-Wetter GmbH*, *WetterOnline GmbH*, *European Weather Consult GmbH*, *Weathernews Inc.* (JP) with its German branch *Weathernews Deutschland GmbH*, *Wetter.com AG* and *Wetter Fernsehen – Meteos GmbH*.[129]

Private meteorological service providers generally expect to receive basic PSI (primary and processed data) free of charge. However, where they can generate profit with the re-distribution of PSI or value-added services based on PSI, they do not want PSI to be available free of charge, as this would undermine their business model. However, the validity of this general pattern somewhat depends on the nature of the PSI item and on the characteristics of the re-users' business models.

On the one hand, many internet service providers re-distribute the meteorological PSI with very limited or no added-value. The PSI is intended by these companies for end-users on websites or via smart phone applications. The services are generally provided free of charge and financed by advertising revenues. From a meteorological point of view, these services are not very sophisticated. This business segment has evolved with the development of the internet. The success of such internet service providers may be adversely affected by DWD's PSI (value-added services) that are provided free of charge (and without advertisement) as they lie within the scope of its public tasks. The private companies argue that DWD should not publish any weather information (only weather warnings) on its website or similar platforms (FTP server, newsletter services, mobile network services) and should leave the public dissemination of the PSI to the private market. They do not want DWD to provide the PSI free of charge as this undermines their business model.[130] For instance, when DWD decided to provide certain radar images free of charge on its website, this was seen as a 'declaration of war' by this segment of private re-users who strongly protested against the decision.

On the other hand, some highly specialized private sector re-users develop value-added B2B services based on meteorological PSI provided by DWD, in particular for electricity utilities, the agricultural sector or assurance companies. These firms are not overly affected by the free provision of PSI by DWD.

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[129] See Bundesregierung (2007): *„Zukunft des Deutschen Wetterdienstes"*, Deutscher Bundestag, Drucksache 16/5091, p. 2, available under: http://dipbt.bundestag.de/dip21/btd/16/050/1605091.pdf

[130] VDW position papers are available on http://www.wetterverband.de/. See for example VDW (2010): *Der Wettbewerb auf dem Wettermarkt* or VDW (2009): *Der DWD im Wettbewerb mit privaten Wetterdienstleistern*.

5.14.8 Key sources

- Desk research
- Face-to-face interview with the several officials from DWD
    - Kurt WINKLER, Referat Produkt- und Vertriebspolitik
    - Leander JAMIN, Leiter Controlling und Rechnungswesen
    - Ulrike RUPPRECHT, Leiterin des Referats Produkt- und Vertriebspolitik
    - Klaus HADERLEIN, Referatsleiter
- Face-to-face interview with Richard PETTIFER, former chair, PRIMET

5.15 KNMI (NL – meteorological PSI)

Case study author: Marc de Vries (Citadel Consulting)

5.15.1 Key message

The KNMI's switch from full cost-recovery pricing to recovery of the re-use facilitation costs – which has led to an 80% decrease in price for the full KNMI dataset – and the abandonment of commercial activities has allowed this private sector first-tier re-user to grow its business from 5 M EUR in 1999 to 20 M EUR in 2010. It has created jobs that are the equivalent of 100 FTEs. In total, at a macroeconomic level, the benefits over the last ten years are estimated to be around 35 M EUR, which have resulted from increased tax returns and a reduction in public sector expenses. The effects of this transition have had several impacts. They have affected different levels of the value chain, elevated the level of professionalism within the KNMI, and improved the quality of its data and service delivery. At the same time as the number of re-users has exploded, a competitive and dynamic downstream market has been created. This market creation features the launch of innovative applications to second-tier users in various sectors such as transport, agriculture and energy. Furthermore, new business models have been developed. Society at large is benefitting from free added-value services which are paid for as a result of advertising incomes.

5.15.2 Key economic indicators

Table 35: Key economic indicators of the KNMI case

Indicator	Year 1999	Year 2010
PSB		
Entire organisation		
FTEs	514	430
Yearly budget	42 M EUR	56 M EUR
Re-use facilitation		
FTEs involved	25	1.5
Turn over	0.65 M EUR	0.25 M EUR
Costs	0.65 M EUR	0.25 M EUR
Price full data set	0.1 M EUR (license and distribution costs)	0.02 M EUR (distribution costs)
Re-users		
Number of re-users	5 (2 Meteorological Service Providers)	50 (5 Meteorological Service Providers)
FTEs employed	50	150
Turn over re-users	5 M EUR	20 M EUR

Results 1999-2010	
Price level full data set	- 80%
% growth re-use market	+ 400%
% growth FTEs re-users	+ 300%
PSB savings	3.5 M EUR
Corporate tax gains	31.25 M EUR

5.15.3 Introduction

The KNMI provides a sound precedent as a case study. It features an example of a PSB that has taken the decision to, first, fully focus on its public task only and step out of any commercial activity and, second, adopt a pricing system whereby the costs of the facilitation of re-use are fully recovered by charging re-users. Since this decision was taken about ten years ago, the subsequent economic effects, both upstream and downstream, are now distinct and solid.

5.15.4 Organization, governmental structure, tasks

The KNMI (the Royal Netherlands Meteorological Institute, *het Koninklijk Meteorlogisch Instituut*) was founded in 1854. From the outset, it has been the sole national PSB collecting and providing meteorological information in the Netherlands.

The KNMI's objectives and tasks were laid down in the KNMI Act (*Wet op het KNMI* 2001). According to article 3:

1. "the KNMI is responsible for:
    a. To make available, to hold and provide a general weather forecast for the Dutch society;
    b. To make available, to hold and provide national meteorological data;
    c. To make available, to hold and provide aeronautical meteorological information;
    d. To conduct research;
    e. To advise our Minister in meteorology and other geophysics;
    f. To participate in international organisations in meteorology and other geophysics;
    g. To maintain the national infrastructure for the [sic] meteorology and other geophysics
    h. To make available, to hold and provide aeronautical meteorological information on an [sic] exclusive basis for public bodies of Bonaire, St. Eustatius, and Saba;

i. Other responsibilities designated by our Minister regarding to [sic] the public bodies of Bonaire, St. Eustatius and Saba in the meteorological fields and other geophysical fields;

2. Our Minister can provide other specific rules as to these tasks."

Ever since its establishment, the KNMI has been an agency under the close control of the Ministry of Infrastructure and the Environment (*Ministerie van Infrastructuur en Milieu*), because of its important role in policy domains like defence and national security. Therefore, the public sector task nature of the KNMI's activities is largely undisputed.

In 2009, the KNMI employed 430 FTEs, operating on the basis of a budget of 56 M EUR and spent around 34 M EUR on salary costs. Its budget is evaluated and determined by the Ministry on a yearly basis.

At a national and international level, KNMI works closely with other institutes and research establishments, such as RIVM, Deltares, TNO, Utrecht University, WUR, and NMIs all over Europe such as the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT), the Network of European Meteorological Services (EUMETNET), the European Centre for Medium-Range Weather Forecasts (ECMWF) and, in England, the HiRLAM consortium. KNMI also represents the Netherlands in international organizations, such as the World Meteorological Organisation (WMO), Group on Earth Observations (GEO) and has representation in organizations such as the Intergovernmental Panel on Climate Change (IPCC).

5.15.5 Re-use policy background

In the early 1990s, there was a political preference in the Netherlands for governmental organizations to be run like private companies. Consequently, the KNMI was charged with establishing a commercial arm that was to recover part of its costs from the market (whereby the Ministry would immediately skim off the additional money raised for its own purposes). However, in doing so, it came in conflict with Meteo Services BV, founded in 1986 by a former KNMI employee, Harry Otten. He contended that this new policy of exploitation – which lay outside the public task – was distorting competition, was not transparent (with regard to the cost structures used and hazy internal re-use conditions) and had therefore established an unlevel playing field.

In 1999, the Ministry took a firm political decision that the KNMI was to leave all market activities to private sector players and to release its commercial branch. Accordingly, this decision was given a statutory basis, whereby the public tasks of the KNMI were defined

concisely in the Law on KNMI 2001 (*Wet op de KNMI* 2001). One of its tasks was the provision of national meteorological data to other users including private entities both inside and outside the Netherlands (which basically turned the facilitation of PSI re-use into a public task). Logically, the KNMI also let go of its commercial arm which consisted of about 25 FTEs. This was turned into a private sector entity called HWS (Holland Weather Service), which was staffed by former KNMI employees who had previously been involved in the KNMI's own re-use activities. By 2009 this policy change had been fully implemented and license costs were not charged anymore.

5.15.6 Fundamentals of the re-use policy

The KNMI's re-use policy is based on three pillars:

1. The KNMI limits its activities to activities within the public task (as defined by law) and leaves re-use completely to other players, whatever their nature. The public task activities are financed through budgets from the public resources, based on taxpayers' money. Whatever activities belong to the public task, and thus need to be financed, are based on political decisions and are due for political and public scrutiny.

2. Accordingly, the data produced under the public task are enriched only to the extent that this is essential to allow for operational re-use without discrimination between public or private re-users. Commercial re-use of basic data (and products) by the private sector is connected to license conditions and fees related to retribution of core costs as well as a payment for the additional distribution cost (extraction and dissemination of data). In other words, the KNMI should not subsidize the private sector: all re-use facilitation costs are to be borne by the re-users (only). This cost-recovery model is therefore based on an assessment of the total direct costs to be incurred for the facilitation of re-use complemented by an overhead and divided by the expected number of re-users (and the quantity of data bought), with regular evaluations that allow for adaptation.

3. Following the KNMI law, data delivery to research institutes and academia is usually undertaken at marginal costs provided that the research results will be made publicly available (this even occurs at zero cost if KNMI is directly involved in the research project).

5.15.7 Assessment of re-use facilitation costs

When making its yearly assessment, the following cost categories are included in the equation:

a. Costs related to investment in and maintenance of FTP-servers so that re-users can obtain the data in real time;
b. Costs related to investment in and maintenance of short-term (12 hrs – 48 hrs) and user specific data recovery facilities;
c. Costs related to publication and updating of an official on-line data (and meta data) catalogue, so that re-users know what is available and under what conditions;
d. Costs related to a 24/7 help desk that addresses delivery issues like sensor maintenance with re-users;
e. Network costs, like costs for servers, data transport costs (like data routing costs);
f. Cash needs as a small reserve fund.

In 2010, these re-use facilitation costs amounted to:

a. The salary costs of the 're-use facilitation department' of the KNMI that consists of 1.5 FTEs (delivering mainly helpdesk services) complemented by a fixed overhead that amounts in total to 0.15 M EUR;
b. The costs for FTP-servers and some very fast connections – processing around 1.5 Terabytes a day – amounting to 0.1 M EUR.

The publicly available KNMI price list and re-use conditions are liable to an annual review. The contractual relationship between a re-user and the KNMI is based on a standard license package. This consists of a license agreement, a service level agreement (dealing with the operational aspects of the relationship) and annexes (detailing the specific services and their delivery). Furthermore, the KNMI organizes yearly 'provider meetings'. These involve all its re-users. They create an open and transparent environment that enables re-users to submit requests to enhance service delivery (e.g. the inclusion of an additional dataset in the service).

5.15.8 Downstream effects of new pricing policy

In 1999, at the peak of competition between the commercial activities of the KNMI and the private sector re-use activities, there were in essence two re-users of KNMI data generating a turnover of 5 M EUR and employing fifty FTEs.

About ten years later, after full implementation of the new re-use policy, this picture had changed quite dramatically. In 2010, the price level of a full KNMI dataset went down by

80%, from 0.1 M EUR to 0.02 M EUR (which included both license and distribution costs) and covered the facilitation of re-use costs only. At the same time, the number of re-users exploded, increasing from 5 to 50[131], creating jobs for about 150 FTEs (an increase of 300% compared to 1999) and generating a turnover of about 20 M EUR (an increase of 400% compared to 1999 when the effects of inflation are discounted).

At least three trends can be perceived: a lowering of prices in some industrial sectors, greater innovation, and the emergence of new business models.

The lowered price level and increased competition sparked innovation: second-tier users of meteorological information were offered smart, new products. For instance, the greenhouse sector in the Netherlands was able to save about 10% on its energy costs due to its access to real-time detailed forecasting of rainfall services. This allowed the sector to maximize the length of time that the greenhouses can remain open to the air. This not only very beneficial for the crops but also for the environment, since it reduces carbon dioxide emission quite considerably.

New business models emerged: a new re-user entered the market and launched an innovative service under the name 'Rainfall Radar' (Buienradar). Anyone can use the service to determine whether it is going to rain in the current location in the next few hours. This service is provided completely free of charge. It generated around 300 million hits per year throughout Europe in 2010. As a result of this high traffic, it is paid for through advertising revenues. Finally, since all KNMI data products are license free, almost no restrictions in use or distribution are set. Some of the re-users have started activities as distributors.

5.15.9 Upstream effects of new pricing policy

The policy change has also had a significant impacted on the KNMI. In 1999, the commercial arm of the KNMI comprised 25 FTEs. This amounted to a cost level of around 0.65 M EUR (in both direct and indirect costs) and a turnover of about the same amount. The 're-use department' of the KNMI now runs at a total cost of around 0.25 M EUR a year. Thus, it saves taxpayers money.

Interestingly, the change of policy also had implications for the internal functioning of the KNMI. It led to an increase in professionalism within the KNMI: relations with re-users

[131] Among these fifty companies, five are companies that are so-called Meteorological Service Providers (in 1999 there were just two). These companies have portfolios with direct meteorological forecasting products as basic meteorological datasets for customer processes (sea forecasting, wind energy and so on). General re-users deal with customer processes that are built on meteorological input datasets.

became strictly professional, a higher quality of data was produced and an enhancement of services and delivery occurred due to the external stimuli and contractual obligations.

5.15.10 Macroeconomic effects

At a macroeconomic level, comparing the 1999 to the 2010 situation, the policy change has had several main effects. It has yielded at least 100 new jobs – and it is even very likely that there have been many more – since it is possible that further tiers in the value chain have been left out of the equation. It has increased the gross national product (GNP) by a total of 125 M EUR and tax returns by around 31 M EUR in corporate taxes. At the same time, the public sector has saved around 3.5 M EUR in expenditure by focusing on its public task. Furthermore, competition has increased and has sparked market dynamism and innovation.

5.15.11 Final observations

By 2011, the Dutch meteorological market has become fairly stable. Hardly any new re-users are entering the market, except for re-users that embed occasional data in other products. Of course, there are still points of discussion that lie on the border between the public task of the KNMI and the market activities of the re-users. These focus mainly on the size of the public task: for instance, the delivery of data to the aviation sector (which is now part of the public task of the KNMI).

Nevertheless, both the KNMI and its re-users are satisfied with the current situation. Both believe that the KNMI is a forerunner in an irreversible process: a form of public company that has turned the facilitation of re-use into an important part of the public task and has created a clear demarcation line between its core business – the public task – and all the other activities which are delegated to private sector players.

5.15.12 Key sources

- Background information available on the KNMI website (www.knmi.nl), including annual reports.
- Background information available on websites of the largest KNMI re-users in the meteo sector, including: Meteo Consult (NL and UK), MeteoVista (NL) Weathernews Incorporated (Japan), Infoplaza B.V. (NL) and Aeolis Forecasting Services B.V. (NL).
- Interview held with Mr Frank Lantsheer, policy advisor and data manager at the Department of Weather Services, subdivision Stakeholder and Contract Management of the Royal Netherlands Meteorological Institute (KNMI), February 15, 2011.
- Interview held with Mr Ton Donker, former Head of the License Department of the Royal Netherlands Meteorological Institute, January 10, 2011.
- Interview held with Mr Harry Otten, founder of MeteoConsult, January 4, 2011.

- Interview held with Mr Richard Pettifer, General Secretary of the Association of Private Meteorological Services (PRIMET), January 31, 2011.

5.16 Norwegian Meteorological Institute (NO – meteorological PSI)

Case study author: Marc de Vries (Citadel Consulting)

5.16.1 Key message

The Norwegian Meteorological Institute (met.no) is a very interesting case. It has adopted the most radical re-use policy in comparison to the other national meteorological institutes around Europe. Not only does it work on a no-cost basis so that it does not distinguish between access and re-use – what you see is what you can get and can re-use – it also offers access to a subset of the information offered by other national meteorological offices for free (without imposing restrictions on the re-use of those data).

This policy is based on the institute's philosophy that withholding data for sale and to generate a minor addition to its own budget would not outweigh the huge societal benefits of opening up the data completely, for free for use and re-use. This 2007 policy change was generated by belief, commitment and thought leadership on the part of the PSB itself bottom-up rather than top-down. Based on sound socio-economic analysis, the business case was explainable, in particular at a policy and political level: it succeeded in bringing about an irreversible thrust to open up the data for both citizens and re-users.

The case demonstrates the impact of this pricing policy on the downstream re-use market. It is quite likely that, as a result of the policy, the number of re-users exploded by a factor of 30: the numbers shifted from around 100 to 3,000 unique re-users per week. Although re-users do not have to register so that it is not entirely clear who the users are, it would appear that new, often SME, types of re-users have come onto the market. They are, in particular, those who rely on a strong distribution position. Meteo data that are opened up are integrated into content services that are offered to large groups of users. Furthermore, over 40% of the re-users come from outside Norway.

By actively disseminating all its information to the general public, the institute has created a direct link with end-users. This has a powerful quality assurance function, but it has also consolidated the policy's business case (and its public funding) and has protected it against currents that may want the reverse the financing model. The evidence exists: for five years in a row, the met.no has received awards as the most respected public agency in Norway. It is seen by some observers as *the* forerunner in Europe in terms of the (re-)use policy of meteorological data.

The significance of a liberal re-use policy is also demonstrated by the story of the development of the largest re-user in Norway: StormGeo. Shortcomings in the Norwegian (re-use) policy on meteo data stimulated StormGeo to revise its strategy on running its own meso- and fine-scale model simulations in 2007. As a result, it could rely on the changes in the ECMWF re-use policy: re-use prices were lowered by over 60% (in 2002 the full data set cost 365,000 EUR whereas by the end of 2004 the charges were down to 140,000 EUR) and the quality of model data was enhanced. This allowed StormGeo to compete with former national meteorological offices in other parts of Europe and led to an increase in business and employment by factors of 3 and 2 respectively.

5.16.2 Key economic indicators

Indicator	Year 2007	Year 2010
PSB		
Entire organization		
FTEs	427	425
Yearly budget	52 M EUR	58 M EUR
unique visitors per week	50,000	3 million
Re-use facilitation		
FTEs involved	2	3
Turnover	250,000	Around 60,000
Costs	200,000	300,000
Profit	50,000	0
Price full data set	3,000 EUR	Free
Revenues from own added-value products	4.3 M EUR	3 M EUR, yielding 0.18 M EUR profits
Re-users		
Number of re-users	100	Over 3,000
FTEs employed		
- Professional weather companies	35 inside Norway	70 inside Norway
- Others	Unknown outside Norway	Unknown outside Norway
Turnover sector	Few	Unknown, but many
	10 M EUR	20 M EUR (professional weather companies inside Norway only)

Results 2007-2010	
% Price decrease full data set	100% (except for 'guarantee fee')
% increase # re-users	3,000%
% increase FTEs re-users	200% (professional weather companies inside Norway only)
Corporate tax gains	Doubled at least
% increase # visitors	6,000%

5.16.3 Introduction

Met.no is the Norwegian national meteorological institute. Over the last six years, it has made significant changes in its re-use and dissemination policy. These are:

a. application of a free charging model for re-use of its own data
b. provision of access to all the data it holds (including data from other national meteorological institutes) to the general public, including re-users, through a well regarded portal: yr.no

Interestingly, met.no still undertakes some re-use activities itself by adding value to its own raw data, although this policy is currently under review.

What applies at national level also applies at the international level: ECMWF's change in re-use policy has yielded opportunities for those meteo re-users who are looking across borders, as is demonstrated by the move made by StormGeo, Norway's largest meteo data re-user.

5.16.4 Organization, governmental structure, tasks

Met.no is an agency under the Research and Education Ministry of Norway. It considers its mission to be to protect life, property and the environment by providing meteorological services to the military, the civil governmental services in Norway and the general public, in part through the use of open source data.

The tasks of met.no have been laid down in a Royal Resolution decision of the Cabinet of Ministries of 2005, which says:

> "The Norwegian Meteorological Institute shall deliver the public meteorological service for civilian and military purposes. The institute shall support the government, commerce, institutions and the general public in protecting life and property, for planning purposes and for protection of the environment. The institute shall, *inter alia,*
>
> a. produce weather forecasts

b. study the Norwegian climate and provide climate analysis
c. collect meteorological data in Norway, adjacent sea areas and Spitzbergen
d. carry out research and development
e. deliver forecasting for the air traffic
f. communicate the results of its work
g. deliver special services
h. participate in the international meteorological cooperation."

Met.no also contributes to and advocates international meteorological cooperation. Norway is a member of the World Meteorological Organization (WMO), the European Centre for Medium-Range Weather Forecasts (ECMWF), and the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT).

5.16.5 Budget, costs and revenues

Currently met.no employs 425 FTEs and its yearly budget amounts to 58 M EUR. Thirty-three M EUR of this is granted by the government, 11 M EUR is generated through research projects and 9 M EUR is provided under a contract with the aviation sector. The final 2M EUR is generated by commercial projects, whereby met.no adds value to its raw data in competition with the private sector. This involves assignments from large, formerly state-owned, infrastructure operators (such as Statkraft, Statnett and Statoil) that are required by law to put projects out to competitive tender whuch places these assignments outside the scope of the public task. According to met.no, without commercially bidding on such assignments, the institute would not be able to give these organizations access to its expertise as this would be considered suboptimal for Norwegian society. However, re-users, argue that met.no should stay away from providing these services all together, since the internal charging is alleged not to be transparent (in particular since the commercial arm of met.no was integrated in the 'public sector arm'). At present this policy is under revision.

5.16.6 Re-use policy and pricing

By the mid 1980s, met.no was told by the Ministry to start selling its raw data in order to partly finance itself. Examples include observations and output from numerical weather prediction models. As a result, met.no started to fax weather forecasts mainly to oil companies since they needed special forecasts. This top-down pressure to sell its data lasted throughout the 1990s. However, met.no experienced low demand for this data at the prices set (which were decreased over time, but without success in increasing demand). The turnover never exceeded 0.25 M EUR, since re-users tended to rely on data from other sources. Based on its own data and the provision of added-value services, met.no did make some money (in 2010, this yielded a turnover of 2 M EUR).

As a consequence, by 2005 more than 95% of the institute's budget was financed through public funds. This led to the interesting notion that, economically, it did not make much sense at all to charge for the institute's basic data. Fully opening up these data (in alphanumeric format) for re-use would be likely to yield many more socio-economic benefits and save costs on the side of the PSB.

In 2008, met.no took this policy one step further in terms of the value chain, and launched the yr.no public portal. This service not only provides weather forecasts for Norway, but also supplies all the European Centre for Medium-Range Weather Forecasts (ECMWF) in graphic form online for free.[132] Met.no does this by arguing that these data should be available to all Norwegians, including those living abroad, and refers to point f in the Royal Resolution decision cited earlier. Within the ECOMET setting – under the HIRLAM agreement, each country owns its own data. Met.no took, and still takes, the following position: it argues that it is not selling output from its Numerical Weather Prediction Model covering any other country than Norway. Rather, under its public task, it is showing or giving access to these data to the public at large. Furthermore, in order to undertake weather forecasts for Norway, there are scientific reasons that the model has to cover a much larger geographical area than the Norwegian territory. Thus, at present, met.no provides hourly forecasts from the Scandinavian countries. For countries outside Scandinavia only three-hour forecasts are provided. This met.no policy is frequently debated in the ECOMET setting.

Interestingly, it was the management of met.no that took these decisions, without making a previous request to the Research and Education Ministry. Thus, it opened up the dialogue rather than requesting permission first. One of the main arguments in favour of this opening up of data was that it would enable the numeric prognosis of data in graphical form for free on the internet, whereas selling these data commercially would prevent the institute from doing so. Another argument was that delivering free data would allow anyone, including SMEs, to add value to it. This would thus provide an authentic thrust to the downstream market and science. Based on these arguments, and the acknowledgement that any extra budget required would be minimal, the Ministry ultimately agreed with these decisions.

Met.no holds the view that, as a rule, re-users of data should not be charged at all, not even for re-use facilitation costs, since they, like citizens, pay taxes and thus already finance the institute. However, in the instance that re-users require special arrangements, for instance,

[132] These are the data of other ECMWF members.

the guarantee of the full-time availability of updated data, the costs are charged as re-use facilitation costs since, otherwise, the government would be subsidizing re-users. To this end, met.no has established service level contracts with re-users. So far a total of 11 re-users have entered into such contracts (the yearly charges amount to 5,750 EUR a year).

With regard to all other re-users who do not require such special arrangements, met.no works under a standard license agreement. Without requiring re-users to register in any way, it applies a creative commons attribution system: the re-users simply enter the webservice and download the data they need. Nevertheless, informal meetings are held with re-users, in particular whenever the public weather service is planned to change in a fashion that might influence their market. This has, however, not happened recently.

5.16.7 Impacts of re-use policy

This section explores various impacts on both re-users and the PSB.

Impacts on the re-users

The case demonstrates the likely impact of this pricing policy on the downstream re-use market: after the policy change, the number of re-users exploded by a factor of 30, increasing from around 100 to 3,000 unique re-users per week. Interestingly, over 40% of the re-users come from outside Norway and this percentage is increasing rapidly.

Looking more closely, a distinction must be made between, first, those re-users that add considerable value to the basic meteo data (through their own high-tech models) and, second, those that rely on a strong distribution position, whereby the meteo data that are opened up are integrated into content services for large groups of users. For the second group of re-users the change in policy really caused a 'weather boom'. Particularly media companies (for instance FVN.no and Aftenbladet.no) benefitted from this development. Furthermore, a new type of company entered the market: SMEs that provide apps. Unfortunately, no solid estimates can be made as to the overall increase in employment and turnover: it is, however, thought to be substantial. For the first group of re-users, the impact has been less significant, however, developments at an international level have made a difference.

StormGeo is an interesting example. It is the largest Norwegian commercial meteorological company. In 2003, before the met.no policy change, it had already come to the conclusion that it could no longer rely on the met.no raw data – at that time still bought from met.no – but that it had to invest heavily in the development of its own modelling

systems which would enable the development of high-resolution client-targeted forecasts. This was done against the background of the company's own strategic goals (when it decided to shift from media clients to more high-end markets, like offshore, renewables, shipping in Norway, and beyond).

