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Artificial intelligence and labour markets: friend or foe?

Report¹

Committee on Social Affairs, Health and Sustainable Development

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Summary

The spread of artificial intelligence (AI) technology into the world of work might bring new opportunities and benefits, or harm and disruption. Its effects will depend on the values and vision pursued through the technology, as well as on how it is regulated and applied. Member States should better anticipate the transformative effects of AI by devising national strategies to accompany a rights-compliant transition towards more man-machine types of work, where AI is used as an enabler for working in new, more flexible ways.

To offset AI's potential negative impact and to preserve the social value of work, both commercial and public entities' use of AI for recruitment and in situations affecting workers' rights should always be treated as "high-risk", which requires stronger regulation, substantive human oversight and adequate consent. The report supports the call for human-centred strategies to cushion the impact of AI and urges investment in lifelong learning, decent work and social innovation. It advocates sovereign participation in and control of algorithmic developments, as well as a regulatory framework that promotes complementarity between AI applications and human work. The Council of Europe should draft a comprehensive standard-setting instrument on AI, such as a convention open to non-member States.

1. Reference to Committee: Reference no. 4424 of 21 January 2019.



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A. Draft resolution²

1. The world of work will be increasingly exposed to the spread of Artificial Intelligence (AI) technology. Whether this game-changing innovation will bring new opportunities and benefits, or harm and disruption, to the way our society organises work, depends on the values and vision pursued through the technology, as well as how it is regulated and applied. Policy makers at national and European level must take a strategic look at the challenges in the making and propose adequate regulatory options so as to preserve the social value of work and uphold labour rights enshrined in national, European and international legal instruments (notably labour codes, the European Social Charter (ETS Nos. 35 and 163) and the conventions of the International Labour Organization (ILO)).
2. The Parliamentary Assembly notes that AI crystallises fears around the possibility that AI could replace humans in more jobs than it could create new ones. This generates uncertainty about AI's potential impact on whether and how workers will be able to access the labour market, make a living, and have a fulfilling career in the future. AI used unwisely has the potential to disrupt the labour market, fragmenting professional lives and exacerbating socio-economic inequalities. Both commercial and public entities already employ AI to analyse, predict, reinforce and even control human behaviour. While AI can assist and facilitate human work and render it more efficient, it can also have the effect of manipulating human decisions or decisions affecting humans, violating human dignity, breaching equal opportunities and perpetuating bias in the context of employment and access thereto.
3. The Assembly is moreover concerned that AI technology is deployed on a wide scale without keeping users adequately informed, and without giving them the choice to refuse such uses, or to seek remedies when decisions affecting them as workers involve algorithmic decision-making. The Assembly therefore concurs with the recommendations of the High-Level Expert Group on AI (of the European Commission) that the use of AI for recruitment and in situations impacting workers' rights should always be treated as "high-risk" and hence heightened regulatory requirements should apply.
4. Concerned about legal and ethical aspects of AI within the existing human rights framework, the Assembly welcomes the Council of Europe's efforts, in particular through its Ad Hoc Committee on Artificial Intelligence (CAHAI), of a comprehensive mapping exercise with a view to exploring the feasibility of a standard-setting instrument, possibly a convention. The Assembly underscores the importance of the ethical benchmarks so far identified by the international scholarly community. It is particularly important to ensure substantive human oversight in the implementation of AI technology which affects labour markets and individual social rights, seeing as our society is organised around work.
5. The Assembly thus supports the recommendations of the ILO's Global Commission on the Future of Work which call for human-centred strategies to cushion the impact of AI, and urge investment in people's skills, lifelong learning (acquiring know-how, reskilling and upskilling) and institutions for learning, as well as in decent and sustainable work, in order to ensure "work with freedom, dignity, economic security and equality" for all.
6. The Assembly believes that member States should better anticipate the transformative effects of AI on the nature of human work and devise national strategies to accompany a rights-compliant transition towards more man-machine types of work, where AI is used as an enabler for working differently – in new and more flexible ways, to positive effect. To confront the uncertainties of the future with AI, there is a need for public policies that tap human potential fully, narrow the gap between labour market needs and workers' qualifications, and cultivate essential ethical values, such as inclusiveness and sustainability.
7. Accordingly, the Assembly calls on member States to:
 - 7.1. elaborate and publish national strategies for responsible AI use, if they have not yet done so, covering *inter alia* challenges for labour markets, labour rights and skills development;
 - 7.2. ensure sovereign participation in and control of algorithmic developments, guaranteeing the full respect of existing legal norms and standards by AI developers and users in the context of employment, and avoiding regulatory capture by influential AI businesses;
 - 7.3. develop official policies and guidance for AI developers with a view to putting AI at the service of human needs and well-being, and not *vice versa*;