This move was supported by a development at the international level: the ECMWF increased the quality of its model data and altered its terms for re-use significantly. In particular, it dropped the re-use charges by around 60 %, for a full set of data covering the territories of all its members (in 2002, the charges for the full data set amounted to 365,000 EUR whereas in 2004 these had dropped to 140,000 EUR).

This decision, and the subsequent investments in R&D paid off, so that StormGeo now has nine offices in various countries (in both Europe and the US). It has jobs for 70 FTEs and generates an income of over 12 M EUR (30% through export products). Over the last five years, its turnover has grown by a factor of 3 and its employment by a factor of 2. StormGeo considers the ECMWF policy to be one of the drivers of its success, as it allowed the company to enter into fair competition with national weather Institutes. This was impossible before the policy change when weather data entered the range of affordability for SMEs.

Impacts on the PSB itself

The policy change also had an impact on the institute itself. Traditionally, users of the meteo information that it produced was an abstract concept for the institute. However, opening up a direct link with users has now created an organizational climate in which employees of met.no now feel a sense of importance to society for the activities they undertake: in fact, this has led to a direct transaction model between the PSB and the taxpayer. This link is demonstrated by the fact that met.no receives over 5,000 e-mails a year from citizens who pass on their observations about the institute's performance. This feedback represents a powerful quality control mechanism.

This direct relationship between customers and personnel has another advantage. It enables visibility of the (re-)use of the data by society. Thus, it permanently emphasizes the socio-economic business case and embeds this notion (and the philosophy of public funding), protecting the institute against any political currents that might desire a reversal of this financing model. The evidence is there: for five years in a row, the met.no has been acknowledged as the most respected public agency in Norway. By some, it is seen as the forerunner in Europe of the (re-)use policy of data.

5.16.8 Key sources

- Background information available on the website of met.no
- Background information available on the website of stormgeo.com
- Interview held with Mr Eliassen, CEO of the Norwegian Meteorological Institute (met.no), on 6 April 2011 in Amsterdam, the Netherlands and subsequent input through email.
- Interview held with Kent Zehetner, CEO of StormGeo, the largest Norwegian re-user, on 13 May 2011.

5.17 ARSO (SI – meteorological PSI)

Case study author: Katarzyna Szkuta (Tech4i2)

5.17.1 Key message

The Slovenian Meteorological Office (ARSO) is fully state-funded and its revenues from re-use (which constitute 5% of the state-funded budget) can only be used to improve its services. Since the introduction of free electronic data at the beginning of 2009 and the associated change in policy, the office did not experience any loss in revenues or incur any high costs (only the cost of the extension of the online portal). Nevertheless, the efficiency gains, due to free online access of XML data for small re-users, were significant. They have led to a decreased workload related to a reduction in numerous small written and email request from re-users.

What is more, the revenues from PSI sales and added-value services have not changed. Even the number of re-users has not altered, as the small number of re-users who previously paid for access to basic data has been replaced by new customers buying value-added services. These are largely new media companies.

The release of free data has brought important benefits to end-users and small re-users. Both citizens and businesses have benefitted from direct, free access to daily overviews, observations and forecasts. Most of the previous, small clients make use of the online data and offer very low value-added services as a result (such as mobile apps and media forecasts). Some innovative services, such as mobile hail alerts and mobile weather applications, are now being offered by commercial companies and individual developers.

The Slovenian Meteorological Office is in the process of moving from full cost-recovery pricing to a partial cost-recovery model (they total 20% of the total costs, with only up to 5% of that sum chargeable to a single re-user). This will result in a 95% decrease in the price of the data for which the PSB is awaiting the final approval from the Slovenian Government.

It is currently difficult to foresee if this second pricing change will have an impact on the market. For now, re-use in Slovenia is not widely recognized as a business opportunity. The meteorological PSI re-use sector in Slovenia is not mature at the present time, and is based on low value-added services.

The case shows that, in smaller and as yet immature markets, the changes in pricing policy mostly benefit end-users and small re-users that produce low added-value services. The

changes provide efficiency gains to the PSB without having an impact on its revenues. They also give the PSB an opportunity to position itself as innovative and open.

5.17.2 Key economic indicators

Indicator	Year 2008	Year 2009	Year 2010
PSB	Environment Agency of the Republic of Slovenia Meteorological and Hydrological Office		
Entire organization FTEs	440	429	424
FTEs (Met and Hyd Office)	90 + 94	89 + 89	89 +90
Yearly budget ARSO	45.7 M	44.9 M EUR	37.2 M EUR
Yearly budget Met Office	6 M EUR	6 M EUR	6 M EUR
Yearly budget of Hyd Office	5.6 M EUR	5.2 M EUR	5.6 M EUR
Costs equals the budget			
Re-use facilitation and commercial activity			
FTEs involved	1 (equiv.)	1 (equiv.)	1 (equiv.)
Turnover	317,000 EUR	321,000 EUR	360,000 EUR
Pricing model			
Full cost-recovery			
Price per station per parameter (annual hourly data)	80.56 EUR (price list established in 2006)		
Partial cost-recovery	20% (up to 5% to a single re-user)		
Price per station per parameter (annual hourly data)	4.3EUR (price list established in 2011, to be accepted in the course of 2011), 95% decrease		
Turnover from:			
Added-value services and processed data	80%		
PSI raw data	20%		
Percentage of this revenue compared to Met Office budget	5% (360,000 EUR)		

	Year 2008	Year 2009-2010
Online portal traffic data per month:		
Number of visits		350,000
Number of all files accessed		40 M
Number of PSI file downloads/data volume		3.8 M
Number of regular customers (PSI and added-value data)	~20 + some ad hoc requests	~20+ some ad hoc requests
Number of re-users	3-4	1
FTEs		90 FTEs in total, 3 FTEs working on the PSI re-use
Revenue		5-10% of the whole company revenue is PSI re-use

5.17.3 Introduction

The Environment Agency of the Republic of Slovenia (ARSO) is an example of a public sector body in transition that has taken the decision to adopt a pricing system that releases most of its meteorological data for free via the Internet. For commercial customers who buy more specific or enhanced PSI data, the agency only partially recovers its costs (20% of the total costs, but it charges up to 5% of its costs to a single re-user). Nevertheless, as the whole process of transformation is still in progress (the new partial cost-recovery policy has to be approved by the Government in 2011), the effects of this change are not yet completely quantifiable.

5.17.4 Organization, governmental structure, tasks

ARSO performs expert, analytical, regulatory and administrative tasks related to the environment at the national level. Its primary objective is to become a leading, effective and trustworthy environmental institution, capable of disseminating knowledge to other related institutions around the world.

The Environment Agency is a body of the Ministry of the Environment and Spatial Planning. Its mission is to monitor, analyze and forecast natural phenomena and processes in the environment, and to reduce natural threats to people and property.

ARSO is organized in accordance with the demands, type, scope and interlinking of the various tasks and fields in which the agency has to operate. These fields of operation have

been divided into offices, sections, services, departments and groups. The Meteorological Office (ARSO/Met.Office) and Hydrology and State of the Environment Office (ARSO/HSE.Office) are two of the six offices within the agency.

ARSO employs around 460 FTEs, 60 of them are employed at the ARSO/Met.Office and 94 at the HSE.Office. Records are available for three years of budget. The entire ARSO budget for 2008 was 45.7M EUR, 44.9M EUR in 2009 and 37.2 M EUR in 2010. The budget has decreased by 18.6 per cent between 2008 and 2010, which is a decrease of almost one-fifth over a three-year period.

The agency cooperates both with the World Meteorological Organization and with other international organizations in the meteorological field; most notably the European Centre for Medium-Range Weather Forecasts (ECMWF) and European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT). The Met Office also has close contacts with other European national meteorological services.

Slovenia is an ECMWF and EUMETSAT full member state. The Slovenian meteorological service is also a EUMETNET-EIG member (the Network of European Meteorological Services). The negotiations to join the Economic Interest Grouping of the National Meteorological Services of the European Economic Area (ECOMET), the economic interest group of national meteorological services in Europe, as a full member are currently being finalized. The new price list, which complies with ECOMET regulations, has been prepared but has not yet been approved by the Government.

The Meteorology Office performs the tasks of providing a national meteorological service. Additionally, it carries out analytical, research and other expert tasks. Moreover, it is in charge of meteorological tasks that range from a link with environmental protection, water management, defence, transport, farming and forestry, industry, construction industry, health, tourism and other activities, to the safety of air and maritime navigation, consumer prognoses and the provision of information, databases and data exchange.

The meteo.si portal run by the Meteorological Office provides access to forecasts and current weather conditions, including alerts, weather, climate and aviation information and agrometeorology details available to the public. Apart from current data, the site enables access to historical data on agrometeorology, climate and weather conditions. When historical data are provided in non-machine readable formats, the website facilitates searches by year, month and type of data. Finally, the site enables access to numerous publications produced by the agency related to meteorology. Moreover, the site offers all

users access to the current daily weather observations (in raw data form) and forecasts (as processed data) in XML/RSS/HTML format. Hence, these data are in a form that allows further re-use which is ready to be transferred to commercial and non-commercial internet pages.

5.17.5 Budget, costs, revenues

Approximately 6 M EUR were allocated each year to the ARSO/Met.Office and 5 M EUR to ARSO/HSE.Office. The ARSO is fully state-funded, i.e. the budget is equivalent to the cost of the agency. This implies that its commercial activity does not cover any of the agency's running costs. What is more, they cannot be used to cover costs such as human resources, operational activities, or equipment maintenance.

The revenue from the commercial activity of the Met Office is used only to improve its services (e.g., purchase of new meteorological equipment). The entire surplus that is not spent on this objective is returned to the state budget. The turnover from commercial activity has increased by 13.6 per cent over the last three years to EUR 360,000 in 2010 (2008 - 317,000 EUR, and 2009 - 321,000 EUR).

The agency has a limited number of around 20 paying customers (which are mostly power plants). These access individually-prepared weather forecasts or raw data through a FTP server. The cost of this added-value service is related to the value of working hours and FTP maintenance.

The raw data are sold according to individually negotiated contracts (41 EUR per single parameter per station according to the official price list; however, quantity discounts are applied). Once the new 2011 price list has been accepted, the contracts will be compliant with the new partial cost-recovery policy (4.3 EUR per station per parameter for hourly climatological data, 0.78 EUR per numerical weather prediction (NWP) model output, and 0.09 EUR per unit of radar data).

The agency employs two people who work half-time on this task (1 FTE equivalent). Even after the introduction of free online data access, the number of commercial clients remained fairly stable (around 20 big companies, mostly energy plants using buying tailor-made model forecasts to plan their energy production and distribution and some media companies buying forecasts). Neither did the revenues of the agency decrease (indeed, they even increased by 13%). The clients (who are mostly end-users) obtain the data via a FTP server and are charged according to negotiated flat fees (with rebates), which will soon be replaced by the price list based on the new partial cost-recovery policy. The majority of those

customers that buy forecasts for their internal use come from sectors such as construction, energy and road maintenance.

One client – the Milan Vidmar Electric Power Institute (EIMV[133]) – is purchasing raw data (radar digital data) to develop forecasting for electric-power distribution (atmospheric discharge data) and is reselling the data, but its contract has not been revised for the last couple of years. The company benefits from discounts as the official price for data was estimated as too high to be acceptable on the Slovenian market. The EIMV is a leading Slovenian engineering and scientific research organization that operates in the area of electric power engineering and general energy. The institute employs around 90 FTEs, including three FTEs who work on the PSI re-use and this stream of its business activity yields around 5-10% of the whole company revenue. Radar data of a very high quality are further processed in respect of a lighting location system and are sold to end-customers – mostly power system utilities. According to the re-users, since the market in Slovenia is very limited, the change in pricing model would not have had a very big impact on its activity.

Slovenian governmental regulations request that all state-funded agencies reduce the number of employees in the public sector at a rate of 2% per annum (the figure used to be 1.5% until the end of 2008). Therefore ARSO, and all other government agencies, are obliged to increase their efficiencies. According to interviewees, the extension of the online portal and the free data release 'have helped to facilitate this efficiency increase'. What is more, the agency has recently implemented the ISO 9001 quality management system. It is therefore looking for methods to increase customer satisfaction (e.g. through access by clients to the FTP server, lower costs and more data planned to be released for free online).

5.17.6 Re-use policy and pricing

The ARSO changed its pricing policy in 2009 (to free data release), mostly due to the national policy change and the change of standpoint of the European meteorological bodies. According to the interviewees, the decision was inspired jointly by the meetings preceding the “Oslo Declaration” by EUMETNET and the PSI re-use Directive. The Oslo Declaration defined the data policies of the EUMETNET members, ECMWF and EUMETSAT, and the development of on-line services. These were based on the legal framework provided by the European Union, including two of its directives – the directive on the re-use of PSI and the directive on establishing an Infrastructure for Spatial Information in the European Community (INSPIRE). At more or less the same time, in 2005, Slovenia implemented the

[133] http://www.eimv.si/eng/

directive on the re-use of PSI. Therefore, changes were introduced in the legislation that governs the Slovenian Meteorological Office activity in 2006.

According to Slovenian law (Access to Public Information Act and the Decree on the provision and re-use of public information), that are compliant with the directive, PSBs may charge for PSI re-use for commercial purposes. Thus, the price of the data may not exceed the costs of collecting, producing, reproducing, and disseminating the data together with a reasonable return on investment. Importantly, the public body may not charge for PSI re-use if it transmits the same information over the internet free of charge. Slovenia has adopted a unique pricing and charging policy in the sense that the charging for re-use is determined according to the intended purpose of the re-user:

- Re-use for non-commercial purposes (free of charge)
- Re-use for commercial purposes: on payment or free of charge (the PSB has to submit a written decision to justify the choice of its charging model).

In view of Slovenia's new policy, all the information produced by ARSO is treated as PSI. The meteorological activity law enables the Met Office to charge commercial users for the re-use of information but only if they are compliant with a set of strict rules. Those rules allow for charging for re-use only up to 20% of the total cost of data collection, production, reproduction and dissemination. Moreover, only up to 5% can be charged to a single user (i.e. 1% of total cost). The legislation permits charging for value-added services that recover the cost of work and technology applied. The process of changing the pricing model in ARSO is still in progress; its implementation will finish in summer 2011. At the time of writing, the new price list has still not been approved by the Government.

Nonetheless, the commercial activity of the Met Office, based both on PSI data and value-added services, will remain very limited; currently it amounts to 5% of the yearly budget.

According to the PSB representatives, these decisions were also influenced by the fact the cost for charging small users did not really yield much profit and generated considerable workload. What is more, the agency had to cope with an increasing demand for data in XML format. Therefore, the decision was taken to release meteorological observation and forecast data for free via a new portal (www.meteo.si) in XML but also in HTML and via RSS feeds.

The ARSO re-use policy consists of three elements, two forms of re-use and partial cost-recovery:

- **Free access and free re-use**

  Meteorological observation data, climate data and forecasts are provided for free, see meteo.arso.gov.si/met/en/service/. Moreover, ARSO has recently released its hydrological archive data in PDF form. All the information provided on the website is open for access and re-use. The data released online are not subject to a special license, ARSO requests according to Regulation on Transaction and Re-use of Public Sector Information only the proper acknowledgement of the source information: "Slovene Public Information", ARSO - meteo.si.
- **Free access to all data (raw and processed) for research and educational purposes**
- **Partial cost-recovery** (implementation of this is in progress) **for more granular data** (hourly data, NWP model numerical outputs and numerical radar data). The policy allows ARSO to charge up to 20% of the total cost of data collection, production, reproduction and dissemination. Moreover, only up to 5% can be charged to a single user (i.e. 1% of total cost). See the current and planned price list. This is an important change: this is because, in the past, ARSO charged 100% of its personnel, material and depreciation costs to end-users and re-users (the price was decreased by 95%).

The previous price list based on full cost-recovery entailed:

Meteorological data and agrometeorological data - climatological data	Price in EUR (with VAT)
Yearly fee for daily data for one parameter and one station (each additional parameter increases the price by 20%)	41.00
Yearly fee for hourly data for one parameter and one station (each additional parameter increases the price by 20%)	80.56
Monthly data for 10 parameters in one station or one parameter in 10 stations.	29.13

The price was calculated from the cost of materials (10% of the price), personnel costs (60%) and depreciation costs (30%)[134]. For additional commercial services, the working hour value was set up at 24 EUR (excluding VAT).

[134] Source – official pricelist available on the ARSO website (dated on 01.03.2006).

The new price list (which is not yet approved) for commercial re-users only[135]:

Meteorological data and agrometeorological data	Price in EUR
Climatological Data	0 EUR daily (accessible online) 4.3 EUR hourly (available on request).
NWP model output[136]	0.78 EUR (GRIdded Binary -GRIB - data) Graphical data available for free on the website (also for re-use).
Radar images	0.09 EUR (numerical data) Graphical data available for free on the website (also for re-use).

The exact calculation of PSI production costs was established by adding all human resource costs devoted to this activity, equipment purchases and equipment maintenance as well as costs of international memberships fees (needed to obtain international data) by different meteorological activities and divided by data volume to obtain the price for a single data unit.

The commercial activity of ARSO is limited and only enables the recovery of the cost of work and technology applied (such as maintenance of the FTP servers). A working hour methodology (24 EUR, excluding VAT) is used to calculate the cost of additional added-value services.

5.17.7 Impacts of the re-use policy

Free data release brought important benefits to end-users and small re-users. Firstly, both citizens and businesses gained direct and free access to daily overviews and forecasts. In the Slovenian Met Office interviewees' view, the agency is in third position in Europe (after the Norwegian and Dutch Meteorological Offices) with regard to the range of the data it makes available for free online and openness of its policy.

Small re-users no longer pay for PSI data, and they also benefit from a tool to re-use information. Most of the previous, small, clients make use of the online data and offer very low value-added services (such as mobile apps and media forecasts). Some innovative

[135] Source – document provided by the interviewee.
[136] Basic price for 1 EPU (1 EPU contains 5,000 grid points of the Numerical Weather Prediction product in its original resolution before transformation of the original grid into a grid of a different resolution.

services, such as mobile hail alerts and mobile weather applications, are now offered by commercial companies and individual developers.

As the meteorological market in Slovenia is not very strong and is largely based on low value-added services, many of the small clients of the Met Office (which are mainly mobile companies providing forecast services to their clients) used to pay for PSI data in XML format. They have now moved to the use of the freely accessible data from the ARSO meteorological portal as they do not require very detailed data. These re-users are different media, Internet and mobile services that offer add-on weather services. An example is http://www.surfpark.si/ that generally provides information for niche markets (such as wind forecasts for wind surfers or mobile weather alert services offered by mobile providers).

Since access to the online meteorological data is free and anonymous, it is difficult to give precise information on the level of free re-use. The users' statistics show that, on average, 40 million files and 1,300,000 MB have been accessed each month since the free data was released in mid-2009. The number of visits amounts to 350,000 a month. These statistics suggest that a single visit generates on average access to 115 files and 3.7 MB of data.

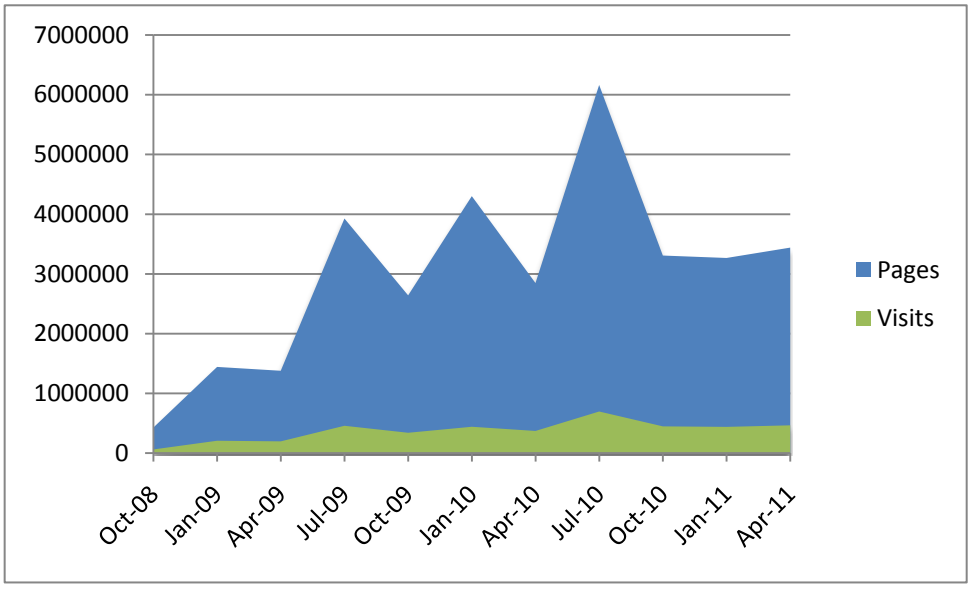

Figure 34: Visits and page hits trends

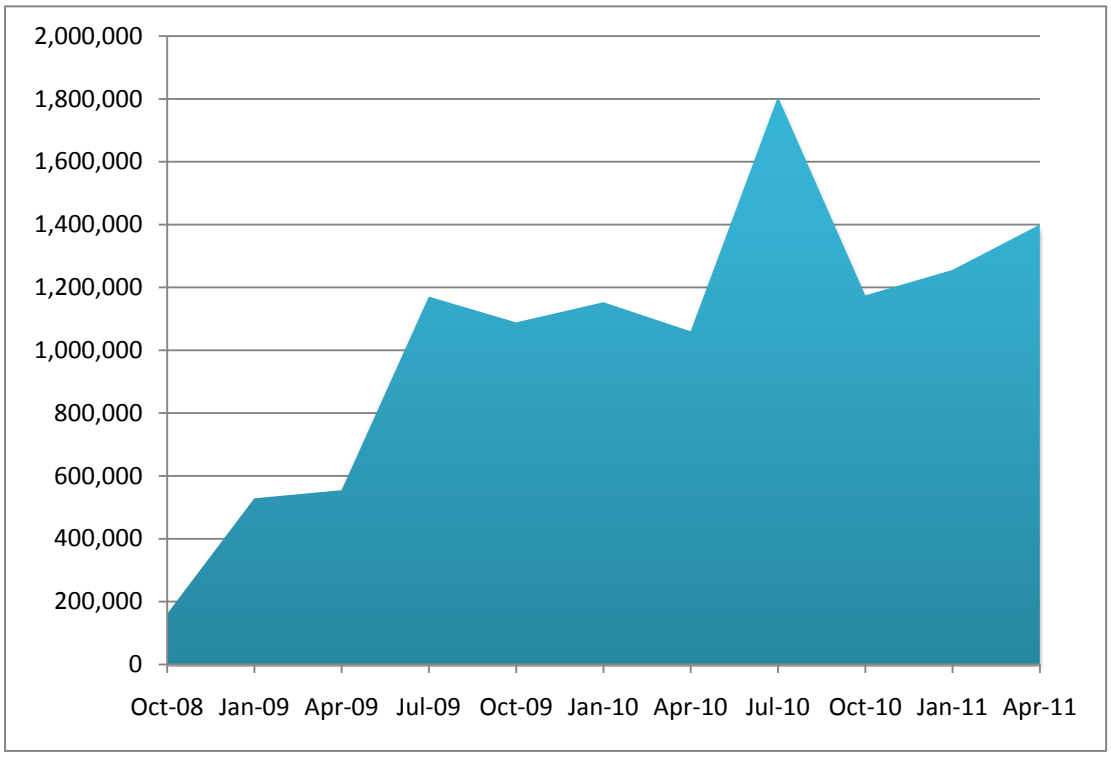

Figure 35: MB file downloads trends

All the data show the same seasonal fluctuation: the biggest peak is in the summer months and a smaller peak occurs in the early winter. This could suggest that most visits are being made by members of the wider public and are unlikely to be out of commercial interest. Finally, most of the traffic is generated by Slovenian-based visitors. Only about 1-2% of visitors are located in neighbouring countries (examples include Croatia, Hungary and Italy). Still, the overall trend of both visits and downloads shows an increasing uptake of use of the website.

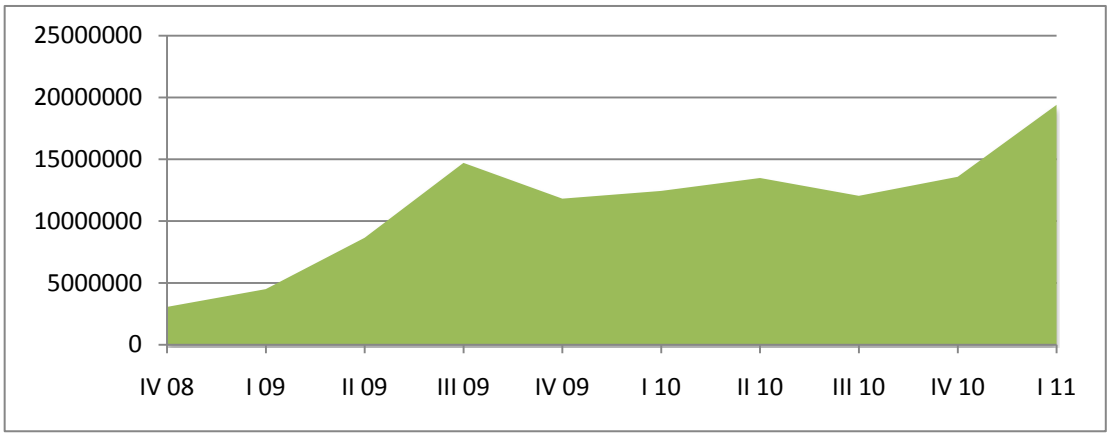

Figure 36 PSI files access – trends per quarter in the last two years

The PSI files access trends also indicate a slowly increasing uptake. A strong upsurge in downloads took place in the first months of 2011 with a monthly average of 3.8 M files

downloaded.

Several innovative services result from the free re-use of the Slovenian meteorological data. Two interesting services (one offered by an insurance company[137] and one by a company offering different MMS-based info services[138]) send a SMS/MMS alarm to their clients if there is a risk of hail or heavy rain.

There are also a handful of weather mobile applications that offer information on weather conditions and weather forecasts for the Slovenian market. A search of the totality of Android Market apps has identified only three that were developed by Slovenian developers: *Vremenska napoved* (Weather Forecast)[139], *Vreme SLO* (Weather SLO)[140], *Slovenian rain radar* (based on the ARSO radar data)[141]. All these applications were developed by individual developers and are offered free of charge. No paid applications were found. The most popular application, Vreme SLO, has had around 1,000 to 5,000 downloads so far. These apps have therefore not really attracted many users.

Since the free data release, ARSO has only handled and charged for the tailor-made demands of end-users (clients include highway maintenance companies and electric plants) and has sold high-quality radar images to just one re-user. This has, however, not had any effect on the budget. ARSO is fully state-funded and its revenues from re-use (constituting 5% of the state-funded budget) can only be used to improve the office's services. Moreover, since the introduction of free electronic data at the beginning of 2009, ARSO has experienced no loss in revenues and no high costs (only the cost of the online portal extension).

The efficiency gains, due to free online access of XML data for small re-users, were, however, significant. There has been a decrease in the PSB workload that is related to the decrease in number of small written and email requests from re-users that are now downloading the data directly from the portal. However, employment related to enhanced re-use facilitation did not change; the resources 'saved' were used for web site maintenance and support. In the organization's view, its image as an innovative, open and citizen- or customer-friendly body is also an important benefit.

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[137] http://avto.triglav.si/toca_alarm

[138] http://www.mobila.si/index.php?act=cat&cat=61

[139] https://market.android.com/details?id=vreme.slo&feature=search_result

[140] https://market.android.com/details?id=com.ikteh.vremeApp&feature=search_result

[141] https://market.android.com/details?id=ales.veluscek.dez&feature=search_result

What is more, the revenues from PSI sales and added-value services have not changed (there has been a 13% increase). Even the number of clients has not altered. There are still around 20 clients. However, the small re-users which previously paid for access to basic data have been replaced by new customers, principally new media companies that are buying value-added services.

It is difficult to foresee whether the second pricing change will have an impact on the market. For now, the re-use of PSI in Slovenia is not yet widely recognized as a business opportunity. Slovenia's meteorological PSI re-use sector is not yet mature and is based on a low level of value-added services.

5.17.8 Final observations

Additional results emerging from the change in pricing policy (i.e., the introduction of the partial cost-recovery model) could not be observed since the associated new price list is still awaiting government approval during the course of 2011. Nevertheless, judging from the limitations of the Slovenian market (only one re-user is buying radar data), this change would not have had any real impact on the PSB revenues anyway. According to Kristina Kotnik Šumah, Deputy to Slovenia's Information Commissioner, the initiatives encouraging re-use are dependent on the potential of the existing re-use private sector. For now, re-use of PSI in Slovenia is not yet widely recognized as a business opportunity[142]. The meteorological PSI re-use sector in Slovenia is not yet mature and is based on low value-added services. To date, apart from a specialized institute which sells radar forecasts to the energy sector, there are no private meteorological companies to provide B2B added-value services based on the PSI produced by the data holder.

5.17.9 Key sources

- Background information available on the ARSO and meteo.si website
- Background information based on interview with Richard Pettifer, General Secretary of the Association of Private Meteorological Services (PRIMET), 31 January 2011
- Document entitled National Meteorological Service of Slovenia: Presentation (December 2009)
- Interview held with Branko Gregorčič, User and Public Relations Coordinator, Meteorological Office and Janez Polajnar, Chief of Hydrologic Forecasting 18th April 2011
- Kristina Kotnik Šumah, Topic Report No. 6: State of Play: PSI Re-use in Slovenia, EPSI platform
- Public oriented Data Policy of ARSO, Branko Gregorčič, ppt presentation

[142] http://www.epsiplus.net/news/news/psi_re_use_in_slovenia2

- http://www.epsiplus.net/topic_reports/topic_report_no_6_state_of_play_psi_re_use_in_slovenia/topic_report_no_6_state_of_play_psi_re_use_in_slovenia#about

5.17.10 Key legal regulations

- Access to Public Information Act (Official Gazette of the Republic of Slovenia, no. 24/2003), together with changes and additions of the Act, APIA
- Decree on the provision and re-use of public information (Official Gazette, No. 76/05).
- Decree amending the decree on the provision and re-use of public information (Official Gazette of the Republic of Slovenia, No. 119/2007
- Meteorological Activity Act (ZMetD) Uradni list RS 49/2006 dated 12.5.2006
- Oslo Declaration – EUMETNET (Oslo, March 2009).
- WMO Resolution 40 (Geneva, 26.10.1995)

5.18 CENDOJ (ES – legal PSI)

Case study author: Mar Negreiro Achiaga (Deloitte Consulting)

5.18.1 Key message

The CENDOJ was selected as a case because it has made good progress throughout the last decade in terms of its PSI-related activities to promote re-use on an equal and transparent basis. It has provided increased access to legal information for free to Spanish citizens for consultation purposes. At the same time, it has implemented a 'pro re-user' policy which has resulted in an increased number and type of re-users for both commercial and non-commercial purposes. For instance, with regard to commercial re-users there has been a shift from a situation of oligopoly: a decade ago, there were only two large publishers acquiring the PSI but by 2010, there were over 28 publishers, including both large companies and small- and medium-sized enterprises (SMEs). The CENDOJ also claims to be the only large centralized legal database service in Europe where citizens can access over 4.7 million sentences for free online.

Since February 22, 2011 this policy has been adopted in a Spanish legal framework which clearly regulates re-user rights and obligations, and includes a system of sanctions for misuse.

The CENDOJ has kept its prices stable over the last decade, despite increases in VAT. In addition to the 9 million EUR granted by the CGPJ from the State public budget, the CENDOJ is selling and recovering part of its costs. In real terms, there is therefore a combination of public funding provided to the CENDOJ by the CGPJ (the Spanish General Council of the Judiciary) and a sale of sentences to re-users (for both commercial and non-commercial purposes). According to the CENDOJ, this generates a level of credit that compensates for the cost of processing the sentences, and improves the service without covering all these costs. This generation of credit leads to a revenue for the Spanish Treasury each year of between 1.5 million and 1.7 million EUR. In practical terms, the CENDOJ reinvests this in the improvement of its products and the processing of the sentences. Yet this represents only about 0.5% of the total CGPJ budget and 16% of that of the CENDOJ.

5.18.2 Key economic indicators

Indicator	Year 2002	Year 2010
PSB		
Entire organisation		
FTEs	31	31(CENDOJ)
Yearly budget		74 M EUR - CGPJ 9 M EUR - CENDOJ
Re-use facilitation		
FTEs involved		5 (estimated by CENDOJ)
Turn over		1.5 M EUR*
Costs		2.1 M EUR**
Profit		0
Price full data set		About 3.4 M Euro
Price per sentence(commercial use)		1.5 euro
Price per sentence(non commercial use)		0.5 Euro
Re-users		
Number of re-users for commercial purposes	2	28
Number of re-users for non-commercial purposes		

*average yearly sales in the last five years

**yearly costs estimated

5.18.3 Introduction

The CENDOJ (the Spanish Judicial Documentation Centre) is the public content holder of all Spain's legal documentation. It plays an important role in guaranteeing access to this kind of PSI to all Spain's publishing companies, organizations and citizens.

The CENDOJ is one of this study's B case studies in one of the four sectors selected: legal information. Court sentences and other judicial decisions are a form of PSI that can be re-used for both commercial and non commercial purposes.

The CENDOJ has applied a PSI re-use policy which distinguishes commercial form non-commercial purposes. It has a central portal which is increasingly accessible to promote re-use since it is based on XML and semantic web. This has resulted in an increasing number of re-users purchasing the data.

5.18.4 Organization, governmental structure, tasks

The CENDOJ is part of the CGPJ (the Spanish General Council of the Judiciary) which is in turn a technical body of the Supreme Judicial Council. Its mission is the dissemination of case law in relation to all legal resolutions. The public sector task of the CENDOJ is clear and undisputed. Since its foundation in 1997, CENDOJ has by law been dealing with the collection, organization and dissemination of the judgements of the Spanish Supreme Court and other collegiate courts.

The CENDOJ was established in 1997. Art. 107.10 of the Organic Law on the Judiciary of 1985 Spanish recognized the following function among the powers of the General Council of Judicial Power of Spain: "Official publication of judgments and other decisions of the Supreme Court and the rest of the courts. To this end, the General Council of the Judiciary, on a prior report of the competent authorities, will establish how regularly it will develop the electronic records of hearings, compiling them, processing, dissemination and certification to ensure their integrity, authenticity and access, and ensure compliance with the laws of data protection." The Judicial Documentation Centre (CENDOJ) was created under this statutory authority.

The CENDOJ disseminates its products on its website: http://www.poderjudicial.es. The website is open to:

- All citizens, for consultation.
- Judges and magistrates (who, in addition, have access to added-value services in a closed environment).
- Re-users who can place their orders through the site: http://reutilización.poderjudicial.es.

The following list includes the PSI/data collection generated within the framework of the CENDOJ's public mandate:

1. Case law
2. The annual publications of the Supreme Judicial Council (hereafter, CGPJ) from continuing education courses sent to judges and magistrates.
3. Online products on international judicial assistance and European Union law.
4. The Judicial Library.
5. Documentation databases consultation area.
6. Legal journals.

5.18.5 Budget, funding and costs

Since the CENDOJ is a technical body of the CGPJ, it operates using a budget that is also approved by the CGPJ for the exercise of its business (Article 107.10 of the OLJ). The budget is provided by the CGPJ out of the total budget granted by the Spanish Ministry of Justice: CENDOJ's budget is 9 million EUR of the over 72 million EUR given to the CGPJ.

However, in addition to the 9 million EUR granted by the CGPJ from the public budget, the CENDOJ recovers part of its costs through sales. CENDOJ practices a partial cost-recovery pricing model for its PSI which distinguishes non-commercial re-use from commercial exploitation. These costs relate mainly to the high expenses incurred by the PSB to process the sentences and anonymize them in order to meet its public mandate. However, there are other concepts that also considered (see the table below).

There is therefore, in real terms, a combination of the public funding provided to CENDOJ by the CGPJ and the sale of sentences to re-users. This generates a credit that reverses the cost of processing the sentences, and improves the service without covering all these costs. This generation of credit assumes an annual revenue for the Spanish Treasury of between 1.5 million and 1.7 million EUR. In practical terms, the CENDOJ reinvests this in the improvement of its products and the processing of sentences. The costs are estimated by the CENDOJ at 2.1 million a year (see the table below).

Through the CENDOJ, the public sector also becomes a client of publishers' added services products. Each year, the CENDOJ makes databases worth 800,000 EUR available to all Spanish judges and magistrates, it acquires books for all libraries in the country for judges worth 600,000 USD, and products for its own use for about 15,000-20,000 EUR per year. This stream of acquisitions also achieves the balance that the market requires to operate, since most of the 1.5 million EUR earned by the sales of the PSI are invested in acquiring new products from the market in order to fulfil its public task.

In this sense, it is worth noting that, according to CENDOJ, the total income from the re-sales of the PSI (about 1.5 million EUR) represents only 1% of the total CGPJ's annual budget (1.5 million EUR out of 74 million EUR) and about 16% of the yearly CENDOJ's budget (1.5 million out of 9 million EUR).

Table 36: Costs estimated by the CENDOJ to be related to the production of the PSI

HUMAN RESOURCES			
	PERCENTAGE	Number of employees	Costs of employees
CENDOJ EMPLOYEES		31[143]	262,675.00 €
			262,675.00 €
SPECIFIC CONTRACTS			
Treatment of sentences	100%	1,200,000.00 €	1,200,000.00 €
Development and maintenance of the judicial search engine motor	100%	90,000.00 €	90,000.00 €
Development and maintenance of content aggregation	100%	350,000.00 €	350,000.00 €
			1,640,000.00 €
INVESTMENTS			
IT INVESTMENTS	25%	90,000.00 €	22,500.00 €
GENERAL INVESTMENTS	25%	150,000.00 €	37,500.00 €
			60,000.00 €
GENERAL COSTS			
BUILDING MAINTENANCE	**25%**	200,000.00 €	50,000.00 €
IT INFRASTRUCTURE MAINTENANCE	**25%**	135,000.00 €	33,750.00 €
GENERAL COSTS	**25%**	220,000.00 €	55,000.00 €
			138,750.00 €
TOTAL COSTS			2,101,425.00 €

TOTAL COSTS	**2,101,425.00 €**
TOTAL NUMBER OF TREATED SENTENCES	**350,000**
TOTAL NUMBER OF SOLD SENTENCES	**1,600,000**

COST PER SENTENCE PROCESSED = Total expenses / total sentences processed	**6.00 €**
PUBLIC PRICE PER SENTENCE FOR COMMERCIAL PURPOSES = Cost per sentence processed/ number of times it has been sold (4)*	
***Four is the estimated number of times that each sentence is sold.**	**1.50 €**

[143] Number of employees is 31. They are classified as follows: 5 layers (including the Director), 8 in the Department of Information, 5 in Documentation, 2 in libraries, 3 in publishing, 1 in reprographics, 3 assistants in law, and 3 in administration, and 1 person in management. There are no planned increases or changes in the last years.

5.18.6 Re-use policy and pricing

The CENDOJ is intended to provide a public service for the general public, as publishers, to make available Spanish jurisprudence under conditions of equality. It is precisely this access to law, under conditions of equality, which enables the publishing industry to conduct commercial operations in the subsequent regime of free competition.

With the arrival of new ICTs, CENDOJ has implemented a system for disseminating judicial statements for free and has operated a pro re-user policy.

Today the PSI can be accessed for free for consultation purposes by any citizen who does not intend to re-use the information. CENDOJ does not produce any added-value services to the market other than its public task (which also includes the provision of documentation to judges).

The CENDOJ's PSI pricing policy for re-users was based on cost-recovery from the beginning. However, it has evolved in a positive direction from an oligopoly (which was based on commercially high prices for the purchase of its entire database) to a more pro re-user policy. Its re-user policy allows different types of purposes (both commercial and non-commercial) to be made of its data, and for different types of re-users needs to be served. Re-users can purchase either large or small quantities of PSI depending on their needs.

Since 2002, the CENDOJ's pricing policy has been based on a license cost per sentence, which has allowed for an increase in the type and number of re-users. For instance, commercial re-users have increased over 14-fold. The CENDOJ started with a situation of oligopoly with just two players, whereas today there are over 28. The CENDOJ's online PSI has increased its number of products to about 72 quality databases that can be accessed by re-users.

CENDOJ claims to be the only legal public sector body throughout the whole of the EU which allows citizens and re-users to access such documentation in an easy manner. On the CENDOJ's new online portal, over four million and seven hundred sentences in XML format, from most tribunals[144] around Spain, are available in a centralized manner.

On February 22, 2011, CENDOJ implemented a new regulatory framework. This promotes and formalizes its re-use policy and puts into place clear sanctions for those who do not follow the legal framework.

[144] With the exception of tribunals *unipersonales*, which are not part of the database yet.

Its current pricing policy is clearly stipulated in the new framework, though it has been the same since 1999.[145] It is based on three different situations:

1. *Free dissemination and access*: the official publication of the judgments and other decisions of the Supreme Court and other collegiate courts are available through an online search engine. They are freely accessible and are free, after disaggregation of personal data.
2. *Licenses for commercial exploitation*: the provision of judgements and other judicial decisions to infomediary companies. This is done in a properly structured digital format, and all personal data eliminated from the file. This service is paid for using public money.
3. *Licenses for non-commercial exploitation*: the same material is supplied under the same quality and quantity conditions as in commercial exploitation. However, there is a lower price charge to those organizations or agencies that use the data without commercial purpose.

In accordance with Article 6 of the new regulation, the Spanish government has set prices for re-use of sentences and other court rulings subject to conditions of license or authorization. These prices have not changed since 1999. They represent an average cost of production which does not consider the length of the sentences or other criteria related to its content or size.

The CENDOJ distinguishes between different types of pricing in the re-use licenses:

a) **For commercial exploitation:** The retail price of each copy of the sentence or other court decision provided **for commercial purposes** is the following: 1.50 EUR per copy of the judgement/decision, VAT 18% included. To this unit price, the following discounts can be applied. They are based on the annual volume of judgements and other decisions provided:
   - Up to 10,000 judgements or orders per year: No discount.
   - From 10,001 to 50,000 per year judgements or orders: 15% discount.
   - From 50,001 to 100,000 judgements or orders per year: 25% discount.
   - From 101,000 to 200,000 judgements or orders per year: 35% discount.
   - Orders of 200,001 orders a year or more: 50% discount.

b) **For non-commercial exploitation**: The public price of each copy of the sentence or other court decision provided **for non-commercial purposes** is the following:

[145] See: http://reutilizacion.poderjudicial.es/BOE-A-2010-17860.pdf

0.50 EUR per copy of the judgment / decision, VAT 18% included.

In general, the re-use of judgements and other judicial decisions is offered for a set public price that considers the costs of the necessary information processing involved. The CENDOJ considers this is a fiscally responsible decision, given that costs are involved in the collection, format conversion, deletion of personal data and the actual provision of judgements.

In effect, all judgements and other judicial decisions provided by the Judicial Documentation Centre for the purpose of re-use following the regulation of February 22, 2011 have to be provided once they are dissociated from any personal data that they may have originally contained.

This new regulation (Regulation 3/2010) will have implications for some of the re-use conventions that the Judicial Documentation Centre has signed in the past. These were to be reviewed during the three months up until June 2011, and will be adapted to the new framework. Under the new rules, some of the re-uses of PSI that were previously provided free and were not subject to any special conditions will now be submitted by obtaining a license and will have a public price. For instance, the college of lawyers which used to receive the documentation for free will now have to obtain a re-user license and pay its public price like all other re-users.

Therefore, this new policy creates equal conditions of access for all re-users, there will be no special agreements or 'convenios' in place anymore.

In terms of copyright, the Spanish Law specified that sentences are not copyright. However, the licensing model in place clearly forbids any sales of the data without adding value to it or any provision to third parties of these data as provided by the CENDOJ. Any re-user has to add value to the PSI to be able to launch a new product or service. Simply reproducing the information without any added-value is not allowed.

The license is valid for a year's time, including extensions.

5.18.7 Impacts of the re-use policy

The open and transparent re-use policy has resulted in the number of re-users (such as legal information publishers) increasing substantially from two in the 1990s to more than 28 today. These are 28 legal publishers, out of which three are large companies and buy all of the CENDOJ's judgements. A fourth publisher buys most but not all of the judgements. The remaining 24 re-users involve several commercial products but buy fewer quantities of judgements. In addition to the publishing houses there are the legal bars, which are another

type of re-user. Until now, they were included under special agreements or 'convenios' which are now, however, to be revised so that the new framework also applies to them.

The number of Supreme Court case judgements delivered to publishers for re-use doubled between 2002 to 2009 and reached 1.34 million in 2010. (This does not include the 129,132 sentences which are provided to the lawyers' colleges for free, an agreement now under revision.)

Originally, the decision of the General Council of Judicial Power has raised the reluctance of publishers, and appeals to the Tribunals have been numerous, although ultimately rejected. The malaise was most evident among companies who controlled the market and could see their dominance threatened, in a regime which was hardly competitive.

However, at present, the activity of CENDOJ has helped to end the situation of market control by a single publishing house that has led to an intense reactivation of the publishing industry. The products that currently exist in Spain are larger in number, and are of a better quality (on the market, there are more than 72 databases of case law, both general and specialized), which compete by offering sophisticated value-added. This allows the assertion that the creation of the CENDOJ has contributed to the creation of wealth in its own legal sector of publishing.

In addition, it should be noted that at present all decisions of college Spanish Courts – Provincial Court, High Courts, High Court and Supreme Court – are available to citizens. This implies free access to more than four million seven hundred thousand judgements online. However, the CENDOJ has developed more sophisticated products, including a thesaurus of more than 21,000 words to which only Spanish judges and magistrates have access. The current decision is not to make these more sophisticated products freely available, but for them to be available only to judges since this activity forms part of CENDOJ's public task. If the database were to be launched on the market, it would have a lot of added-value interest. Hence the CENDOJ has refrained from creating added-value services that compete on the market.

After paying the public price per license, re-users have access to an online environment where they can access the treated and anonymized legal PSI which is available in an XML format with metadata search facilities, from which they can build their added-value commercial products.

Members of the general public who access the online legal PSI for free for consultation purposes are offered a downloadable PDF, instead of accessing the XML online environment.

As a result, there is a quality difference in the PSI provided for free and for a public price. Large mass downloads are prohibited, since there is a volume limit of ten at a time. A single citizen is also limited to accessing 100 sentences per year so as to avoid other uses. Free access is currently limited to the simultaneous download of a maximum of ten sentences, so as not to create problems with service provision and not to enable robots to use the downloads for re-use.

Currently, the CENDOJ expects that re-use will increase even further with the development of a new portal implemented since February 2011. For the first time, the new website offers a unique one-stop shop point of access to all the tribunal sentences in Spain in all the Spanish languages as well as in English and French.

The CENDOJ plans to monitor the changes in re-use on its new platform as well as its estimated costs. It might revise its costs to lower prices, if needed. In the end, even if the CENDOJ has at some point to offer the data for free, as a consequence of a revision in the PSI Directive, this could be foreseen. What its personnel cannot foresee is to provide the information in inequitable ways, since the re-user policy is now clear, transparent, and accessible to all.

Some re-users consulted for the purpose of this case study included the publishing houses, Aranzadi and VLEX, and the infomediary re-users ASEDIE. Some interviewees complained that they find the current prices offered by CENDOJ too high. To acquire the whole database costs about 3.4 million EUR per year (4.5 million sentences at 1.5 EUR after applying a 50% discount). Each year, the CENDOJ processes about 350,000 sentences, which means an annual investment of 262,000 EUR to obtain all the new sentences. According to the publishing houses, these investments leave little room for added-value services.

Thus, the current pricing policy prevents real competition by new companies. They have to make a huge investment to compete with larger multinationals that already have a presence in Spain. In contrast, larger publishing houses like Aranzadi Thomson-Reuters are concerned not so much by the price but by the fact that the CENDOJ could start producing added-value services that compete with their own (a possibility that, according to them, is implied in the new framework). They consider that the CENDOJ has become a monopoly organization in the provision of sentences in Spain, since other means of acquiring such sentences are not allowed any more under the new framework.

5.18.8 Key sources

- Desk research.
- Face-to-face interviews with the CENDOJ director, Joaquin Silguero and Edurne Uranga Legal Officer
- Interviews with re-users (ASEDIE, VLEX, Aranzadi).

5.19 DILA (FR – legal and administrative PSI)

Case study author: Lionel Kapff (Deloitte Consulting)

5.19.1 Key message

This case study demonstrates how the Directorate of Legal and Administrative Information in France *(Direction de l'Information Légale et Administrative* – DILA) implemented a sophisticated PSI web portal – Légifrance – that provides access to a large stock of legal information free of charge and without registration for citizens. Commercial re-users can acquire licenses at fees which are limited to the re-use facilitation costs.

The free provision of PSI to citizens was and is still heavily resisted by many commercial re-users that claim several million EUR of revenue losses per year. Yet, the introduction of the new public service mission to provide citizens with free legal information via the internet has forced commercial re-users to review their business models and to offer more sophisticated value added services – which ultimately also benefits end-users.

DILA currently plans to implement a new pricing and licensing model with increased prices for re-use licenses in order to partially recover its data production costs. While this plan will provoke the resistance of the established commercial re-users, SMEs will welcome the planned introduction of a pay-per-use scheme which will substantially reduce the barriers to entry.

5.19.2 Key economic indicators

Indicator	Year 2009
PSB	DILA
Total revenues	193 M EUR
Expenditure	135 M EUR
Net result	38 M EUR
FTEs	1,055
Current pricing model	
Viewing and limited data extraction	Free of charge
Pricing scheme	Licensing fees limited to re-use facilitation costs
Turnover from PSI sales	0.9 M EUR
Cost recovery rate (from PSI)	0.7%

PSI re-use (current pricing model)	
Pages viewed on Légifrance web portal	1,500,000,000
Number of licenses sold (2010)	451
Re-use market players (estimated)	100 (3 players control 85% of the market)
Re-use market size (2008, estimated)	257.4 M EUR
New pricing model (planned)	
Viewing and limited data extraction	Free of charge
Pricing scheme	Licenses: partial recovery of full costs + 10% ROI
	Pay-per-use scheme
Expected turnover from PSI sales (2015)	5.5 M EUR
Cost recovery rate (from PSI)	4.1%

5.19.3 Introduction

The Directorate of Legal and Administrative Information in France (*Direction de l'Information Légale et Administrative* – DILA) is a directorate of the Secretary-General of the French Prime Minister (*Secrétariat Général du Gouvernement*). It was founded in 2010 as a result of a merger of the directorate of official journals (*Direction des Journaux Officiels*) and the directorate of the *Documentation française*, a body in charge of publishing documentation for administrative bodies and the French public. In essence, DILA's public task involves the distribution of legal information, public publishing and administrative information.

DILA is financially independent and does not receive any government funding. It finances itself mainly through the sale of announcements. DILA currently proposes different licenses for the re-use of its PSI. Prices are limited to re-use facilitation costs (c*oûts de mise à disposition*). Viewing and data extraction in reasonable quantities (which do not lead to economic activity) are free of charge. Out of a total budget of 193 M EUR, 0.5% (0.9 M EUR) is covered by licensing revenues.

DILA has recently developed a new pricing model that will be codified and implemented by the end of 2011 according to its plans. The new model focuses on partial cost recovery with a reasonable return on investment (10%). To remove barriers to entry, the new model will propose a 'pay per use' scheme, which will be attractive notably for SMEs and start-up companies. The expected sales revenues of up to 5.5 M EUR (in 2015) will be reinvested to ensure the quality of DILA's services.

5.19.4 Organization, governmental structure, tasks, PSI portal

DILA's public task is defined by decree n° 2010-31 of 11th January 2010. In essence, DILA's public task consists of ensuring the access to legislation, informing citizens about their rights and duties as well as making the details of public, economic and financial life transparent.

In order to achieve these goals, DILA publishes legal documents, parliamentary debates as well as economic and financial information. Further, DILA proposes information for citizens via different channels, including hotlines, websites and print media. Finally, DILA is in charge of preparing France's policy on legal dissemination and distribution, administrative information and public publishing via propositions to the Prime Minister.

DILA will also be in charge (*maître d'oeuvre*) of the technical implementation and the financing of the forthcoming French inter-ministerial data.gouv.fr PSI portal (Etalab mission – decree n° 2011-194 of 21st February 2011 by the French Prime Minister).

Major PSI holdings of DILA include:

- *Documentation française* (various publications – not of interest for this case study)
- *Légifrance* (texts, codes and case law)
- *JO* (official journal)
- *Circulaires* (administrative circulars)
- *BOAMP* (public tenders)
- *BODACC* (civil and commercial announcements)
- *BALO* (legal announcements)
- *Info financière* (financial information of publicly listed companies)
- *Débats parlementaires* (parliamentary debates)

Even though most of DILA's PSI is available online and/or as printed documents not all PSI that is in the stocks of DILA has already been disseminated. For example, most historic *circulaires* are not available yet. Yet, DILA is constantly enlarging its offer.

At the end of 2009, DILA had 1,055 employees of whom 829 worked directly for DILA and 226 for DILA's printing company SACIJO. In recent years, DILA has undertaken to cut its costs and to reduce its workforce. For example, its workforce decreased by 79 FTEs during the 2009 restructuring.

DILA's main PSI portal *Légifrance* gives access to a large stock of French and international legal information, including official journals, code and case law as well as impact assessments. Decree n°2002-1064 of 7th August 2002 establishes a public service mission for

the dissemination of legislation through the internet (*service public de la diffusion du droit par internet*). Citizens thereby have free access to essential French code and case law on the Légifrance web portal www.legifrance.gouv.fr. However, this zero cost regime does not apply to all forms of data extraction and re-use. Above certain thresholds the signature of licensing agreements is required (see below).

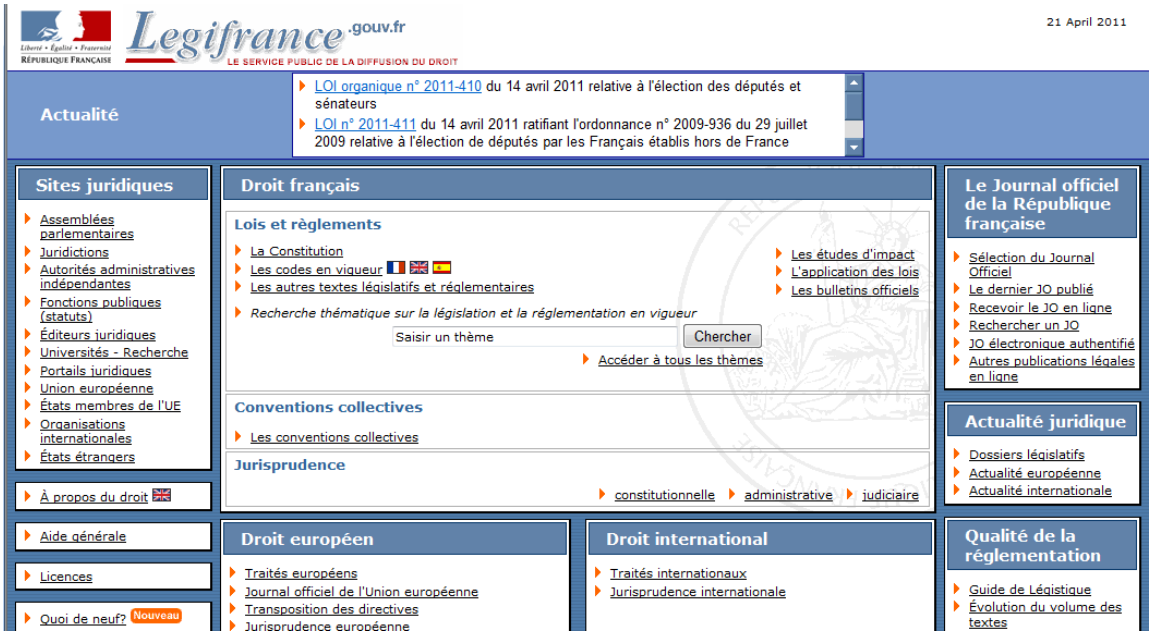

Figure 37: Légifrance web portal

The Légifrance service has been heavily attacked by French private legal publishers who claim that DILA has 'destroyed their business model providing legal information for free'. They also claim that DILA is 'abusing its dominant position'. The protest has been strong, notably at the beginning, and has yet to fade away completely.

Indeed, the free provision of legal PSI on the Légifrance portal has significantly revolutionized the legal publishing market. Private legal publishers were forced to innovate and to develop value-added products and services, such as personalized interfaces and alerts, commenting on legal documents and mash-ups of different legal databases. Commercial re-users admit that they had underestimated the potential of electronic legal information in the early 2000s and were not prepared to counter their new 'competitor' Légifrance. They had missed the switch from paper to electronic media and were severely hit by the free provision of legal information on the Légifrance web portal that was also suitable for professional users due to its completeness and technical sophistication (such as XML file formats and content indexation). As they had underestimated the market impact of Légifrance, they had not undertaken any massive lobbying to stop or limit the government's project. Once Légifrance was implemented in 2002, the commercial re-users had no choice

other than to review their own business models and to develop services with more added-value for their customers.

DILA explains that established re-users are still lobbying much more strongly against the free availability of legal PSI on Légifrance than against the planned increase of licensing prices in the framework of the planned new pricing and licensing model (see below).

As evidenced by the following usage figures for 2009 (change vis-à-vis 2008), the Légifrance web portal has been very successful:

- 3,450,000,000 hits (+ 16%)
- 1,500,000,000 pages viewed (+ 18%)
- 56,000,000 visits (+ 6%)
- 32,000,000 visitors (+ 13%)
- 66,000 subscriptions to the table of contents of the electronic OJ (+ 5%)

5.19.5 Budget, costs, revenues

The following table provides an overview of the budgetary resources and costs of the *Direction des Journaux Officiels*, the directorate of official journals that was merged into DILA in 2010.

	Revenues	*Expenditure*	*EBITDA*	*Net result*
2008	200.8 M EUR	137.4 M EUR	63.4 M EUR	41 M EUR
2009	193 M EUR	135 M EUR	58 M EUR	38 M EUR

Table 37: Budgetary resources and costs of the Direction des Journaux Officiels

DILA is financially independent and does not receive any government funding. DILA's expenses for the execution of its public task are mainly financed via the sale of legal, civil and commercial announcements. Some revenues also come from sales of paper publications and PSI licenses. In 2008, 88% of DILA's revenues came from announcement sales, while only 2.5% of the revenues came from publication sales. The net result generated by DILA is transferred to the general state budget.

DILA's current licensing model ensures yearly revenues of approximately 900,000 EUR. The following table shows the licensing revenues from the different databases.

Database	Licensing revenues in 2010
Légifrance	170,000 EUR [2009 and 2008: 160,000 EUR]
BALO / BOAMP / Info financière / JOAFE / BODACC	779,000 EUR
Débats Assemblée nationale	6,480 EUR
Débats Sénat	6,480 EUR

Table 38: DILA's PSI licensing revenues in 2010

Based on these figures the cost recovery ratio of licensing revenues to total expenditure corresponds to 0.9 M EUR / 135 M EUR ≈ 0.7%.

As DILA is financially independent, it can fully retain its PSI sales revenues. Currently PSI sales revenues are used to cover re-use facilitation costs (*coûts de mise à disposition*), i.e., all additional costs incurred by DILA to enable and facilitate re-use of PSI. These costs notably include costs for data transfer to re-users (such as servers), anonymization, data re-formatting for re-users and re-user helpdesks. Furthermore, there are currently two sales staff at DILA who are in charge of the PSI sales development and re-user key account management.

DILA cannot clearly determine the costs for PSI re-use facilitation because DILA's activities to facilitate PSI re-use are not clearly separated from its other activities. The re-use facilitation activities are fully integrated in the work processes under the public task. For example, a DILA employee who makes data available on Légifrance may also make this data available for licensees on an FTP server. Until now, no analytical accounting methodology has been implemented to determine the exact re-use facilitation costs.

5.19.6 Re-use policy and pricing

Viewing and extracting data in reasonable quantities (no economic activity) are possible free of charge and without registration on DILA's web portals that have been dedicated to the dissemination of its PSI.

For the Légifrance portal, detailed thresholds and conditions have been defined to determine what can be considered as normal use by citizens, which is covered by the public service mission of Légifrance, and what needs to be considered as professional extraction or re-use, which requires a license subscription. For instance, the extraction of complete data sets with web crawlers requires a license. The same goes for a yearly extraction of more than 2,500 texts from the official journal or 3,000 cases from the different case law data bases.

DILA monitors user activity with respect to these thresholds and contacts any user who is approaching one or more thresholds (identified via IP address). The user is then invited to sign a license. DILA regularly faces massive web crawler attacks from different countries (extraction of up to 5,000 documents per hour). It has put in place mechanisms to fight these attacks.

The by-law *arrêté du 26 octobre 2010 fixant le montant des rémunérations dues en contrepartie des prestations fournies par la direction de l'information légale et administrative* fixes DILA's PSI licensing fees for 2011. These prices correspond to the re-use facilitation costs (*coûts de mise à disposition*). They have been set as flat fees that were judged as being non-penalizing for the licensees.

The licenses available for the Légifrance database are shown below. In addition to these fees, licensees have to pay a flat fee of 400 EUR for every single order that they place.

Database	***Partition***	***Stock***	***Fluxes (p.a.)***
		Technical cost	*Technical cost and support*
JADE	Global	1,226.80 EUR	895.00 EUR
	Published	439.62 EUR	826.60 EUR
CASS	Global	890.58 EUR	833.44 EUR
INCA	Global	1,515.33 EUR	933.00 EUR
CAPP (*cours d'appel*)	Global	210.00 EUR	1,000.00 EUR
CONSTIT	Global	99.03 EUR	820.90 EUR
LEGI	Global	4,707.99 EUR	1,427.00 EUR
	In force	3,569.35 EUR	1,427.00 EUR
	Codes	1,108.78 EUR	887.40 EUR
	Codes in force	626.54 EUR	887.40 EUR
	One code (average)	89.60 EUR	125.00 EUR
KALI		791.51 EUR	895.00 EUR
JORF		2,063.12 EUR	993.80 EUR
CNIL		92.32 EUR	819.61 EUR

Table 39: Légifrance licensing fees for 2011

In addition to the Légifrance licenses, DILA proposes the following licenses:

Database	***Fluxes (p.a.)***
BOAMP	10,952.00 EUR
BALO	5,250.00 EUR
Info financière & BALO	12,600.00 EUR
Journal officiel Associations et fondations d'entreprise	6,480.00 EUR
BODACC	20,535.00 EUR
Débats Assemblée nationale	6,480.00 EUR
Débats Sénat	6,480.00 EUR

Table 40: DILA licensing fees for 2011

DILA has recently developed a new PSI pricing and licensing model with a 'more economic approach'. According to the plans of DILA, the new model will be codified (*arrêté* by Prime Minister) and implemented by the end of 2011. It will be applied to all types of PSI.

The new DILA pricing and licensing model has been developed in cooperation with a private law firm. The licenses are in line with the recommendations of the Agency for Intangible State Assets (*Agence du patrimoine immatériel de l'État* – APIE), but APIE has not participated in their drafting. The new model aims at a partial recovery of all costs (including the costs for data collection, data processing, anonymization, formatting, production of meta-data and re-use facilitation) as well as a reasonable return on investment.

The price of a single license for a flux database will be fixed at 10% of the total costs generated by this database. This cost-based price will be augmented by a 'reasonable' 10% return on investment on the capital employed. The 10% figure has been determined together with a large private consulting company analyzing the French telecom sector (across the entire value chain).

The new pricing model will also propose a 'pay per use' license with a planned price of 1 EUR per document. This offer intends to attract smaller companies who do not need a license for an entire database or who cannot afford a full license. The offer will reduce the risks for new entrants substantially. It will allow new entrants to approach the full license level progressively without taking inappropriate risks. Thus, the new pricing mechanism overcomes the barriers to entry of the current system, where one can only buy full licenses for complete databases. This offer is expected to attract 1,000 new licensees.

In the new model, viewing and data extraction in reasonable quantities (no economic activity) will still be free of charge as the dissemination of legal and administrative PSI corresponds to DILA's public service mission.

At a later stage, DILA also plans to segment its PSI into relatively small data sets, for example, into the laws and decrees of a specific policy area. It should then be possible for re-users to purchase only the particular data segments that they are interested in. This approach would notably support small start-ups which specialize in a particular field.

Recognizing that existing PSI re-users may resist the higher licensing fees, DILA plans to implement gradual price increases over the next five years. The PSI license prices will be reviewed annually, based on the cost model.

The new pricing model is expected to increase PSI licensing revenues gradually from the current 900.000 EUR p.a. to approximately 5.5 M EUR in 2015:

- 2012: 2.2 M EUR
- 2013: 3.5 M EUR
- 2014: 4.5 M EUR
- 2015: 5.5 M EUR

The ratio 'licensing revenues / total expenditure' could move up to 5.5 M EUR / 135 M EUR ≈ 4.1%. The expected additional PSI sales revenues will be reinvested in improving the quality of DILA's services and in staff training, both of which will ultimately also benefit PSI re-users.

The annual costs of policing activities for the new DILA pricing and licensing model are estimated at 200,000 EUR. Where clear breaches of the licensing agreements are detected, DILA will file a complaint with CADA, the French PSI conflict resolution body that has the right to fine re-users. The new licensing agreements will also reserve DILA the right to audit its licensees if they suspect that the licensee has breached the terms of the agreement.

5.19.7 Impacts of the re-use policy

In 2010, DILA sold 451 licenses yielding total PSI sales revenues of 961,960 EUR. The following table provides an overview of the number of licensees and licenses as well as the total licensing revenues.

Database	Licensees (2010)	Licenses (2010)	Licensing revenues (2010)
Légifrance	53	356	170.000 EUR
BALO / BOAMP / Info financière / JOAFE / BODACC	47	57	779,000 EUR
Débats Assemblée nationale	1	1	6,480 EUR
Débats Sénat	1	1	6,480 EUR

Table 41: Licensees, licenses and licensing revenues in 2010

DILA does not possess any market data for the French legal and administrative PSI re-use market. DILA estimates that there are approximately 100 active re-users in the French market. While half of them use the PSI internally for their activity (typically large law firms), the other half re-diffuses the PSI with added-value such as mash-up with other data sets, aggregation of the data, and personalized services like alerts or customized interfaces. Overall, the French legal and administrative market is considered to be highly opaque.

Important commercial re-users include Dalloz, Les Éditions Francis Lefebvre, Les Éditions Législatives, LexisNexis, Lextenso, Transactive, Les Editions Weka, Wolters Kluwer France, Centre-inffo, Concurrences, Easy droit, Les Éditions Tissot, Legal News, Le Particulier, Lexbase, Net-iris, and Groupe Revue Fiduciaire.

The 2010 SerdaLAB market study *Le marché français de l'information juridique numérique en 2010* estimates the total turnover of the French market for electronic legal information in 2008 at 257.4 M EUR. After strong growth in previous years (+7.6% in 2005; +16% in 2006; +17% in 2007), 2008 saw only a very slight annual increase (+0.9%) because of the economic crisis. The market for electronic legal information represents the third largest segment (16%) of the French market for professional electronic information – just behind the financial information (20%) and press information (16.5%). Since the 1990s, SerdaLAB observes an increasing concentration of the French market for legal information. As a result of several waves of mergers and acquisitions, today 85% of the market are controlled by three companies: Wolters Kluwer, Groupe Lefebvre Sarrut and LexisNexis. Together, these three market leaders employ approximately 2,545 persons in France and have a total worldwide turnover of 575.5 M EUR. Other players in the French market are mostly highly specialized in market niches.

Commercial re-users have announced that they will resist and lobby against DILA's new pricing and licensing model. Even if they admit that they are very satisfied with the quality of the PSI provided by DILA and that DILA's licensing fees are relatively low compared to other European countries, they do not want to accept price increases without some form of reciprocity from DILA, such as additional services or quality improvements.

5.19.8 Key sources

- Desk research
- Face-to-face interviews with the several officials from DILA
    - Didier FRANCOIS, Directeur adjoint
    - Loïc LECHEVALIER, Sous-directeur (diffusion et administration électronique)
    - Sylvie FAYE, Département de l'accès au droit
    - Frédéric LALUNG, Chargé des relations avec les rediffuseurs
- Face-to-face interview with Denis BERTHAULT, Directeur du développement des contenus en ligne, LexisNexis, Vice President, GFII

5.20 SIRCOM / APIE (FR – fuel prices PSI)

Case study author: Lionel Kapff (Deloitte Consulting)

5.20.1 Key message

On the one hand, this case, with its focus on French fuel prices PSI, shows the positive economic effects that the access to PSI can produce. Since the introduction of a licensing model in 2009, a market has evolved which has several commercial re-users developing smartphone and GPS applications based on the PSI and proposing further customized B2B services. At least 24 jobs have been created in French SMEs. On the other hand, the case also illustrates the ongoing debate around different PSI pricing models and their actual or potential economic impact.

5.20.2 Key economic indicators

Indicator	Year 2010
PSB	SIRCOM
FTEs involved	21 (data collection and re-use facilitation have been outsourced)
Turnover	179,000 EUR p.a.
Costs	1.125 M EUR p.a.
Profit	-946,000 EUR p.a.
Cost recovery rate	16%
Price per license	38,500 EUR (commercial license); 5,000 EUR (internal license)
Re-users	
Number of re-users	9 (first-tier) + at least 10 (second-tier)
FTEs employed	Estimated at 24+
Turnover sector	1-2 M smartphone apps, 300,000 apps for GPS devices

5.20.3 Introduction

Since January 2007, the Communication Service (*SIRCOM*) of the French Ministry for the Economy, Finance and Industry (*Ministère de l'Économie, des Finances et de l'Industrie*) has been collecting data on fuel prices in France. All fuel prices are freely available to citizens on the governmental portal http://www.prix-carburants.gouv.fr. The public database aims at enabling citizens to make informed choices when buying fuel.

In early 2009, a pricing and licensing system was introduced by SIRCOM in cooperation with the Agency for Intangible State Assets (*Agence du patrimoine immatériel de l'État* – APIE).

The model proposes a license for commercial re-use at 38,500 EUR a year and another license for non-commercial or internal PSI re-use at 5,000 EUR a year.

5.20.4 Organization, governmental structure, tasks, PSI portal

SIRCOM has been collecting data on fuel prices in France since January 2007 when fuel prices rose dramatically. The scheme was launched as a political initiative by the former Minister of Finance, Thierry Breton.

SIRCOM's public task is to provide more transparency in the fuel market. All citizens should be enabled to take informed fuel purchasing decisions. To facilitate such informed choices, the governmental web portal http://www.prix-carburants.gouv.fr provides the fuel prices at all French fuel stations (that sell more than a certain amount of fuel a year) free of charge to the public.

This new public task was codified by the *arrêté du 12 décembre 2006 relatif à l'information du consommateur sur les prix de vente des carburants* that introduced the obligation for fuel stations to report their prices to the government. Only fuel stations that sell less than 500 m³ of fuel a year are exempt. They can, however, report on a voluntary basis. The obligation to report prices covers approximately 10,500 out 13,000 French fuel stations (which is 80% of the total). French fuel stations have to communicate each price change immediately to the government via the http://www.prix-carburants.gouv.fr web portal or through an automatic voice server.

At the beginning, the new regulation was heavily opposed by the fuel station owner lobby. The owners argued that the new obligation was leading to additional costs and an unnecessary administrative burden. However, the French government demonstrated its willingness to make the initiative a success by investing in an up-to-date data portal infrastructure and regular monitoring the activities of the fuel stations.

Indeed, the fuel prices communicated by the different fuel stations are regularly verified by civil servants of the Directorate General for Competition Policy, Consumer Affairs and Fraud Control*s (DGCCRF – Direction générale de la concurrence, de la consommation et de la répression des fraude)* in the Ministry for Economy. The investigations are organized based either on random selection or on complaints by citizens or competitors. DGCCRF and SIRCOM receive approximately 20-25 complaints a month about incorrect prices on the portal. Currently, 9% of the fuel stations have not updated their prices. The fine for fuel stations that communicate fuel prices that are not correct is 1,500 EUR.

SIRCOM underlines that such investigations are vital to maintain the quality of the database and to put pressure on the fuel stations to communicate correct prices. Without regular check-ups, the database would not be reliable. Particularly at the launch of the portal, when there was some resistance by fuel stations to comply with the new obligation, spot checks were necessary to show the government's determination to enforce the new regulation.

In 2008, following numerous attacks by web crawlers (which were trying to extract all the PSI available and led to temporary breakdowns of the website) and requests from different actors interested in re-using the database, SIRCOM began to discuss the question of re-use of its fuel prices PSI. Together with APIE, SIRCOM decided to introduce a licensing system for PSI re-use. During the development of the licenses, SIRCOM and APIE aimed at taking into account all the costs incurred for the public service mission as well as for the facilitation of re-use. The purpose was to ensure that the total revenue generated by the licenses is not higher than that authorized by law (production, collection and diffusion costs plus a reasonable return on investment). The requirements of potential re-users were also taken into consideration.

The final licensing model (see below) was codified in early 2009 by the *arrêté du 22 janvier 2009 fixant le montant des rémunérations dues en contrepartie de la cession des licences de réutilisation de données de la base de données informatique du ministère de l'économie, de l'industrie et de l'emploi relative aux prix des carburants*.

The data on French fuel prices can be viewed by everyone free of charge and without registration via a dedicated portal: http://www.prix-carburants.gouv.fr. The information on the website is updated every ten minutes.

The figure below shows a list of fuel stations sorted by price on the portal.

Commune	Nom du point de vente	Marque	E10	Mise à jour E10	SP95	Mise à jour SP95	Ajout favoris	Plan
Haguenau	Cora	CORA	--	--	1,459	24/03/11		
Erstein	ESSO DE L'ILL	Esso	--	--	1,459	24/03/11		
Mundolsheim	HYPERMARCHE CORA	CORA	--	--	1,459	22/03/11		
Reichshoffen	GGE MECA BG	Total	1,570	22/03/11	1,460	11/03/10		
Strasbourg	ESSO LA MEINAU	Esso	--	--	1,469	24/03/11		
Souffelweyersheim	LEADER PRICE SOUFFELWEYERSHEIM	Leader Price	--	--	1,469	18/03/11		
Erstein	SODECCO	Leclerc	1,419	19/03/11	1,469	17/03/11		
Haguenau	E.LECLERC EXPRESS	Leclerc	--	--	1,470	22/03/11		
Saverne	SUPERMARCHES MATCH SAVERNE	Supermarché Match	--	--	1,470	21/03/11		
Wissembourg	SUPERMARCHES MATCH	Supermarché	--	--	1,470	23/03/11		

Figure 38: Fuel prices on the prix-carburants.gouv.fr portal

The portal provides various searching and sorting functions to find the fuel stations that best satisfy user-selected criteria such as location, price and type of fuel. Since 2008, fuel stations are also geo-localized based on a service provided by NAVTEQ, a major geo-information company. Users can search for fuel stations on a map (see figure below). Users also have the possibility to define an itinerary within France and the web service then proposes a driving itinerary with different fuel stations and their corresponding prices.

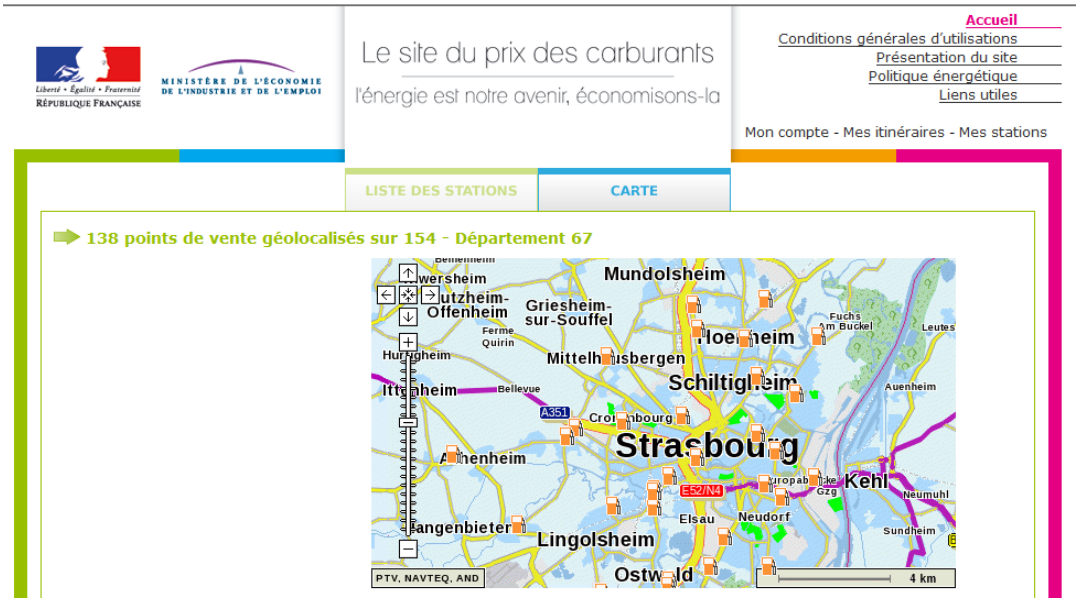

Figure 39: Geo-localized fuel stations on the prix-carburants.gouv.fr portal

The database also contains information on the opening hours and services offered by the fuel stations (e.g. car wash, toilets, automatic teller machine, shop and pumps). This information is provided by fuel stations on a voluntary basis and is not verified by DGCCRF.

The provision of this information was granted to fuel stations as a kind of return for the new obligation to provide their fuel prices. It helps fuel stations to advertise their services, and it benefits users of the portal and, ultimately, drivers and their passengers.

SIRCOM initially also planned to develop its own fuel price smartphone/GPS application, but finally it decided to leave this initiative to the private sector.

The portal is consulted by 15,000-20,000 persons a day. At peak times, the number of daily visits may surpass the 50,000 mark. This was, for example, recently the case when former Minister Christine Lagarde spoke on television about the existence of the website.

In the past, the portal faced numerous web crawler attacks. In these cases, SIRCOM and its service provider ACTIMAGE tried to identify the origin of the attacks. They also have the possibility to file a complaint at the Commission for Access to Administrative Documents (CADA – *Commission d'Accès aux Documents Administratifs*), the French PSI conflict resolution body that has the authorization to fine re-users who do not comply with licensing agreements or re-use conditions.

5.20.5 Budget, costs, revenues

The costs of the public service mission consist of the development and operation of the fuel prices portal on the one hand, and of the verification of the data communicated by French fuel stations on the other hand. The following table depicts the costs incurred:

Table 42: Costs of the public service mission

Costs of the public service mission	
Development and operation of the portal	***Verification of the fuel prices data***

• **Initial investment (in 2008): 150,000 EUR**
  ○ External development: 100,000 EUR
  ○ Internal development: 50,000 EUR
• **Operation of the website: 125,000 EUR p.a.**
  ○ Operation of the website / database (external provider: ACTIMAGE): 50,000 EUR p.a.
  ○ Geo-localization services (external provider: NAVTEQ): 70,000 EUR p.a.
  ○ Other: 5,000 EUR p.a.
	• **Verification of data communicated by fuel stations: 1,000,000 EUR p.a.**
	  ○ 20 FTEs * 50,000 EUR / FTE = 1 M EUR p.a. (on average)

The cost of the verification of the data communicated by fuel stations is estimated at 1 M EUR p.a. on average. Fuel stations are monitored by DGCCRF agents who are also in charge of following other competition policy, consumption and anti-fraud issues, for example prices in supermarkets. There is no dedicated team at DGCCRF that monitors only pricing at fuel stations. The intensity of fuel station controls depends partly on the market price development and the number of complaints. In times of high prices more check-ups will generally be made than in times of lower prices. It is estimated that the verification activities involve between 15 and 20 FTEs on average.

All the costs enumerated above were taken into account when determining the upper limit of the fee that could be charged according to law. However, the licensing revenues cover these costs only partially (see below).

SIRCOM has some re-use facilitation costs, i.e. additional costs incurred to enable and facilitate the re-use of its fuel prices PSI. These notably include the anonymization of the data (deletion of the name of the fuel station owner), a technical help desk for re-users, licensing activities and a dedicated FTP server with fast connection for re-users. Indeed, the fuel prices PSI is stored on two different servers: one for the public website and one for the licensees. This practice guarantees that the PSI is always available to licensees, even on those occasions when the public website may break down due to exceptionally high demand. It also guarantees the quality of the public service as the download of the data by large re-users could cause a crash of the public site. Apart from licensing that is managed by APIE, all re-use facilitation activities are ensured by the private service provider ACTIMAGE: it is in charge of the portal and the interaction with the fuel stations. There is no separate accounting for the re-use facilitation costs.

5.20.6 Re-use policy and pricing

Early in 2009, the Ministry of Finance introduced a pricing and licensing model which had been developed with the support of APIE. The model that has been codified by the before-mentioned *arrêté* of January 22, 2009 is built around the following principles:

- Viewing of the PSI on the website: free of charge
- All commercial, non-commercial and internal re-use of the PSI necessitates a license agreement. Professional re-use of data extracted from the public website, for example with a web crawler, is illegal.

The model proposes two different licenses:

- License for internal and non-commercial re-use: 5,000 EUR p.a.
- License for commercial re-use (with right of re-diffusion): 38,500 EUR p.a.

APIE has undertaken a market survey in order to determine the optimal charging rates for the fuel prices PSI. Consistent with the theoretical framework proposed by the BETA study (2011), the APIE market study determined the market price for the fuel prices PSI. This was done on the basis of the relatively well-known market value of geo-localized 'points of interest'. The market value of the 10,500 points of interest (that is, fuel stations covered by the governmental database) was estimated at 80,000 EUR.

In order to allow for ease of market entry, the Ministry of Finance and APIE decided to divide this price by more than two so as to yield a price for a commercial license of 38,500 EUR p.a.

In addition to the commercial license that gives the licensee the right to re-diffuse the data, the model also proposes a license for non-commercial or internal re-use at a price of 5,000 EUR p.a. The idea behind the differentiation between commercial and non-commercial / internal re-use is to take into account different economic advantages provided by the different kind of usages of the PSI: this is also in line with the theoretical framework put forward by BETA (2011).

There are currently nine licensees:

- Five licenses for internal re-use at 5,000 EUR have been sold to different petroleum companies and large retailers with their own fuel station networks.
- Four licenses for commercial re-use (including the right of re-distribution) at 38,500 EUR have been sold to one large petroleum company (*confidential*), one large retailer (*confidential*) and two ICT companies (NAVX and *confidential*).

The licensing fees allow to the partial recovery (at 16%) of the costs of the public service mission, re-use facilitation and the geo-localization service on the website. Indeed, the yearly costs of 1,125,000 EUR (125,000 EUR p.a. for the database and portal plus estimated 1 M EUR p.a. for monitoring activities) are covered by licensing revenues of currently 179,000 EUR p.a. (five licenses at 5,000 EUR p.a. and four licenses at 38,500 EUR p.a.).

There is no dedicated team at SIRCOM and APIE to police the licensing agreements, but APIE is monitoring the market.

5.20.7 Impacts of the re-use policy

There are four main groups of fuel prices PSI re-users:

- Large petroleum companies
- Large retailers that run their own fuel stations network
- Logistic companies
- ICT companies developing value-added applications and services.

Petroleum companies and large retailers use the fuel prices PSI to closely monitor the pricing policy of their competitors and to adapt their own pricing strategy accordingly (i.e. internal use of the PSI). Logistics companies that buy the data from first-tier commercial re-users, use the data to optimise their fuel purchases.

The retailer (*confidential*) and the petroleum company (*confidential*) that have acquired a commercial license intend to produce and publish on their own websites statistics on their own fuel prices as compared to those of their competitors. While the retailer, which is known for its frequent use of comparative advertising, has made some use of the acquired right to re-diffuse fuel prices, the petroleum company has not redistributed any PSI yet.

Two French ICT companies have acquired a commercial re-use license: one company (*confidential*) specialises in the apps market and the other is NAVX, a 23 FTE venture capital ICT company active in the field of location-based services.

NAVX acquired a commercial license right from the very start and exploits the license for itself as well as through different sub-licensing contracts. NAVX sources, aggregates and distributes geo-localized content that can be used in a GPS and, more generally, in any location-aware device. The company provides solutions to a growing base of end-users who own a GPS or mobile phone, and to companies that sell devices (such as GPS manufacturers, mobile operators) including TomTom, Garmin, Mio and Orange. Its content portfolio includes fuel prices, speed camera locations, real-time parking information, WIFI hotspots, restaurants and bars.

NAVX enriches the public data by filtering out double entries and fuel stations that have gone bankrupt, adding data for the fuel stations that are exempt from reporting (prices are requested from the fuel stations by phone) and improving the precision of the geo-localization. NAVX uses a sophisticated algorithm to detect fuel stations that have potentially not updated their prices and calls these stations to make sure that the prices in the NAVX database are correct and up-to-date. The enriched data is then used for different GPS and smartphone applications and provided to the two sub-licensees (*confidential* and *confidential*). NAVX focuses on both the B2C business of selling its applications directly to end-users and on the B2B2C business by providing its enriched location-based content to GPS manufacturers, geo-information companies and mobile operators.

NAVX is now present in eight European countries. In countries where the governments do not collect and publish fuel prices data, the company determines the fuel prices by different methods such as: by building on a collaborative user community, calling fuel stations, buying

information from companies that use employee fuel cards and buying information from credit card companies.

One of NAVX's sub-licensees is (*confidential*). Since 2005, i.e. before the introduction of the public service mission to collect and publish fuel prices, the company already collected such data through two FTEs. The fuel prices were mainly provided by a user community active on the company's collaborative website which still exists. The data were, however, often unreliable and not up-to-date.

(*Confidential*) then acquired a sub-license from NAVX and has completely reviewed its business model. It now proposes customized B2B services and various apps. The B2B services include the optimization of fuel purchases for logistics companies and business intelligence activities for large fuel retailers. One very successful application of this company provides – in addition to the fuel prices – information on the availability of fuel in the stations in the event of shortages due to refinery blockages by French trade unions. The information is collected and shared by the users of the app. This French SME has recently bought a Belgian-Luxembourgish firm active in the same business and, as a result, now has 12 FTEs.

(*Confidential*), the other sub-licensee of NAVX, is a French 11-FTE company that develops software for mobile platforms, notably the iPad and iPhone.

Figure 40: Example of a smartphone application based on the French fuel prices PSI

To sum up, the French fuel prices re-use market for value-added services currently includes four commercial players – they are French SMEs with approximately 50 FTEs in total.[146] APIE estimates that at least 24 FTE positions have been created based on the fuel prices PSI since the introduction of the new pricing and licensing model. The market volume is estimated at 1-2 million smartphone applications and 300,000 GPS applications by NAVX. In addition to that, third-tier re-users are active in the market: they provide the PSI mainly free of charge with business models based on advertising revenues.

Interestingly, collaborative websites where users provide fuel prices themselves have not actually disappeared from sight following the launch of the http://www.prix-carburants.gouv.fr portal. For example, the collaborative website http://www.zagaz.com covers the whole of the French territory and is still regularly updated by its members.

5.20.8 Final observations

APIE and SIRCOM's pricing and licensing model for the French fuel prices PSI has proven to be controversial among PSI stakeholders. Supporters of the model point to its success in terms of economic impact, while its opponents claim that the model creates barriers to growth and innovation. This sub-section offers an overview of the main arguments on both sides.

Indicating the re-use business that has evolved from the French fuel prices PSI since the introduction of its pricing and licensing model, APIE states that it has helped two French SMEs to become 'European champions' and to create at least 24 jobs. According to APIE, the pricing policy has enabled French re-use businesses to develop a strong home market which could then be used as a basis for Europe-wide expansion. Today, the European market is dominated by two French SMEs (NAVX and *confidential*). APIE also underlines that, in Italy and Spain, similar PSI data sets are available free of charge and no sustainable re-use business has developed in those two countries.

APIE explains that the commercial licenses had a stabilizing effect on the market. The licenses have clarified the legal rights of the re-users and the obligations of the government. Notably, they provide a security of data supply for at least three years (this is the length of the licensing agreement) and force the government to maintain a high level of data quality (by verifying the prices regularly). The licenses clarify who is not allowed to re-use the data and who is allowed to do so and for what purpose. Therefore, the licenses were recognized by banks as a real asset and a basis for a business model: on their basis, the banks were

[146] Note, however, that not all the employees are working in the fuel prices business unit of these companies.

persuaded to finance the expansion of the two SMEs. APIE asserts that, before the introduction of the pricing and licensing model when re-use was free (because it was not regulated), nobody wanted to invest in the re-use of French fuel price PSI. NAVX, the leading commercial re-user, confirms this claim.

Different members of the 'Open Data' community have voiced some criticisms of the SIRCOM and APIE pricing and licensing model for the French fuel prices PSI. It has been argued that the model is 'discriminatory' and a 'barrier to entry, growth and innovation'. The opponents of the model have doubts about the causal connection between the introduction of positive pricing and the development of the re-use businesses. 'Open Data' activists point to the coincidence of the evolution of a new market for smartphone and GPS apps with the development of the fuel prices PSI pricing and licensing model. In their opinion, the re-use sector and economic growth might have been even larger if fuel price PSI had been provided free of charge.

APIE argues that with the current licensing model, a successful 'cascade licensing' ecosystem has evolved. Indeed, NAVX proposes sub-licenses to second-tier re-users that are individually negotiated and adapted to their specific needs. Cascade licensing consists of second-tier re-users who may also propose sub-licenses to third-tier re-users, and so on. This solution also diminishes the administrative burden for the public administration as many licensing activities now take place on the re-use market.

According to APIE, the commercial re-users are satisfied with the licenses at 38,500 EUR p.a. This seems relatively cheap to them (less than 50% of the standard price of an equivalent number of geo-localized 'points of interest'). The raw data provided by the government is of high quality and this is also an important argument when re-selling their value-added services. Indeed, NAVX confirms that the price of 38,500 EUR p.a. is 'well positioned'. The company further argues against zero pricing because this would destroy the incentives within the PSB to deliver reliable, continuous, high-quality data to re-users as well as to police the adherence to the general re-use conditions. The license agreement has given the company the necessary legal certainty and assurance of continuous high-quality raw data delivery that enabled it to build a sustainable business model. This was not possible when the PSI re-use was unregulated and the only way to obtain the data was through the use of web crawlers. Opponents of the model, however, argue that existing re-users are happy to pay 38,500 EUR p.a. as this creates a barrier to entry and protects them from new competitors.

In order to reduce barriers to new entry and innovation, APIE has introduced a scheme for innovative SMEs (*dispositif innovation*): companies willing to invest in a license can obtain a free sample which allows them to develop new products without having to pay a fee during the research and development period when no revenue is generated.

Finally, there have been some criticisms of the pricing model by individual programmers and local newspapers that wanted to re-use the fuel prices PSI, but did not want to acquire the licenses. For instance, some local newspapers wanted to re-use only parts of the database (such as fuel prices in their own region). According to APIE, these actors can address their demands to first-tier licensees to negotiate pricing conditions which are more suitable. A public administration such as SIRCOM cannot tailor pricing models on demand.

5.20.9 Key sources

- Desk research
- Face-to-face interviews with the several officials from SIRCOM and APIE
    - Philippe DEBET, Directeur Adjoint, SIRCOM, Ministère de l'Économie, des Finances et de l'Industrie
    - Eric GASTELLU, Chef du bureau des développements numériques, SIRCOM, Ministère de l'Économie, des Finances et de l'Industrie
    - Kristof DE MEULDER, Project Manager, APIE
- Interview with Jean Cherbonnier, CEO and founder of NAVX
- Interviews with various PSI stakeholders in France and other European countries

5.21 Statistisches Bundesamt (DE – statistical PSI)

Case study author: Lionel Kapff (Deloitte Consulting)

5.21.1 Key message

This case study demonstrates how the German Federal Statistical Office gradually moved to a pricing model where all data sets are available free of charge and without registration. This new pricing approach, which has led to a substantial increase in PSI downloads, has enabled the Statistical Office to better achieve its public task to disseminate its information widely throughout society. Also, the data are now easily accessible to commercial re-users.

The drivers for change were mainly of a contextual nature, including the U-turn in Eurostat's pricing approach and the changing legal framework. Yet, internal factors played an important role in the transition to the zero cost model. They included the high administrative costs for invoicing and licensing as well as the recognition that most citizens were not willing to pay for statistical PSI – thus endangering the public task of wide dissemination.

5.21.2 Key economic indicators

Indicator	Year 2004	Year 2010
Employees	2,824	2,689
Budget	149.1 M EUR	177.7 M EUR
Pricing model		
Online publications	Pay per use	Free of charge
GENESIS-Online	0 EUR for *selected* products	0 EUR for *all* products
	50 EUR standard account	50 EUR standard account
	500 EUR premium account	500 EUR premium account
	Discounts for educational area	Discounts for educational area
Turnover from PSI sales		
Online publications	110,000 EUR (2003)	0 EUR
GENESIS-Online	78,000 EUR (estimated) (Discounts for universities etc. are subtracted from this estimation.)	152,000 EUR
Cost recovery rate	< 0.1%	< 0.1%

Re-use		
Downloaded tables	130,300	1,093,000
Standard accounts	1,800	3,000
Premium accounts	36	69

5.21.3 Introduction

The German Federal Statistical Office (*Statistisches Bundesamt*) is an independent public administration within the sphere of the Federal Ministry of the Interior (*Bundesministerium des Innern*).

In the last two decades, the Statistical Office's PSI distribution and pricing model has been modified several times, mainly due to contextual changes. Gradually, the public sector body shifted to a model where all PSI can be downloaded free of charge and without registration.

The free provision of PSI, but also the continuous improvements (with regard to technical features and scope) of the PSI database GENESIS-Online have led to a substantial increase in re-use – thereby better achieving the Statistical Office's public task to widely disseminate its information.

5.21.4 Organization, governmental structure, tasks, PSI portal

The Federal Statistical Office's public task is to provide and disseminate statistical information which is objective, independent and of high quality. This information is made available to everybody: politicians, government, public administration, business executives and citizens. The Federal Law on Statistics (*Bundesstatistikgesetz – BstatG*) specifies the duties and responsibilities of the Federal Statistical Office.

The Statistical Office carries out its tasks independently within the sphere of the Federal Ministry of the Interior. In line with the federal structure of the Germany, federation-wide surveys of official statistics (*Bundestatistik*) are carried out by the Federal Statistical Office in cooperation with the statistical offices of the 16 federal states (*Länder*). That means that in most cases federal statistical surveys are organized in a decentralized manner. This often implies a division of labour where the statistical offices at the level of the *Länder* collect and process the data in their territory and where the main function of the Federal Statistical Office is the coordination and compilation of *Länder*-level data sets.

In 2010, the German Federal Statistical Office employed some 2,689 persons for the collection, processing, presentation and analysis of statistical information in its central office

in Wiesbaden as well as in its branches in Bonn and Berlin. There have been substantial efforts to reduce the workforce by more than 10% within the last decade.

The www.destatis.de internet portal of the Federal Statistical Office has become a reference for statistical information in Germany with approximately six million views per month (in 2010).

Since July 2002, the Statistical Office's website has offered a database service for statistical raw data, the GENESIS-Online database (https://www-genesis.destatis.de). Users can search for statistical data and design statistical tables according to their needs.

The functionalities and scope of GENESIS-Online were continually improved. In 2004, the PSI database already contained approximately 100 statistics. In 2006, the metadata offering was improved and reports on quality and methodology of statistics were added. Users who had purchased a standard or premium account could now automate their PSI downloads via software systems.

In October 2008, a new version of GENESIS-Online was launched. Several enhancements were made to improve the usability of the user interface. In addition to new navigation and search features, it was now possible to visualize results in charts and regionally structured tables as well as on a map of Germany. In total, GENESIS-Online now provided 90 M values from 175 statistics. Further improvements in 2009 included the linkage of thematic pages and of press releases to the GENESIS-Online database. In addition, the web service feature which makes certain GENESIS-Online functions accessible for automated processing, was introduced for registered customers. Registered users could now use a WSDL service to integrate the relevant interfaces into their own applications and to use, under program control, the services offered by the Statistical Office. At the end of 2010, 200 M values from 184 statistics were available on GENESIS-Online.

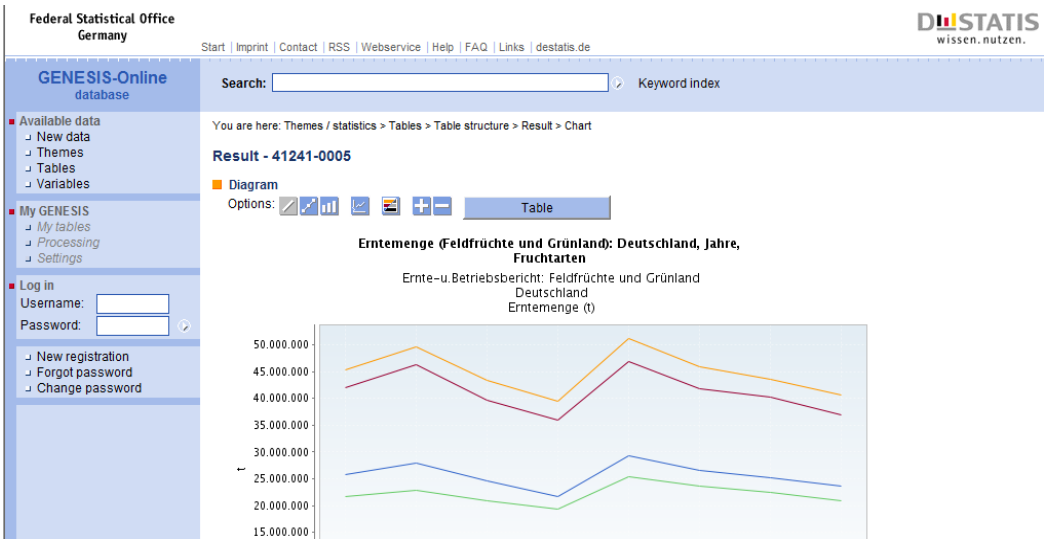

Figure 41: GENESIS-Online database

5.21.5 Budget, costs, revenues

The Federal Statistical Office is fully funded by the federal state budget. The total budget has been growing steadily in recent years (see figure below). Because of severe budget constraints, the federal government has stopped this trend, fixing the Statistical Office's target budget for 2011 at 158.2 M EUR. Labour costs amounted to 71% of the Statistical Office's total budget in 2010. The Statistical Office does not specifically measure its re-use facilitation costs. There is currently one FTE involved in the operation of a re-user helpdesk and in invoicing activities.

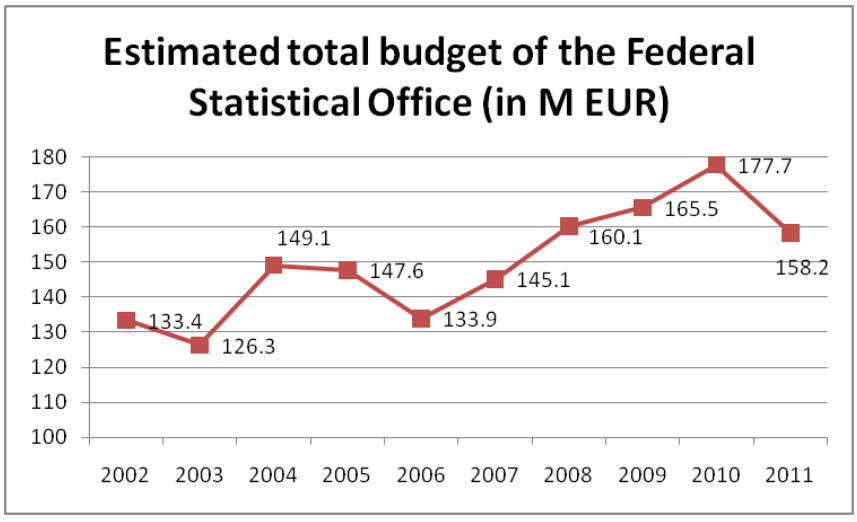

Figure 42: Estimated total budget of the Federal Statistical Office (2002-2011)

The Federal Statistical Office had estimated revenue of 1.2 M EUR in 2010, mainly from customized services for other public sector bodies, fines, sales of paper publications as well

as from fees for the PSI database GENESIS-Online. In 2010, the revenues from GENESIS-Online fees reached 152,000 EUR, less than 0.1% of the total budget.

5.21.6 Re-use policy and pricing

Before the emergence of the internet, the Federal Statistical Office distributed its data via print publications. In 1996, the public sector body then launched its www.destatis.de web portal. At the end of that decade, in the context of a strongly emerging e-commerce sector, the Federal Statistical Office decided to follow the example of Eurostat launching its own data shop. Re-users of the Federal Statistical Office's database could purchase PDF-versions of print publications as well as raw data in XLS-format on a pay-per-use basis. Print publications could also be ordered. However, only a selection of products was available in this first online shop. The demand was relatively modest: from 2000 to 2003, 35,000 purchases with a total value of 425,000 EUR were made – 205,000 EUR from sales of electronic products and the rest from print publications. In 2003, the online shop had a total turnover of 110,000 EUR. The customers were mainly companies; citizens were often not willing to pay for statistical information. All sales revenues from the online shop were kept at federal level and not redistributed to the statistical offices at *Länder* level. The revenues were used to cover costs for printing and distribution of print publications and the maintenance of the online-shop platform.

In April 2004, the Statistical Office concluded a contract with the private service provider SFG-Servicecenter Fachverlage for the data distribution via a new professionalized online data shop. The new shop now contained all the publications of the Statistical Office, including approximately 350 online publications provided free of charge, and provided new search functions. Recognizing the low willingness to pay for statistical information, more and more publications were put online free of charge. In 2005, 2,600 freely available documents accounted for 356,000 downloads. In the same year, 15,000 customers had registered and purchased a product in the online shop.

In January 2004, the Statistical Office introduced a first pricing model for GENESIS-Online. Users who wanted to access the entire database needed to pay a yearly fee of 50 EUR (customers from the educational area got a 50% discount). For 500 EUR a year, a premium account was available which gave access to additional functionalities such as the processing of statistical data in own databases. A guest login at no charge was still available, however not all datasets were freely accessible with a guest status. At the end of 2004, 1,801 standard accounts at 50 EUR p.a. and 36 premium accounts at 500 EUR p.a. had been sold

yielding a total turnover of approximately 78,000 EUR[147]. In the same year, 130,271 statistical tables were downloaded from GENESIS-Online (including free downloads by guest users).

In the mid-2000s, several contextual and internal drivers led to a change in the Federal Statistical Office's charging policy:

- In October 2004, Eurostat made a U-turn in its dissemination policy – abandoning the data shops and adopting free dissemination. With the reorientation in Eurostat's pricing policy, the marketing concepts of the national statistical institutes largely lost their importance. Indeed, data sold by national statistical offices were at the same time available free of charge at Eurostat. Consequently, the Federal Statistical Office had to change its pricing policy.
- The political and legislative framework in Germany became more and more favourable for the provision of easy access to PSI, potentially at no cost for re-users.
    - In 2006, the German federal government launched the eGovernment programme 2.0 which, inter alia, aimed at abolishing access barriers and creating additional incentives to increase the re-use of public data.
    - With the Re-use of Information Act (*Informationsweiterverwendungsgesetz – IWG*) of 13th December 2006, Germany transposed the EU Directive 2003/98/EC into national law.
    - A budgetary note submitted by the Federal Ministry of the Interior for the 2008 budget clearly permitted the distribution of publications and other information material at reduced fees or free of charge.
- Internally, the Statistical Office recognized that the sales revenues from the online shop could only cover the administrative costs for licensing, invoicing and accounting. The shop did not generate any significant profit that could have been reinvested in the quality of the Statistical Office's services.
- Recognizing the low willingness of citizens to pay for statistical information, it became clear that charging for statistical information somewhat prevented the Statistical Office from fulfilling its public task to ensure a wide dissemination of its data. Indeed, the Federal Statistics Law includes the public task to make federal statistics available to all parts of the society.
- By 2006, the internet had become the principal dissemination channel; print publications were rapidly losing in importance. Thus, the Statistical Office had to rethink its dissemination strategy.

[147] Due to discounts – for example for universities – the total sales revenues are a little lower.

In 2006, the Federal Statistical Office put in place a new communication strategy for 2012, which inter alia re-oriented the public sector body's PSI charging policy. The new pricing model which is in place today is presented in the following.

In 2006, all downloads from the online shop – subsequently renamed the publications service – of the Federal Statistical Office were made available free of charge.

The Statistical Office's dissemination and communication strategy now focused on the internet as the main data distribution channel. The portfolio of print publications was drastically reduced to approximately ten publications a year which have to generate sufficient demand to guarantee cost recovery. The free provision of online publications aimed at the widest possible dissemination of statistical information, notably reaching new target groups such as pupils or students who were unwilling to pay for the data and therefore did not access it in the old pricing regime. The barrier to re-use was further lowered by a liberalization of the copyright. Indeed, since 2006 the reproduction and free distribution of the Statistical Office's are permitted provided the source is mentioned.

In October 2008, the GENESIS-Online pricing model was adjusted, introducing the new principle that any statistical information (GENESIS tables) should be available free of charge. That means that all users now access the same data; paying registered users do not get more or other data. Users have to register only if they want to benefit from additional personalized services, such as permanent storage of table structures for retrieval, retrieval of large volumes of data, or the GENESIS web services. These additional services are available on a chargeable basis only. The two account offers – a standard account at 50 EUR and a premium account at 500 EUR – have been maintained. Educational institutions receive a 50% discount.

For registered clients with a standard account, GENESIS-Online provides the following additional services:

- Time series-oriented tabular presentation of data cubes
- Storing frequently required and individually adjusted table structures / time series specifications in the user's own directory ("My tables" / "My time series")
- Retrieval of comprehensive tables (in batch mode)
- Individual setting options for using the database
- Using the web service (automated data retrieval).

For registered clients with a premium account, GENESIS-Online additionally provides:

- Download of data cubes in a linearized export format.
- Ten user-IDs.

The premium access is primarily intended for business and institutions that process the data of the Statistical Office in their own systems for their own purposes. The fees for the standard and premium accounts (total revenues 2010: 152,000 EUR) cover the re-use facilitation costs incurred by the Statistical Office for the additional service offering.

In addition to the provision of online/print publications and raw data, the Federal Statistical Office also offers – on specific request – customized data services ('*Sonderaufbereitungen*') to public and private customers. These services are charged for on a cost recovery basis with no profit for the Statistical Office. Typically, the Statistical Office employs temporary staff to fulfil the requested data services. All costs are recovered from the client. These customized data services are mainly used by ministries and large companies that are looking for very specific data mash-ups or analyses.

5.21.7 Impacts of the re-use policy

As depicted below, the free availability of all statistical PSI has led to a substantial increase in data downloads, thereby achieving the Statistical Office's public task of a wide dissemination of its information. The yearly table downloads increased from 130,271 in 2004 to 1,092,938 in 2010.

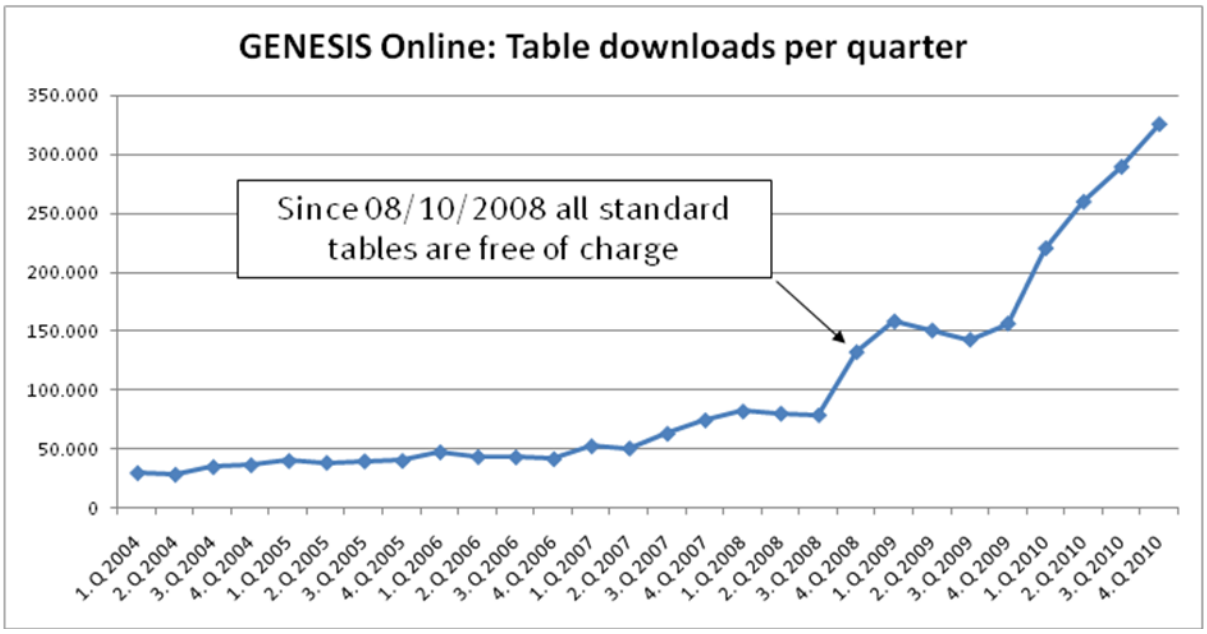

Figure 43: GENESIS-Online: table downloads per quarter (2004-2010)

Clearly, the bulk of the additional demand for statistical PSI comes from re-users who download the data for free without purchasing a standard or premium account.

The number of guest visits has also strongly increased from 135,379 in 2004 to 2,473,546 in 2010. However, these figures are somewhat distorted by search engine robots that regularly screen the website since no registration is required (October 2008).

On the other hand, the number of customers holding a standard 50 EUR p.a. account could be kept relatively constant. At the end of 2007, there were 3,390 standard accounts; at the end of 2010, 2,955 customers held a standard account on the GENESIS-Online database.

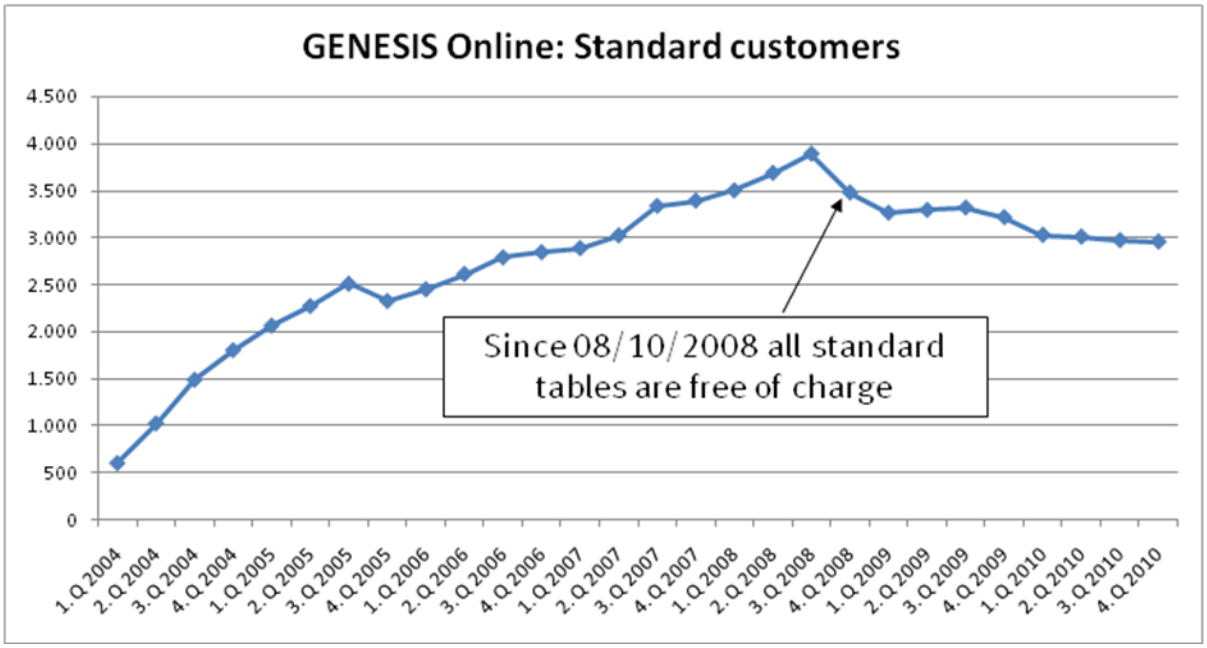

Figure 44: GENESIS-Online: Standard customers (2004-2010)

The number of premium customers paying a yearly fee of 500 EUR has even increased from 55 at the end of 2007 to 69 at the end of 2010.

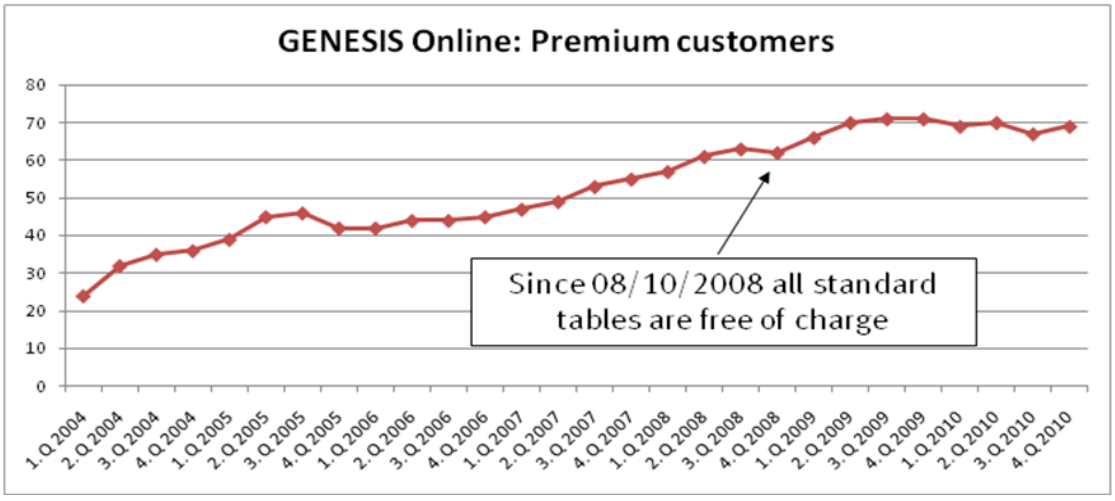

Figure 45: GENESIS-Online: Premium customers (2004-2010)

The GENESIS-Online database allows for free and easy access to statistical PSI and thereby for innovative re-use. At the end of 2010, there were 2,955 entities paying for a standard GENESIS account and 69 entities holding a premium account.

A 2009 user survey showed that 24% of the Statistical Office's customers and users served by the public sector body's information services were private companies (see figure below).

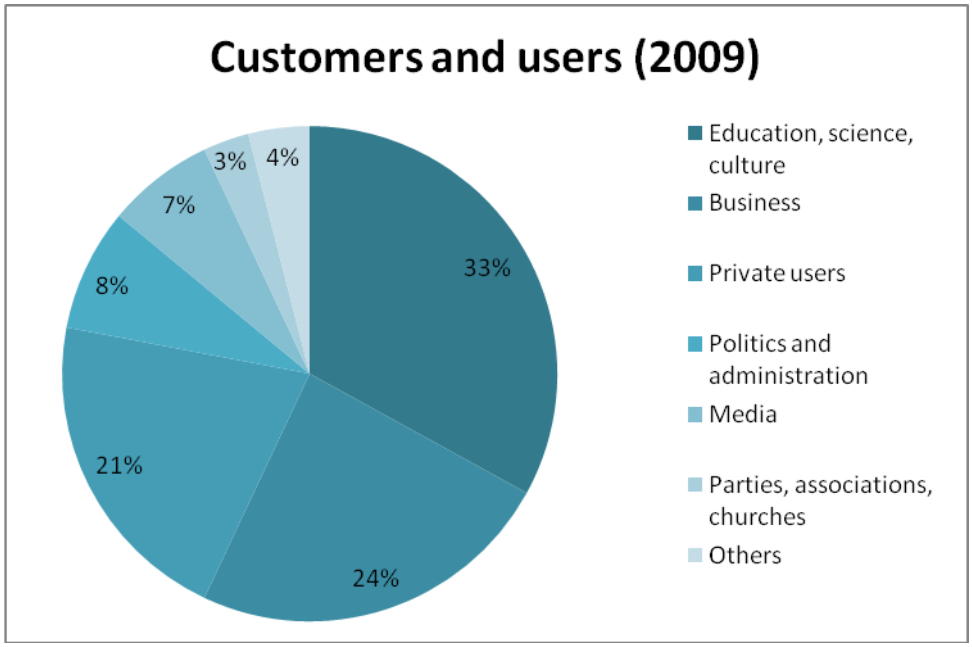

Figure 46: Customers of all information services in total (2009)

The structure of the registered GENESIS-Online users is depicted in the following figure.

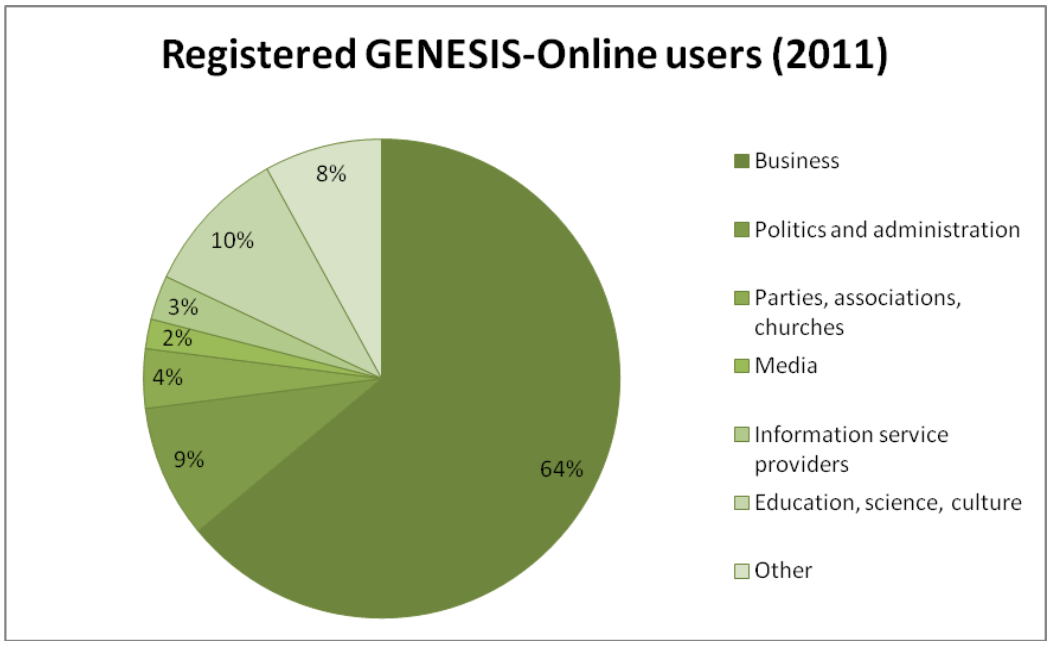

Figure 47: Registered GENESIS-Online users (2011)

Of all GENESIS-Online accounts, 64% are registered to businesses, 2% to media and 3% to information service providers. It is, however, unclear how many of these companies re-use and re-distribute the PSI commercially. Indeed, the Statistical Office does not track the re-use of its PSI and has no clear picture of the re-use market.

One of the Statistical Office's commercial re-users is *Feri EuroRating Services AG*, a European rating agency specialized in investment market and product ratings. The Bad Homburg-based company is also active in the field of economic research and forecasting. With its 50 employees, this German SME serves about 1,000 clients worldwide with a focus on Germany, France and the UK. Since statistical information is a major input for *Feri EuroRating Services AG*, the company benefits from the German Statistical Office's progressive PSI policy.

5.21.8 Key sources

- Desk research
- Face-to-face interview with Doris Stärk, head of publications, Statistisches Bundesamt
- Face-to-face interview with Daniel Dietrich, director, Open Data Network Deutschland

6 Annex 2: Case studies overview

Country	PSB	PSI sector	Budget (M EUR)	FTE	Allowing re-use of raw data? Policy change (if any)	Providing value added services?	PSI sales revenues (M EUR)	Cost recovery ratio	FTEs involved in re-use facilitation	Number of re-users (first-tier)	Commercial re-users	Distinction between commercial and non-commercial licenses?	Is re-use limited by licensing agreements?	Revenue per re-use FTE (EUR)
UK	Companies House	Business	74.8	1,063	Yes, limited to re-use facilitation costs	No	15.5	20.73%	N/A	20,000	N/A	No	No, Companies House do not own copyright	N/A
IT	Infocamere	Business	93.6	500	Yes, partial cost recovery	Yes, processed data and services.	31	33.12%	N/A	43	43	No	Yes, selective distribution network	N/A
NL	Kamer van Koophandel	Business	243	1,946	Yes, partial cost recovery	No	6	2.47%	48	N/A	N/A	No	No, but some personal data may not be re-used.	N/A
AT	BEV	GI	85.0	1,275	Yes, partial cost-recovery. **Policy change: price cuts of up to 97%**	No	Total revenues incl. PSI: 22.5	< 26.5%	35	120,000 licenses sold (number of re-users not available)	N/A	Yes, rebates for universities	Yes, external re-use requires the purchase of a more expensive license than internal re-use	N/A

DK	DECA	GI	31.6	257	Yes, limited to re-use facilitation costs. **Policy change: introduction of a re-use facilitation cost regime**	No	0.26	0.60%	2	26 PDs and 850 second tier re-users	26	No	first line distributor and any next tier user can do what it wants	130,000
FR	Cadastre	GI	162.5	3,250	Yes, partial cost-recovery. **Policy change: price cuts of up to 97%**	No	0.9	0.60%	23	98,204	N/A	No, in old pricing model; Yes, in new pricing model	Yes, external re-use requires the purchase of a more expensive license than internal re-use	39,130
NL	Cadastre	GI	261.0	1,943	Yes, partial cost-recovery.	Yes, 2.85 M EUR	17.15	6.57%	144	20,500	12,000 re-users and 15 true resellers	Yes	Yes, external re-use requires the purchase of a more expensive license than internal re-use and prohibition to reconstruct database cadastre	119,097
ES	IGN-CNIG	GI	52.0	761	Yes, partial cost-recovery. **Policy change: free provision of PSI for non-commercial purposes**	No	2.1	4.12%	42	N/A	40	Yes, non-commercial for free/marginal, commercial at cost recovery	Yes, re-users need to add value	50,000

DE	BKG	GI	33.8	254	Yes, partial cost-recovery.	No	0.08	0.24%	11.5	381	181	Yes	Yes, external re-use requires the purchase of a more expensive license than internal re-use	6,957
DE	SenStadt	GI	9.1	120	Yes, partial cost-recovery.	No	0.945	10.38%	N/A	2,879	N/A	Yes	Yes, external re-use requires the purchase of a more expensive license than internal re-use	N/A
ES	Cadastre	GI	108.0	2,875	Yes, zero cost. **Policy change: introduction of a zero cost regime**	No	0	0	11	1,152	N/A	No	No	0
IT	Cadastre	GI	666.0	9,330	Yes, partial cost-recovery.	Yes, exceptionally on a partial cost recovery basis	3.3	0.50%	100	less than 100	less than 100	Yes, free access for research institutes, public bodies, real estate intermediaries	Yes, external re-use requires the purchase of a more expensive license than internal re-use	33,000
UK	Ordnance Survey	GI	127.0	1,292	Yes, using market-based pricing. **Policy change: introduction of a 'freemium' model**	Yes, through some free products, such as API	21	16.54%	155 sales	1,250 plus 500 partners	500 partners	Yes	Yes, external re-use requires the purchase of a more expensive license than internal re-use	N/A

ES	CENDOJ	Legal	9.0	32	Yes, partial cost recovery	No, not outside its public task (anonymising data, xml text treatment)	1.5	16%	5	N/A	28	Yes, non-commercial for free in certain limits, commercial at cost recovery	No	300,000
FR	DILA	Legal	135.0	1,055	Yes, limited to re-use facilitation costs. **Policy change: introduction of a re-use facilitation cost regime and free provision of data to citizens.**	No	0.9	0.67%	N/A	451 licenses sold	Estimated at 100	Yes	No	N/A
NL	KNMI	Meteo	56.0	430	Yes, limited to re-use facilitation costs. **Policy change: introduction of a re-use facilitation cost regime**	No	0.25	0.45%	1.5	50	50	Yes, universities get data at zero costs	No	166,667
SI	Slovenian Met Office	Meteo	6.0	89	Yes, partial cost-recovery. **Policy change: introduction of a re-use facilitation cost regime (forthcoming)**	No	0.36	6.00%	1		20			360,000

DE	DWD	Meteo	214.9	2,427	Yes, partial cost recovery	Yes, but limited to certain sectors, 2 from processed data, 5 from value added services	2	0.93%	N/A	N/A	25	Yes, rebates for universities	Yes, external re-use requires the purchase of a more expensive license than internal re-use	N/A
NO	Norwegian Met Office	Meteo	58.0	425	Yes, for free and anonymous. If re-user wants delivery guarantee: annual fee 5,750 EUR. **Policy change: introduction of a zero cost regime**	Yes, 3 M EUR (to former state companies in utility)	0	0	2	3,000 (40% outside Norway)	3,000 (40% outside Norway)	No	No	0
FR	SIRCOM	Fuel prices	1.1	21	Yes, partial cost recovery	No	0.179	15.91%	3	9	9	Yes	Yes, external re-use requires the purchase of a more expensive license than internal re-use	59,667
DE	DeStatis	Statistical	177.7	2,689	Yes, zero cost. **Policy change: introduction of a zero cost regime**	Yes, exceptionally on a full cost recovery basis	0.2	0.11%	N/A	N/A, 3,100 standard/premium accounts	64% of 3100 standard /premium accounts	Yes, rebates for universities	No	N/A

7 Annex 3: POPSIS bibliography

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8 Annex 4: POPSIS case study protocol (ABC)

This document is produced with a view to establishing a harmonized and coordinated approach to carry out the case studies under objectives ABC. This document will be essential for the quality, comparability and audibility of the study team's output.
It consists of two parts:

- Part A – an introduction on how to get the case studies right (requirements, substance, process, quality control, semantics, the term 'public task' and planning)
- Part B – a comprehensive set of annexes that enable the roll-out of the desk and field research and subsequent analysis and reporting

The document may change as the study team makes progress in its work, thus allowing for further fine-tuning.

8.1 Part A: Introduction – getting the case studies right

8.1.1 What is a case study

The case studies form the core and basis of the Interim and Final Report. Collectively, they need to be able to carry the overarching conclusions to be drafted. A case study provides solid evidence on the socio-economic impact of a pricing policy by a PSB both downstream and upstream. A case study aims to cover as many items on the topic list as possible (see Annex 3 to this short document) and serves as a check list for the completeness of a case study.

8.1.2 The output of a case study

All case studies will be reported on the basis of a template (see Annex 2 to this short document). The quality of reporting needs to be such that another person within the study team can fully grasp it, thus enabling a synthesis of the information across case studies.

In accordance with the quality requirements set, in the event that the work done on the case study has not yielded the output sought (i.e., sufficient solid evidence on the impact of the pricing policy), the study leader will evaluate the outcome and where necessary identify and assign a new case study.

8.1.3 How to perform a case study

Each case study is performed by a study team member. Since the study team member will really need to dig into the case (the evidence sought will have to be collected and combined from various sources), the research is based on a set of logical and sequential steps.

Preparatory interviews with sectoral experts

These are undertaken to obtain a general feeling for the various sectors to be covered, the PSI, PSBs and the markets associated with the data, and interviews will be held with authentic experts. These will be captured in interview reports and will be sent to the experts interviewed for quality control.

Pre-interview desk research

Since any interview time will be limited, as much information as possible needs to be dug out before the interview is carried out, thus enabling a very focused interview. The topic list (see Annex 3 to this short document), indicates which questions can most likely partly be covered by desk research.

Interviews with stakeholders, in particular PSBs and re-users

Performing the interviews is key to obtaining the crucial data.

First, although the study focuses on PSBs, the information sought must be retrieved from other sources, in particular umbrella organizations of re-users. PSBs will not be able or willing to provide those data. This means that a case study will entail a number of interviews, unless of course all the data can be retrieved from the PSB and the interviewer is absolutely certain that the data are correct.

Second, where an interviewer will most likely get one chance only to do the interview, s/he will need to make sure to (i) talk to right person(s), (ii) convey up front what s/he is looking for, and enable the interviewee to prepare accordingly.

(i) The right persons

Since we are looking for interviewees who are involved operationally, the study team needs to get to the people that not only have access to the appropriate data, but also feel comfortable providing them (in particular for the type B case studies). This means the interviewer will probably be looking for a combination of a director and a manager from the financial/sales/re-use department of the PSB.

(ii) Clarity on data sought

As the interviewees will most likely have to prepare themselves and dig out some data in advance of the interview, it is essential to communicate upfront and in due time the information sought.

To facilitate this, Annex 1 to this short document contains a set of documents that will allow the interviewer to shape this process accordingly. The various annexes attached are:

Annex 1: introductory email on the study

Annex 2: list of specific questions (per PSB per type of case study (A, B) and per re-user) and an example of the output sought

Annex 3: letter of recommendation from the EC

Annex 4: follow up email (request for feedback on draft interview report).

The interviews are to be captured in interview reports and will be sent to the experts interviewed for quality control. After the experts' feedback, the interview reports will be finalized and form an integral part of the case study report (see Annex 2 to this short document).

In these documents you will see parts of text in pink, requiring you to follow up an instruction.

Post-interview desk research

After all the interviews related to a case study, the interviewer will be able to assess which data are still missing. Since some of these data can only be retrieved from the persons who have been interviewed, please open up that possibility during the interview.

Analysis of all findings within this case study

The analysis of the case study should finally be undertaken. It is likely that some of the data sought will need to be based on the interviewer's own assessments. Therefore, it is crucial to indicate in the interview report where the data comes from. Ultimately, the analysis will be put together in the form of a case study report, to be submitted to the study leader for quality control purposes.

8.1.4 Semantics

The potential Achilles heel of this study, in which a team consists of various people coming from different countries interviewing people in a diversity of countries and sectors, is the semantics involved.

To this end, the study team has produced glossary of basic terms and examples that will lay out the accepted meaning of particular terms that will be applied throughout the study and explained to third parties. This list may grow as the study team proceeds. The glossary list is attached as Annex 4 to this short document.

8.1.5 The public task: the crucial term of the POPSIS project

The term is absolutely key to this study and is at the core of the entire discussion of re-use and pricing: the public task. Please read the following carefully.

The public task is the key term in the PSI Directive and in fact it is the underlying foundation-stone of European re-use policy:

a. We have established governments to take care of a set of tasks, this is what we call the public task

b. These public tasks are paid for through direct and indirect taxation and other public funding mechanisms

c. Performing the public task, these governments produce public sector information which is known as: PSI

d. As this information has a value outside the public task (i.e., it has been produced and is just "sitting there" and can be copied without much extra cost), it makes sense to stimulate governments to open up those PSI resources, preferably to third parties (rather than to undertake to exploit it themselves).

The use of PSI inside the public task and outside the public task are completely exclusionary: the use of PSI within the public task ends where commercial re-use starts (even if this is done by the same PSB).

This distinction is crucial to this study. It forms the red line throughout the questionnaire. It is likely that the PSBs whose officials will be interviewed may not want to understand and appreciate this notion. It is essential, however, that the interviewer maintains this position, as otherwise the study team will not be able to pinpoint 're-use' of the PSI. As PSBs may be tempted to blur the discussion, a set of concrete rules of thumb that will help each interviewer to respond to these circumstances appropriately are laid out.

The definition of the public task sets the scope of applicability of the PSI Directive (and of the INSPIRE Directive). It imposes on the PSB the legal obligation to follow the rules laid down in the PSI Directive, including the rules on pricing.

A PSB may try to do two things to evade the application of the PSI Directive:

- It may argue that the creation of the PSI does not fall under its public task (obviously this brings the notion of exploitation also outside the public task, although a PSB will still have to observe the rules of competition law, as it is, as a consequence, to be regarded as an 'undertaking active on the market'). An example of such a situation would be a national statistical office that starts a commercial consultancy branch. In

the event that it would avail itself of statistical data from a 'mother organization', the mother organization would have to apply the same charges to the PSB as it applies to third party re-users.

- It may argue that the exploitation of the PSI is part of its public task (denying the applicability of the Directive, as it only applies to use of PSI for a purpose other than the public task). This line of reasoning has been voiced by the Dutch Cadastre, which has pointed out that the 'development of commercial activities' has been included in the Law on the Cadastre, to thus turn these activities into a public task. Obviously, this argument is a nonsense: the cadastre was not established to undertake commercial activities; it was set up to create legal certainty with regard to the ownership of plots of territory.

Understanding what is the public task is essential, but not always easy. There seems to be a consensus that, setting the scope of the public task and its financing, is a political decision. Defining the public task at a European level is not feasible (and is quite politically sensitive). Furthermore, the notion may be changeable throughout time: what was considered to be a public task 100 years ago is not congruent with what is considered to be a public task nowadays. However, there are some non-cumulative rules of thumb that can be applied to assess whether the information concerned is produced under the remit of the public task.

PSI is produced under the public task in four set of conditions (legal regime, core business, public interest and market failure):

a. **Legal regime** – the PSI is the result of the legal regime under which the PSB works. Example: all Constitutions assign the task of producing court decisions to national Courts, hence their case law is produced under the public task and falls under the PSI Directive.

b. **Core business** – the production/processing/distribution of the PSI falls under the core responsibility of the PSB. Example: the sole reason for setting up the Dutch Chamber of Commerce was to maintain business registers, hence those registers are produced under the public task and fall under the PSI Directive.

c. **Public interest** – there is a strong public interest involved in the production/processing/distribution of the PSI concerned, whereby society at large (not just a small group of individuals) benefits. Example: maintenance of the quality of cadastral data is key. Otherwise, the risks of buying a property would be too high (whereby one would possibly pay a person other than the owner). Therefore, producing cadastral information is done under the public task and falls under the PSI Directive.

d. **Market failure** – without the engagement of the government, the PSI would not be produced. The market would not be able or willing to perform this task. Example: the private sector cannot afford to build and launch the weather satellites required to gather meteorological data. Therefore, the national meteorological service of the different countries undertakes these activities which are regarded as falling under the public task. Thus the output falls under the PSI Directive.

8.1.6 The planning of the case studies

In accordance with the terms of reference and the proposal submitted to the European Commission, the case studies are to be run in two batches: (1) five case studies, to be reported on in the Interim Report – deadline end of March 2011, and (2) 15 case studies, to be reported upon in the Final Report – deadline end of June 2011.

A detailed planning is attached (see Annex 5 to this short document). It should be studied carefully.

8.2 Part B: Annexes

Annex 1 – Documents facilitating the interview process
Annex 2 – Case study template
Annex 3 – Topic list
Annex 4 – POPSIS Glossary and core definitions
Annex 5 – Detailed planning objectives A, B and C.

8.2.1 Annex 1 – Documents facilitating the interview process

Annex 1.1 – Introductory email on the study

Subject: Study on public sector information charging policies – request for interview and background information

Dear [insert name],
The European Commission (DG Information Society and Media) has commissioned us to undertake a study on the economic and societal impact of different **charging models for public sector information (PSI)**.

To that end, the study team will undertake 20 in-depth **case studies** looking at the full spectrum of **charging models of different public sector bodies** – ranging from 'free of charge' and 'cost-recovery' to 'market prices' – and examining mainly their economic effects

on the value chain. In conducting these case studies, the study team intends to talk to both the public sector bodies providing the PSI and their re-users.

As we think your body's charging policy may present a very interesting case study, we would very much like to learn more about it. [extend this reasoning where possible]. We would expect this interview to take about two hours, and we are very happy to travel to a location of your preference.

Attached you will find an explanatory note about the study, which elaborates on its context and the type of information the study team is looking for. As you will see, the focal point of the study consists of the collection of hard operational data on the facilitation of re-use and in particular charging and its effects (both on re-users and the public sector body providing the PSI). This background information will allow you to assess both which persons within your organization would be best suited to join the interview process and to begin any preparatory work you may need to undertake. Furthermore, you will find attached a letter of recommendation by the European Commission, encouraging your participation.

The results of the study will feed into the upcoming evaluation of the European Directive 2003/98/EC on the re-use of public sector information which will take place in 2012.

In advance we thank you for your participation and, if you have any further questions, please do not hesitate to contact us.

Best regards,
[Insert details]
Attachments:

- Explanatory note
- Letter of Recommendation

Annex 1.2 – Explanatory note on public sector information charging study

Introduction
This document (1) elaborates on the context and aim and form of the study (2) details the questions we would like to discuss in the form of a concrete list (3) offers an example of how a case study could ultimately look, and (4) provides the contact details of consortium.

1. *Context and aim and form of the study*

The European Commission (DG Information Society and Media) has commissioned a study on the economic and societal impact of different charging models for public sector information (PSI) to a consortium consisting of Deloitte & Touche Belgium, Tech4i2 and Marc de Vries (Citadel Consulting).

The study will investigate supply and charging models for public sector information (PSI), particularly focusing on those that facilitate the greatest re-use[148] of the PSI, maximizing its social and economic value. To this end, the study team will undertake 20 in-depth case studies looking at the full spectrum of charging models of different public sector bodies – ranging from 'free of charge' and 'cost-recovery' to 'market prices' – and examining mainly their economic effects in the value chain both upstream and downstream.

In essence, the study will undertake an impact assessment of different charging models, looking at economic indicators, such as market entry of new re-users, usage intensity, level of innovation, passing-on of price effects to second-tier users and sector turnover. It will also examine the impact that different pricing models have on data quality, data availability, the activities of public sector bodies, and the development of internal cost structures and accounting models.

Ultimately, the study will contribute to a better understanding of the impact of PSI pricing by public sector bodies, supporting Member States to better understand the different pricing models and share better practices that might help to develop national re-use policies and assist the European Commission to further shape its PSI re-use policy, in particular in the context of the upcoming review of the PSI Directive.

The study will start in January 2011 and will run until June 2011. The final report is expected to be published by the European Commission in autumn 2011.

2. *Questions we would to discuss during the interview*

The answers to the questions listed below, form the core of the information the study team is looking for. However, where the characteristics of PSI, PSBs and market conditions vary from sector to sector and country to country, it may well be that during the interview the study team will skip certain questions or may want to touch on and even drill down into issues that are not on this list.

Below four lists are provided, that distinguish between:

a. A PSB falling under case study category A
b. A PSB falling under case study category B
c. A re-user falling under case study category A
d. A re-user falling under case study category B

[148] The study will concentrate on re-users only, as defined in the Public Sector Directive (2003/98/EC). Therefore, 'internal' delivery of public sector information between public sector bodies in view of exercising their public task (as opposed to developing market activities) are excluded.

Please remove the three categories not needed, leaving the one that applies to the organization you are targeting.

A – A PSB falling under case study category A

We have clustered the questions under a set of logical and sequential headings:

- Public task and resources
- PSI re-use policy
- Own re-use activities (or at least commercial exploitation of the PSI, outside the public task)
- Facilitation of re-use by third parties
- Pricing of PSI
- Re-use market indicators
- Changes in pricing policy and effects.

Public task and resources

1. What is your public task? How is it determined? Has the perception of your public task changed in the last five years?
2. Can you describe the data collections generated within the framework of your public task?
3. How many FTEs does your organization (the entity performing the public task) employ and what are the trends?
4. What are costs resulting from your exercise of the public task financed (*grosso modo*) and what are the trends?
5. Are the activities of your organization under the public task financed through public resources or is it based on usage or is it a combination?
6. Who are the main consumers of the public task of your organization?
7. Is your organization autonomous or dependent on other PSBs in the execution of this public task?
8. Does your organization undertake any activities with its PSI outside the scope of your public task?

PSI re-use policy

1. Does your organization have a re-use policy? If so, can we have a copy?
2. Does your organization re-use your PSI itself (this means commercially exploit it outside the public task – or do you consider commercial exploitation of your PSI to be your public task?)
3. Does your organization allow re-use of your PSI by third parties?

4. Which data sets are subject to re-use by your organization and which by third parties? Are there differences between the two?
5. Under which conditions does your organization allow re-use of these data sets? Are these standard contracts and, if so, can we have a copy?
6. Does your organization claim any copyrights and/or database rights pertaining to the PSI ?
7. Can you assess the costs connected to policing the observance of these rights?

Own re-use activities (or at least commercial exploitation of the PSI, outside the public task)

1. Is there a difference between the data sets generated under the public task and those used for own re-use activities? If so, what value is added to the data? Why do you consider this value-adding necessary?
2. Is there competition between the re-use activities of your own organization and those of third parties that your organization allows to undertake re-use activities? What form does this competition take? What are the competitive advantages of your organization?
3. What measures/controls are in place to ensure free and fair competition between own re-use activities and those of third party re-users? Is there a regulator to ensure fairness in competition with other re-users?
4. How are the own re-use activities of your organization organized? Are they separated from the public task activities of your organization? If so, how (physically, financially, legally, in the accounts)?
5. How many FTEs in your organization are involved in performing your organization's own re-use activities? Can you specify who they are (e.g., sales/technical/management/legal staff)?
6. What investments has your organization made to be able to perform its own re-use activities?
7. Can you assess the total costs related to the own re-use? Can you specify the components, including the overheads? Are these separately reflected in the accounts of your organization?
8. To what extent can your organization keep its own profits generated by own re-use activities, or does it need to pass them on to another public sector body? What does your organization do with these profits, if it is able to keep them?

Facilitation of re-use by third parties

1. Is there a difference between the data sets generated under the public task and those used for own re-use activities? If so, what value is added to the data? Why do you consider this value-adding necessary?

2. What activities does your organization undertake to facilitate re-use for third parties?
3. How are these activities organized? Are they separated from the public task activities of your organization? If so, how (physically, financially, legally, in the accounts)?
4. How many FTEs within your organization are facilitating re-use by third parties? Can you specify them (e.g., help desk/technical/legal staff)?
5. What investments has your organization made to facilitate re-use by third parties?
6. Can you assess the total costs related to the facilitation of re-use by third parties? Can you specify the components? Are these separately reflected in the accounts of your organization?

Pricing of PSI

1. Does your organization have a pricing policy for re-use of PSI (either by the organization itself or third parties). If so, can we have a copy?
2. What exactly are the components of the pricing of the PSI you are re-using/allowing to be re-used? In case the price contains a reasonable return on investment, which investments are taken into consideration and what is considered reasonable?
3. Who sets these prices and on what basis? Are they evaluated and if so, on what basis?
4. What is the business model behind the pricing policy of your organization? What are the key factors behind this pricing policy (market drivers, budgetary drivers, public policy drivers, economic policy drivers, societal benefit drivers, efficiency drivers)?
5. Are there concrete targets to be met in relation to the re-use activities (either your own re-use or third party re-use).
6. Do your third party re-users have any influence on the PSI they can re-use? Can they submit tailor-made requests and, if so, what is the pricing model for these tailor-made activities?

Re-use market indicators

1. Can you provide the key figures (and their development during the last 3 years) related to your own re-use activities *casu quo* third party re-use activities, like:
    a. Turnover per year
    b. Costs per year
    c. Profit per year
    d. Number of units (licenses?) sold
    e. Number of clients and users
    f. Number and nature of new clients
    g. Number of new services developed and the adoption
    h. New services developed by second tier users on the basis of the PSI.
2. How would you describe the downstream value chain? What are the main developments in that value chain?

3. Is your organization the only one where the re-user can obtain the PSI or are there other alternatives for re-users?
4. Are there dominant re-users and have the changes in your re-use policy impacted on them? If so, can you describe this?

Changes in pricing policy and effects

1. Have there been changes in this pricing policy in the last five years? If so, why and when were these changes in pricing policy introduced? What were the drivers behind it?
2. Can you assess the economic effects of this policy change, in terms of the indicators listed above?
3. When your data was made available at a lower cost or for free what were the responses from the market? Was there any change as to the perceived value of the data among re-users or end-users?
4. Have there been impacts on the data uptake, quantity, quality, change in income received, and changes in categories/types of those obtaining data?
5. Has the policy change let re-users produce new and innovative services? Can you provide examples?
6. Have you perceived any other external effects resulting from the policy change, like more transparency, civil participation, services for the public purpose (developed by non-commercial re-users), lower demand of your public task services, environmental benefits. If so can you give examples (and quantify them where possible)?
7. What is the impact of the policy change on your own organization? Has it led to any organizational changes? Have any PSI processes been changed? Has there been any impact on the data gathering, processing, and distribution? On balance, what has been the result?

B – A PSB falling under case study category B

We have clustered these questions under a set of logical and sequential headings:

- Public task and resources
- PSI re-use policy
- Own re-use activities (or at least commercial exploitation of the PSI, outside the public task)
- Facilitation of re-use by third parties
- Pricing of PSI
- Re-use market indicators
- Possible changes in pricing policy and effects.

Public task and resources

1. What is your public task? How is it determined? Has the perception of your public task changed in the last five years?
2. Can you describe the data collections generated within the framework of your public task?
3. How many FTEs does your organization (the entity performing the public task) employ and what are the trends?
4. What are costs resulting from your exercise of the public task financed (*grosso modo*) and what are the trends?
5. Are the activities of your organization under the public task financed through public resources or is it based on usage or is it a combination?
6. Who are the main consumers of the public task of your organization?
7. Is your organization autonomous or dependent on other PSBs in the execution of this public task?
8. Does your organization undertake any activities with its PSI outside the scope of your public task?

PSI re-use policy

1. Does your organization have a re-use policy? If so, can we have a copy?
2. Does your organization re-use your PSI itself (this means commercially exploit it outside the public task – or do you consider commercial exploitation of your PSI to be your public task?)
3. Does your organization allow re-use of your PSI by third parties?
4. Which data sets are subject to re-use by your organization and which by third parties? Are there differences between the two?
5. Under what conditions does your organization allow re-use of these data sets? Are these standard contracts and, if so, can we have a copy?
6. Does your organization claim any copy rights and/or database rights pertaining to the PSI?
7. Can you assess the costs connected to policing the observance of these rights?

Own re-use activities (or at least commercial exploitation of the PSI, outside the public task)

1. Is there a difference between the data sets generated under the public task and those used for your own re-use activities? If so, what value is added to the data? Why do you consider this value-adding necessary?
2. Is there competition between the own re-use activities of your organization and those of third parties that your organization allows re-use activities? What form does this competition take? What are the competitive advantages of your organization?

3. What measures/controls are in place to ensure free and fair competition between own re-use activities and those of third party re-users? Is there a regulator to ensure fairness in competition with other re-users?
4. How are the own re-use activities of your organization organized? Are they separated from the public task activities of your organization? If so, how (physically, financially, legally, in the accounts)?
5. How many FTEs within your organization are involved in performing the own re-use activities? Can you specify them (e.g., sales/technical/management/legal staff)?
6. What investments has your organization made to be able to perform its own re-use activities?
7. Can you assess the total costs related to the own re-use? Can you specify the components, including the overheads? Are these separately reflected in the accounts of your organization?
8. To what extent can your organization keep its own profits generated by own re-use activities, or does it need to pass them on to another public sector body? What does your organization do with these profits, if it is allowed to keep them?

Facilitation of re-use by third parties

1. Is there a difference between the data sets generated under the public task and those used for your own re-use activities? If so, what value is added to the data? Why do you consider this value-adding necessary?
2. What activities does your organization undertake to facilitate re-use for third parties?
3. How are these activities organized? Are they separated from the public task activities of your organization? If so, how (physically, financially, legally, in the accounts)?
4. How many FTEs within your organization are facilitating re-use by third parties? Can you specify them (e.g., help desk/technical/legal staff)?
5. What investments has your organization made to facilitate re-use by third parties?
6. Can you assess the total costs related to the facilitation of re-use by third parties? Can you specify the components? Are these separately reflected in the accounts of your organization?

Pricing of PSI

1. Does your organization have a pricing policy for re-use of PSI (either by the organization itself or third parties). If so, can we have a copy?
2. What are exactly the components of the pricing of the PSI you are re-using/allowing to be re-used? In case the price contains a reasonable return on investment, which investments are taken into consideration and what is considered reasonable?
3. Who sets these prices and on what basis? Are they evaluated and if so, on what basis?
4. What is the business model behind the pricing policy of your organization? What are

the key factors behind this pricing policy (market drivers, budgetary drivers, public policy drivers, economic policy drivers, societal benefit drivers, efficiency drivers)?

5. Are there concrete targets to be met in relation to the re-use activities (either own re-use or third party re-use)?
6. Do your third party re-users have any influence on the PSI they can re-use? Can they submit tailor-made requests and, if so, what is the pricing model for those tailor-made activities?

Re-use market indicators

1. Can you provide the key figures (and their development in the last three years) related to the your own re-use activities *casu quo* third party re-use activities, like:
   - Turnover per year
   - Costs per year
   - Profit per year
   - Number of units (licenses?) sold
   - Number of clients and users
   - Number and nature of new clients
   - Number of new services developed and the adoption
   - New services developed by second tier users on the basis of the PSI.
2. How would you describe the downstream value chain? What are the main developments in that value chain?
3. Is your organization the only one where the re-user can obtain the PSI or are there other alternatives for re-users?
4. Are there dominant re-users and have the changes in your re-use policy impacted on them? If so, can you describe this?

Possible effects of changes in pricing

1. What is the reason to adhere to the current pricing policy? What are the obstacles preventing your organization to change?
2. Which conditions should change to allow your organization to change its pricing policy? Who should spark such a development?
3. What are your concerns as to possible effects of changes in pricing policy?
4. Suppose your organization were to lower its prices, what do you think the economic effects of this policy change would entail?

C – A re-user falling under case study category A

We have clustered the questions under a set of logical and sequential headings:

- The PSI re-used

- Own re-use activities of the PSB
- Re-use policy (including pricing) of the PSB towards third parties
- The downstream market conditions
- Effects of changes in pricing policy.

The PSI re-used

1. Can you describe the PSI your organization is re-using, in terms of character, quantity, quality, updating?
2. Are these 'raw data' (meaning the data produced under the framework of the public task of the PSI) or has the PSB added-value to those raw data?
3. Can you retrieve the PSI anywhere else, or is the PSB the only source?
4. Looking at your products, is the PSI an essential component or are there substitutes?
5. Looking at the purchasing costs, can you give an assessment of which percentage of the purchasing costs are the total costs of your product?

Own re-use activities of the PSB

1. Does the PSB you buy your PSI from engage in market activities – meaning activities outside its public task – that compete with the products of your organization?
2. Can you describe and qualify and quantify these activities, in terms of:
   - Products and the competitive edge of the PSB allowing for these market activities
   - Sales (units, value)
   - Users (character, numbers)
   - FTEs employed by the PSB in those activities
   - Costs incurred as a result of these market activities of the PSB and do you have insight in the components of pricing of those products of the PSB?
3. Do you think there is any form of cross-subsidization between the public task activities and the commercial activities of the PSB? Can you describe (quantify) these?
4. Are there traditional ties between the PSB and established re-users? Are there exclusive deals between the PSB and re-users?
5. What measures/controls are in place to ensure free and fair competition with other re-users? Is there a regulator to ensure fairness in competition with other re-users? If 'no' what might be the impact if a regulator were to be introduced? What powers should the regulator possess?

Re-use policy (including pricing) of the PSB towards third parties

1. Under what arrangements is the PSI sold/delivered for free by the PSB? Are there standard license agreements?
2. Does the PSB claim any copyrights and/or database rights pertaining to the PSI? How does this impact the re-use potential?

3. Does your organization (and/or colleague re-users) have any influence on the PSB and the production of PSI? Can they submit tailor-made requests? If so, what is the pricing model for those tailor-made activities?
4. Does the PSB add any value to the PSI generated under the public task to facilitate re-use of the PSI? If so, what is your opinion about these value-adding activities?
5. If the PSB charges for value-adding, do you have insight into the cost structure of that part of the PSI your organization is purchasing?
6. Which value-adding activities by the PSB would be essential to you (if any)? What cost level would be acceptable?

The (downstream) market conditions

1. Can you describe the market(s) your organization is operating in, in terms of:
   - Key values that determine market success
   - Users (numbers, character, importance of the PSI in the products they buy from your organization)
   - Size (type of units, quantities, value, total turnover of the sector) and profitability
   - Competition (number of competitors, dominant players, character of competition, market barriers, innovation, dynamism, new Apps)
   - FTEs employed within your sector and their development in the last five years?
2. What is the buying power of the re-users (towards the PSB)? Are there any form of alliances of re-users?
3. How do you look at the development of the role of PSI within the market(s) your organization operates?
4. Is there movement in the value chain and if so, what are the drivers behind it?

Effects of changes in pricing policy

1. Can you describe (form, timeframe, drivers) and quantify the price changes applied by the PSB that your organization purchases its PSI from?
2. Can you qualify and quantify the effects (and timeframe) of the price changes for the PSI your organization purchases, in terms of:
   - Change of quantities of PSI and its value bought by your organization
   - Change of sales (quantity and value) of your organization and profitability of the operation
   - Change of competition (new entrants, new products and Apps, speed of innovation)
   - Changes in the value chain in general, including effects on the clients of your clients?
   - Emergence of societal benefits (like civil participation, transparency).
3. Has there been any impact of the price change on the PSB itself, like its public task activities, its market activities, number of FTEs employed, income effects?

4. Do you perceive any changes in the availability and/or quality of the PSI?
5. Finally, do you think the implementation of the PSI Directive had any influence on activities, operations or pricing models of the PSB that you are purchasing PSI from? Has it had an impact on your organization?

D – A Re-user falling under case study category B

We have clustered the questions under a set of logical and sequential headings:

- The PSI re-used
- Own re-use activities of the PSB
- Re-use policy (including pricing) of the PSB towards third parties
- The downstream market conditions
- Potential effects of a change in the pricing policy of the PSB.

The PSI re-used

1. Can you describe the PSI your organization is re-using, in terms of character, quantity, quality, updating?
2. Are these 'raw data' (meaning the data produced under the framework of the public task of the PSI) or has the PSB added-value to those raw data?
3. Can you retrieve the PSI anywhere else, or is the PSB the only source?
4. Looking at your products, is the PSI an essential component or are there substitutes?
5. Looking at the purchasing costs, can you give an assessment which percentage the purchasing costs are of the total costs of your product?

Own re-use activities of the PSB

1. Does the PSB that you buy your PSI from engage in market activities – meaning activities outside its public task – that compete with the products of your organization?
2. Can you describe and qualify and quantify these activities, in terms of:
   - Products and the competitive edge of the PSB allowing for these market activities
   - Sales (units, value)
   - Users (character, numbers)
   - FTEs employed by the PSB in those activities
   - Costs incurred as a result of these market activities of the PSB and do you have insight into the components of pricing of those products of the PSB?
3. Do you think there is any form of cross-subsidization between the public task activities and the commercial activities of the PSB? Can you describe (quantify) these?
4. Are there traditional ties between the PSB and established re-users? Are there exclusive deals between the PSB and re-users?

5. What measures/controls are in place to ensure free and fair competition with other re-users? Is there a regulator to ensure fairness in competition with other re-users? If 'no' what might be the impact if a regulator were to be introduced? What powers should the regulator possess?

Re-use policy (including pricing) of the PSB towards third parties

1. Under what arrangements is the PSI sold/delivered for free by the PSB? Are there standard license agreements?
2. Does the PSB claim any copyrights and/or database rights pertaining to the PSI? How does this impact the re-use potential?
3. Does your organization (and/or colleague re-users) have any influence on the PSB and the production of PSI? Can they submit tailor-made requests? If so, what is the pricing model for those tailor-made activities?
4. Does the PSB add any value to the PSI generated under the public task to facilitate re-use of the PSI? If so, what is your opinion about these value-adding activities?
5. If the PSB charges for value-adding, do you have insight into the cost structure of that part of the PSI your organization is purchasing?
6. Which value-adding activities by the PSB would be essential to you (if any)? What cost level would be acceptable?

The (downstream) market conditions

1. Can you describe the market(s) your organization is operating in, in terms of:
   - Key values that determines market success
   - Users (numbers, character, importance of the PSI in the products they buy from your organization)
   - Size (type of units, quantities, value, total turnover of the sector) and profitability
   - Competition (number of competitors, dominant players, character of competition, market barriers, innovation, dynamism, new Apps)
   - FTEs employed within your sector and their development in the last five years?
2. What is the buying power of the re-users (towards the PSB)? Are there (any form of) alliances of re-users?
3. How do you look at the development of the role of PSI within the market(s) in which your organization operates?
4. Is there movement in the value chain and if so, what are the drivers behind that?

Potential effects of a change in the pricing policy of the PSB

1. Do you think the implementation of the PSI Directive has had any influence on activities, operations or pricing models of the PSB that you are purchasing PSI from? Has it had an impact on your organization?
2. What effect would a change of the current PSBs pricing model for the PSI have on the business of your organization? Why do you think this would happen? Do you have

any evidence?

3. What would you do with the returns of such a price change?

3. An example of how a case study could ultimately look.

See the KNMI case study in this set if final report annexes.

4. Contact details of consortium

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Annex 1.3 – Letter of Recommendation

Ref. Ares(2011)79613 - 25/01/2011

EUROPEAN COMMISSION
Information Society and Media Directorate-General

Digital Content and Cognitive Systems
Access to Information

Luxembourg,
INFSO E4/RS/JP/le D(2011)

To whom it may concern:

With this letter, we would like to invite you to participate in the assessment of the different models of supply and charging for public sector information.

This study, conducted by Deloitte Consulting is undertaken in the context of the review of the Directive on re-use of public sector information (PSI) (Directive 2003/98/EC of the European Parliament and of the Council of 17 November 2003 on the re-use of public sector information) foreseen for 2012.

Article 6 of the PSI Directive stipulates that "where charges are made, the total income from supplying and allowing re-use of documents shall not exceed the cost of collection, production, reproduction and dissemination, together with a reasonable return on investment. Charges should be cost-oriented over the appropriate accounting period and calculated in line with the accounting principles applicable to the public sector bodies involved". The Directive also states that "Member States should encourage public sector bodies to make documents available at charges that do not exceed the marginal costs for reproducing and disseminating the documents".

Given the importance of the current and potential economic value of the commercial re-use of PSI, there is an ongoing debate about what access model and re-use arrangements would facilitate the greatest re-use of PSI, maximising its economic and social potential. This topic raises many controversial issues regarding the manner in which public sector bodies should make their information publicly available, including whether it is appropriate to implement cost recovery policies and to use PSI as an income-generating source.

After the first review of the Directive undertaken in 2009, the Commission concluded that a further review will be carried out by 2012 when more evidence on the impact, effects and application of the Directive are available. The European Commission is therefore currently seeking new and more accurately focused data relating on which model of supply and charging for public sector information would facilitate the greatest re-use of PSI, maximising its social and economic value.

The objectives of the assessment are (1) to undertake and analyse at least 10 case studies of public sector bodies that have changed their charging policy, (2) undertake and analyse at least 9 case studies of public sector bodies in three EU Member State (three case studies per Member State), that implement cost recovery policies (3) to undertake and provide a concise snapshot of the Apps Market and estimate the number of Apps that are, broadly speaking, based on PSI and (4) to monitor the impact of PSI portal initiatives.

European Commission, L-2920 Luxembourg. Telephone: +352-43011
Office: EUFO 2278. Telephone: direct line (+352) 4301-38162, Fax: (+352) 4301-34959
e-mail: juan.pelegrin@ec.europa.eu

Through this study and with your participation, we hope to obtain representative and reliable data in terms of which PSI charging model maximises PSI re-use, estimating its impact in terms of costs and benefits for the information market.

Therefore, we would greatly appreciate your participation and thank you in advance for your contribution.

For further information, please contact the study manager, Mrs. Negreiro Achiaga at mnegreiroachiaga@DELOITTE.com

Yours sincerely,

Richard Swetenham
Head of Unit

Annex 1.4 – Follow up email (request for feedback)

Subject: Study on public sector information charging policies – draft interview report

Dear [insert name],

First of all, I would like to thank you once more for the time and efforts taken to contribute to this study. For me, the interview was an enriching experience.

As promised, I have now drafted the first version of the interview report (see attached) and I would be delighted if you could have a look at it just to make sure that I captured our discussions appropriately. If you have any comments, please feel free to insert them (preferably in revision mode), or, if you would rather do this orally, please give me a call.

Some of the information in the draft report may be taken from sources other than the interview (for instance from the website of your organization), so please do not be alarmed if you see pieces of text we did not touch on during the interview. Nevertheless, if you think there are any inconsistencies present, obviously, feel free to address them.

As discussed, ultimately, the study team's findings will be substantiated in the form of a final report, expected to be published by the European Commission in the fall of 2011. It goes without saying that I will be happy to notify you about its publication.

Kind regards,

[insert details]

Attachment: draft interview report

8.2.2 Annex 2 – Case study template

To be elaborated after a first round of testing and reporting.

See the KNMI case study in this set if final report annexes.

Name of the case study

1. Reason for selection
2. Sources used
3. Key message and analysis team member
4. Pricing policy history
5. Costs, returns and economic effects of pricing policy
6. List of key data, also covering PSI, sector, PSB and market characteristics

Annexes: Interview reports, any other relevant documents

8.2.3 Annex 3 – Topic list

This topic list provides a full overview of the information sought per case study. In essence, it is the merger of all the different forms of questionnaires, restructured on the basis of the PSI, PSB and market characteristics and the potential impact of price changes. The topic list serves as a checklist for the study team member (and quality controller) when assessing the completeness of a case study and eventually any additional research to be undertaken.

Legend

Yellow: Public Sector Body

Blue: Re-user

Green : Both Public Sector Body and Re-user

			Building block and questions	Aim of these questions	Sources
PRE DESK Research	Interview	POST DESK Research			
A. The decision to allocate a public task to the PSB, generating that PSI and the character of that public task (A + B)				**Pinpoint the nature and location of the public task in relation to the PSI**	**Pre desk research Interviews**
x			1. What is the history of the PSB?		
x			2. What is the core of the public task?		
x			3. What is the basis of the public task (statutory/contractual/other)?		
	x		4. Why are the activities of the PSB that generate the PSI considered to be public task?		
	x		5. Is the creation/processing/distribution of the PSI in itself a public task?		

			Building block and questions	Aim of these questions	Sources
	x		6. Is the creation/processing/distribution of PSI in the core of the public task or more on the outskirts, and thus a by-product?		
	x		7. Is it essential to produce the information as part of government's core duties and therefore vital to the workings of government?		
	x		8. Who sets its remit of the public task and have there been any changes recently?		
	x		9. Have there ever been discussions about removing the activities of the PSB from the public task?		
B. The character of the PSI created under this public task following the execution of that public task by that PSB (A +B)				**Pinpoint the peculiarities of the PSI in relation to the use outside the public task**	**Pre desk research Interviews**
x	x		1. What kind of data are collected and what are the main data sets of the PSI?		
	x		2. How are the data collected? How does the production, processing and distribution process look like?		
	x		3. Does the PSB hold a monopoly in the sourcing and/or processing and/or distribution of the PSI or are there sourcing substitutes for the PSI (public/private sector)?		
	x		4. Does the PSB collect data on its own or are data purchased or obtained from other organizations? If so, which ones?		
	x		5. What infrastructure is needed to generate the PSI?		
	x		6. What amounts of data are we talking about?		
		x	7. Is the PSI volatile?		
		x	8. Is the quality of the PSI key for the users or is there room for margins?		

			Building block and questions	Aim of these questions	Sources
		x	9. Does the usage of the PSI concern high risk data?		
		x	10. Does the PSI derive special status and authority because it has been issued by the PSB?		
		x	11. Does the PSI feature a final consumption date?		
	x		12. Does the (re-) use of the PSI outside the public task compete with the use of the PSI inside the public task?		
C. The character of that PSB entrusted with that public task and its powers (A +B)				**Pinpoint the embedding of the PSB within the governmental structure and its discretionary powers**	**Pre desk research Interviews**
x	x	x	1. What targets/goals/mission does the PSB have? Are there key performance indicators and goals and who sets them and how?		
x	x	x	2. Has the PSB any policy-making discretion or is it simply execution of a pre set (public) task?		
x	x	x	3. Is the PSB autonomous or dependent on other PSBs in the execution of this public task? More precisely, to what extent is there room for the PSB to take its own decisions as to (a) the data collected (b) the data processed (c) the data distributed?		
x	x	x	4. Who has the supervisory role?		
x	x	x	5. Is the PSB a spending or earning department?		
x	x	x	6. Is the PSB in the limelight of public scrutiny or can it operate in the dark?		

			Building block and questions	Aim of these questions	Sources
			D. The resources allocated to that PSB for the execution of the that public task, generating that PSI and the financing of those resources (A + B)	**Pinpoint who is the boss in the policy chain and how financing is channelled and accounted for**	**Pre desk research** **Interviews** **Post desk research**
x	x		1. How many FTEs does the PSB employ (including historic and future trends)? Is it possible to allocate the number of FTEs connected to a specific category of PSI?		
	x		2. How is the PSB organized in relation to the generation, processing and distribution of the PSI?		
	x		3. What is the cost of generating the raw data?		
	x		4. Can these costs be allocated on the basis of the cost categories from article 6 of the PSI Directive (preferably to be in local currency per annum and broken down into staff costs (number of staff), accommodation, technology, other relevant categories)?		
	x		5. How is funding of these costs provided (including historic and future trends)? Is it a budget financing under the public resources or is it based on usage? Or is it a combination?		
	x		6. If based on usage, what revenue is generated from the sale of PSI within the public task (over the last five years)?		
	x		7. Was there any revenue generated from other public bodies and who are the main public bodies using the PSI within the public task?		
	x		8. How are the costs and revenues accounted for?		
	x		9. What does the budgeting cycle look like?		

			Building block and questions	Aim of these questions	Sources
	x		10. What are the drivers behind the budgeting?		
	X		11. Is there a regular evaluation process for the budgeting and who is responsible for that?		
	X		12. Is there continuity and stability of funding in recent years and the future?		
	x		13. What are the PSB's feelings about the current financing model?		
5. The decision to use the PSI outside the framework of the public task and the subsequent form of use of PSI outside the public task (exploitation by the PSB itself and/or facilitation of re-use by the private sector) (A + B)				**Pinpoint the driver and motivations behind the use of the PSI outside the public task**	**Interview**
	x		1. Why is the PSI used outside the public task? What is the philosophy?		
	x		2. How is the PSI used outside the public task? What is the business model applied?		
	x		3. Who is the driver behind that decision?		
	x		4. Is this decision being reconsidered currently, and if so, why?		
F. Organization of the PSB's additional activities under 6 to allow for own exploitation and/or facilitation of re-use) (A + B)				**Pinpoint those activities and their organization that are specifically related to use of the PSI outside the public task (and the PSB's ability to locate them)**	**Interview**
	x		1. What PSI (or services based on that PSI) is used outside the public task?		
	x		2. In what format is the PSI provided?		

			Building block and questions	Aim of these questions	Sources
	x		3. Is the PSI made available at a low cost for dissemination, for example, such as an online supply in a digital format?		
	x		4. Is the PSB currently (also) adding value to the PSI in view of using it outside the public task?		
	x		5. If so, is the added-value PSI in competition with private sector providers of similar services?		
	x		6. Which activities are specifically related to the use of the PSI outside the public task?		
	X		7. How are these activities organized?		
	X		8. Is there an organizational demarcation line within the organization between the public task PSI-related activities and those activities related to the use of the PSI outside the public task?		
	X		9. Are there shared services supporting the use of the PSI, both inside and outside the public task?		
G. The financing of the activities under 6 (own exploitation and/or facilitation of re-use) in particular the price setting mechanisms (A + B)				**Pinpoint the way the PSB finances (the facilitation of) use of the PSI outside the public task**	**Pre desk research** **Interviews** **Post desk research**
	x	x	1. Which pricing model is applied by the PSB putting a tariff on the use of PSI outside the public task (competitive pricing, strategic pricing, cost-recovery, turnover/usage/users maximization, cross subsidizing)?		
	x		2. If different models are used for sale to commercial and non-commercial users, how much is the difference and why differences? What is the income or use by each of the two groups?		
	x		3. Does the PSB police/investigate non-commercial users to ensure not exploiting commercially? If so, how? How much does policing cost?		

			Building block and questions	Aim of these questions	Sources
	x		4. What are the cost components taken into account setting the prices for the PSI?		
	x		5. Can these components be discerned in the annual accounts of the PSB? Or in another way?		
	x		6. In case the price contains a reasonable return on investment, which investments are taken into consideration and what is considered reasonable?		
	x		7. How much revenue is generated by the PSB from usage outside the public task?		
	x		8. Is this income retained? Does it reduce costs to the Exchequer? Has it been used to increase efficiency, the extent of data collected or data quality? Have these improvements led to reduced exchequer costs?		
	x		9. Any other income generated by the PSB on the fly, like advertising or consultancy work?		
	x		10. Under what arrangements is the PSI sold/delivered for free by the PSB? Are there standard license agreements?		
	x		11. Does the PSB claim any copyrights and/or database rights pertaining to the PSI? How does this impact the re-use potential?		
	x		12. How many re-users are there and who are the main private sector purchasers?		
	x		13. Amongst private sector re-users what is the proportion of revenue generated by large businesses, SMEs, voluntary sector and NGOs, citizens?		
	x		14. Do re-users have any influence on the PSB and the production of PSI? Can they submit tailor-made requests? If so, what is the pricing model for those tailor-made activities?		
	x		15. Does the PSB have insight into the administrative costs related to the act of charging for PSI (so only those activities that would fall through if no charges were made)?		

			Building block and questions	Aim of these questions	Sources
	x		16. Does the PSB charging for the re-use of the PSI have any insight in the costs of the licensing activity, legal support and credit control?		
	x		17. Is the PSI produced and/or distributed in the marketplace following a competitive tendering exercise? If so, please give details of the arrangements, including how long the contract has left to run?		
	x		18. Has the implementation of the PSI Directive had any influence on activities, operations or pricing models?		
H. The characteristics of the PSI and market the PSI (provided outside the public task) is used in (A + B)				**Pinpoint what kind of market the PSI being exploited in and who are the dominant players**	**Pre desk research Interviews (PSBs and re-users) Post desk research**
	x		1. How high is the proportion and importance of PSI in re-users products?		
	x		2. Is the PSI a need to have or nice to have part of the re-user's product?		
	x	x	3. What are the first, second and third tier (re-)users of the PSI (down-stream)?		
	x		4. How many re-users are there? How many FTEs are employed by the re-users following the re-use of PSI?		
	x		5. What is the turnover (in quantity and money) of the market in which the first tier re-users are active? (*be aware: this also applies to PSBs engaged in commercial activities themselves)		
	x		6. Are there any figures or assessments available on the first tier re-users' market size and profits of the PSI concerned?		

			Building block and questions	Aim of these questions	Sources
		x	7. What is the character of the downstream markets the PSI is used in?		
		x	8. Are there any entry barriers (first-tier only)?		
		x	9. Are there dominant re-users?		
		x	10. What is their competitive advantage over the others?		
		x	11. Are there traditional ties between the PSB and established re-users?		
	x		12. What is the buying power of the re-users? Are there alliances of re-users?		
	x		13. What is the spending power of the (re-) users?		
	x		14. What is the buying frequency of the PSI?		
	x		15. Can you give an indication as to the level of innovation and dynamism based on PSI provided, e.g. in terms of new entrants and new products?		
	x		16. Have there been any new Apps developed in this market in 2010 and/or 2011?		
9. Some questions as to the possible impact of possible changes to the current pricing policy (A + B)				**Assess the PSB's knowledge on pricing effects of its PSI and its position as to change in pricing**	**Interviews (PSBs and re-users)**
If the PSB has made any changes in pricing policy over the last five years:					
	x		1. Why was this done and when? What were the catalysts for change?		

			Building block and questions	Aim of these questions	Sources
	x		2. What has been the impact of such change on PSI uptake, quantity, change in income received, changes in categories/types of those obtaining data?		
	x		3. What has been the impact on the PSI made available by the PSB and their quality?		
	x		4. Did re-users produce new and innovative ways by those reusing the PSI? Did new benefits arise from these new uses? Provide examples. Did any of the new uses:		
	x		5. Lead to benefits for citizens in terms of transparency?		
	x		6. Encourage participation (such as feedback and engagement)?		
	x		7. Create any other citizen benefits?		
	x		8. Lead to lower levels of demand for government services (by citizens or businesses)?		
	x		9. Bring about environmental benefits (for example whether data led to more smart buildings, traffic data avoiding jams)?		
	x		10. Any other notable benefits?		
	x		11. Probe - for any of the above try to quantify the value of these benefits.		
	x		12. What were the additional costs (such as so-called transition costs for personnel and internal reorganization computing)?		
If the PSB has not made any changes in pricing policy over the last five years:					

			Building block and questions	Aim of these questions	Sources
	x	x	1. What effect would a change of the current PSBs pricing model for the PSI have on the re-use (so either moving from free to charging or for charging to free)?		
	x	x	2. What would be the licensing mechanism for charging for the re-use of the PSI concerned, and what would be the administrative impact of this mechanism for the PSB and for the re-user?		
	x	x	3. Would such change run counter to the spirit or intention of other government objectives?		
	x	x	4. What would be the impact on the PSBs revenue, data uptake, quantity, change in income received, changes in categories/types of those obtaining data? Benefits to end-users?		
	x		5. If the PSI was made available at a lower cost or for free does the PSB think it would lower the perceived value of the data amongst re-users or end-users? Why or why not?		
	x		6. If the PSI was made available at a lower cost or for free does the PSB think it would lower the perceived value of the data among re-users or end-users? Why or why not?		
	x	x	7. What measures/controls are in place to ensure free and fair competition with other re-users? Is there a regulator to ensure fairness in competition with other re-users? If 'no' what might be the impact if a regulator was introduced? What powers should the regulator possess?		

9 Annex 5: List of interviewees (ABCDE)

Country	Organization	Type of organization	Name	Role
AT	BEV	PSB	Gerda Schennach	Stab L/BEV
AT	GeoMarketing Datenverarbeitungs & Dienstleistungs GmbH	Re-user	Martin Redl	CEO
AT	rmDATA Group	Re-user	Jürgen Beiglböck	CEO
AU	data.australia.gov.au portal	Data.gov		Web team
BE	Appsolution	Re-user	Castus Vincent	Developer
DE	MICUS Management Consulting	Expert	Martin Fornefeld	CEO
DE	Open Data Network Deutschland e.V.	NGO	Daniel Dietrich	Director
DE	GEOkomm e.V.	NGO	Peter A. Hecker	General Manager
DE	Open Knowledge Foundation	NGO	Friedrich Lindenberg	
DE	Statistisches Bundesamt	PSB	Doris Stärk	Head of publications
DE	Bundesamt für Kartographie und Geodäsie	PSB	Reiner Retzek	Licensing, Sales and Marketing
DE	Bundesamt für Kartographie und Geodäsie	PSB	Bernhard Weichel	Licensing, Sales and Marketing

DE	Arbeitsgemeinschaft der Vermessungsverwaltungen der Länder der Bundesrepublik Deutschland	PSB	Gisela Fabian	Head of public relations and marketing
DE	Senatsverwaltung für Stadtentwicklung Berlin	PSB	Gisela Fabian	Head of department III D
DE	Bundesministerium für Wirtschaft und Technologie	PSB	Angelika Müller	Leiterin des Referates IT-Anwendungen, Digitale Integration
DE	Bundesministerium für Wirtschaft und Technologie	PSB	Manfred Rupprich	Regierungsdirektor
DE	Deutscher Wetterdienst	PSB	Kurt Winkler	Referat Produkt- und Vertriebspolitik
DE	Deutscher Wetterdienst	PSB	Leander Jamin	Leiter Controlling und Rechnungswesen
DE	Deutscher Wetterdienst	PSB	Ulrike Rupprecht	Leiterin des Referats Produkt- und Vertriebspolitik
DE	Deutscher Wetterdienst	PSB	Klaus Haderlein	Referatsleiter
DK	digitaliser.dk portal, National IT & Telecom Agency	Data.gov	Cathrine Lippert	Special advisor
DK	Danish Enterprise and Construction Authority	PSB	Morten Lind	Special advisor
DK	Danish Enterprise and Construction Authority	PSB	Asbjørn Lenbroch	Administrator

DK	Grontmij | Carl Bro A/S	Re-user	Christian Fisher	Senior Consultant
ES	Opendata.euskadi.net	Data.gov	Imanol Argüeso Epelde	Open Data Euskadi Project
ES	dadesobertes.gencat.cat	Data.gov	Eva Gumà	Open Data project of the Government of Catalonia
ES	Spanish cadastre	PSB	Angel M. Alvarez Capon	Director General
ES	Spanish cadastre	PSB	Ignacio Durán Boo	Deputy Director General
ES	Spanish cadastre	PSB	Rosa Maria Casado Carrero	Manager Electronic Cadastre
ES	Spanish cadastre	PSB	Amalia Velasco	International Affairs Coordinator
ES	IGN-CNIG	PSB	Sebastian Mas Mayoral	Director CNIG
ES	CENDOJ	PSB	Joaquín Silguero	Director CENDOJ
ES	CENDOJ	PSB	Edurne Uranga	Jefa de Sección Documentación-Publicaciones-Bibliotecas
ES	Asedie	Re-user	Olga Quirós	Vicesecretaria General
ES	Asedie	Re-user	Maria Jesús Bronet	Vicesecretaria General
ES	vlex	Re-user	Carmen Tejedor	VP Products & Content
ES	vlex	Re-user	Lluís Faus	CEO

ES	arazadi/thomson reuters	Re-user	Mikel Irujo Amezaga	EU Procurement and Programmes Manager
ES	OPEN DATA EUSKADI	Data.gov	Alberto Ortiz de Zarate	Director of the Open Data Euskadi Project
EU	Information Economics	Expert	Graham Vickery	Partner
EU	EuroGeographics	NGO	Derek Earnshaw	Representation Manager
EU	EuroGeographics	NGO	Sallie White	Business Operations Manager
EU	PRIMET	NGO	Richard Pettifer	General Secretary
EU	Bisnode	Re-user	Rolf Nordqvist	Manager Government Affairs
FI	Suomi.fi portal, Government IT Shared Service Centre, State Treasury	Data.gov	Marko Latvanen	Web editor
FR	Etalab	Data.gov	Romain Lacombe	Chargé de mission
FR	Etalab	Data.gov	Alexandre Quintard	Chargé de mission
FR	Etalab	Data.gov	Séverin Naudet	Director
FR	GFII	NGO	Denis Berthault	Vice-President
FR	APIE	PSB	Danielle Bourlange	Deputy Chief Executive
FR	APIE	PSB	Anne Fauconnier	Project Manager
FR	APIE	PSB	Kristof De Meulder	Project Manager
FR	Direction Générale des Finances Publiques (Cadastre)	PSB	Laurent Patte	Directeur divisionnaire

FR	Direction Générale des Finances Publiques (Cadastre)	PSB	Cyrille Goulard	Inspecteur Principal
FR	Direction Générale des Finances Publiques (Cadastre)	PSB	Jean-Claude Maniquaire	Inspecteur Départemental
FR	Direction Générale des Finances Publiques (Cadastre)	PSB	Emanuelle Guillin	Inspectrice
FR	DILA	PSB	Didier François	Directeur adjoint
FR	DILA	PSB	Loïc Lechevalier	Sous-directeur (diffusion et administration électronique)
FR	DILA	PSB	Sylvie Faye	Département de l'accès au droit
FR	DILA	PSB	Frédéric Lalung	Chargé des relations avec les rediffuseurs
FR	SIRCOM	PSB	Philippe Debet	Directeur Adjoint
FR	SIRCOM	PSB	Eric Gastellu	Chef du bureau des développements numériques
FR	Météo France	PSB	Alain Ratier	Deputy Director General
FR	Météo France	PSB	Philippe Santoni	International Affairs Department
FR	NAVX	Re-user	Jean Cherbonnier	Founder and CEO
FR	LexisNexis	Re-user	Denis Berthault	Directeur du développement des contenus en ligne
FR	Presselite	Re-user	Antoine Morcos	Co-founder
FR	Mobicarbu	Re-user	Lionel Gueganton	Developer

IT	Fondazione Rosselli	Expert	Raimondo Iemma	Researcher
IT	Unioncamere	PSB	Pierluigi Sodini	Manager
IT	AGTER	PSB	Luca Montobbio	Manager
IT	ACIF	Re-user	Emilio Rossanigo	Secretary
IT	Business Information Industry Association (ANCIC)	Re-user	Cosimo Elia	President
IT	Cribis D&B (Criff)	Re-user	Marco Preti	CIO
NL	Dialogic	Expert	Robbin te Velde	Principal researcher
NL	Deregulation and Information Policy of the Ministry of the Interior and Kingdom Relations	Expert	Kees Keuzenkamp	Deputy director Services
NL	Delft University	Expert	Bastiaan van Loenen	Senior researcher
NL	Royal Dutch Meteorological Institute	PSB	Frank Lantsheer	Head of License Department
NL	Royal Dutch Meteorological Institute	PSB	Ton Donker	Former Head of License Department
NL	The Dutch Cadastre	PSB	Dick Eertink	Senior Advisor
NL	The Dutch Chambers of Commerce	PSB	Peter Jong	Policy Advisor
NL	The Dutch Chambers of Commerce	PSB	Freddy Key	Policy Advisor

NL	The Dutch Chambers of Commerce	PSB	Ricco Dun	Corporate Lawyer
NL	The Dutch Chambers of Commerce	PSB	Gerard Knoop	Former CEO of the Dutch Association of Chambers of Commerce
NL	The Dutch Cadastre	PSB	Barbra Janssen	Advisor
NL	MeteoConsult	Re-user	Harry Otten	Founder of MeteoConsult
NL	Arcadis	Re-user	Gerben Koppelman	Head Advisory group Information management | Mobility Division
NL	Arcadis	Re-user	Daniel van de Vlag	Senior project leader
NL	Directorate for National Spatial Planning of the Ministry of Infrastructure and Environment	Re-user	Noud Hooyman	Head policy geo-information
NO	Norwegian Meteorological Institute	PSB	Anton Eliassen	Director General
NO	Computas	Re-user	David Norheim	Senior knowledge engineer
NO	StormGeo	Re-user	Kent Zehetner	CEO
NZ	Data.govt.nz portal	Data.gov	Nadia Webster	Senior Web Specialist
PL	Transportoid	Re-user	Tomasz Zieliński	Developer
SI	EARS/Hydrological Office	PSB	Janez Polajnar	Chief Hydrologist
SI	EARS/Metrological Office	PSB	Branko Gregorčič	User and Public Relations/Met Office

SI	EIMV	Re-user	Jan Kosmač	Electric Power System Control and Operation Department Head
UK	Data.gov.uk	Data.gov	Ilaria Miller	Cabinet Office
UK	Data.gov.uk	Data.gov	James Forrester	Digital Engagement Team, Cabinet Office
UK	HM Treasury	Data.gov	Sue Babiker	HM Treasury
UK	National Archives	Data.gov	Jim Wretham	Head of Information Policy
UK	Cabinet Officer	Data.gov	Kate Marshall	Deputy Director, Strategy Unit
UK	London Data Store	Data.gov	Gareth Baker	Geographic Information Manager, Intelligence Unit
UK	Countculture	NGO	Chris Taggart	Blogger
UK	Ordnance Survey	PSB	Philip Watts	Head of Corporate Affairs
UK	Ordnance Survey	PSB	Peter ter Har	Director of Products
UK	Ordnance Survey	PSB	John Carpenter	Head of Product Management
UK	Ordnance Survey	PSB	John Kimmance	Head, Business Sales and Support
UK	Ordnance Survey	PSB	Neil Sutherland	European Policy Adviser
UK	InfoUK	Re-user	Katrina Downs	Analyst
UK	Bureau Van Dijk	Re-user	Mark Williams	Analyst
US	NYC DataMine portal	Data.gov	NYC data support team	