2. Draft resolution adopted unanimously by the Committee on 22 September 2020.

7.4. put in place a requirement for AI developers to always notify users whenever they are in contact with AI applications, and guarantee that any use of surveillance techniques at the workplace is subject to special precautions in terms of consent and privacy protection;

7.5. design a regulatory framework that promotes complementarity between AI applications and human work, and ensures proper human oversight in decision-making;

7.6. ensure that algorithms used in the public sphere, such as employment services, are understandable, transparent, ethical, gender sensitive and, as far as possible, certified at European level; only mature and rights-compliant algorithms should be authorised for use in the public sphere;

7.7. consider the need for social innovation to accompany the spread of AI technology in labour markets by:

7.7.1. studying options for securing a permanently guaranteed basic income floor “as part of a new social contract between citizens and the State”, as called for in the Assembly’s [Resolution 2197 \(2018\)](#) “The case for a basic citizenship income”;

7.7.2. examining “social” taxation options such as a “robot tax” (so-called “automation tax”), as well as “carbon taxes”, in order to alleviate the negative impact of automation on human workers and foster resource-saving rather than labour-saving innovation, thus helping address simultaneously climate change and inequalities;

7.8. rethink and adapt national education and training systems in order to:

7.8.1. introduce “AI literacy” through digital education programmes for young people and life-long learning/training paths for all;

7.8.2. emphasise the differences between human and artificial intelligence;

7.8.3. develop critical thinking, creativity and emotional intelligence;

7.8.4. introduce the concept of personal training accounts for all workers, entailing positive obligations for all employers to set up skills development plans or training;

7.8.5. cater for an increased focus on a broad range of competences that preserve employability in the AI era, and ensure certification and a greater portability of competences;

7.8.6. soften some occupational licensing requirements which hinder cross-sector and cross-country mobility of professionals;

7.8.7. make proposals for revising Recommendation CM/Rec(2016)3 on human rights and business in order to reflect the above concerns on the potential effects of AI.

8. The Assembly furthermore encourages the European Committee of Social Rights to explore the ethical and legal implications of increasing AI penetration into the delivery of public services, the functioning of labour markets and social protection.

B. Draft recommendation³

1. The Parliamentary Assembly refers to its Resolution ... (2020) “Artificial intelligence and labour markets: friend or foe?”. It reiterates its support for the work of the Ad Hoc Committee on Artificial Intelligence (CAHAI) as regards a legal framework for the design, development and application of artificial intelligence (AI), involving broad multi-stakeholder consultations and based on core Council of Europe values.
2. The Assembly views with concern the ongoing deployment of AI by both commercial and public entities, with a deep-reaching impact on fundamental human rights and human dignity, including in the context of employment, while regulatory measures and oversight of AI applications remain extremely limited. It considers that it is time for the Council of Europe to start drafting a comprehensive standard-setting instrument on AI, such as a convention open to non-member States, that will build on the collective wisdom, shared values and the pan-European vision for the future.
3. The Assembly therefore calls on the Committee of Ministers to launch the process for delivering a comprehensive European legal instrument on AI which would also cover the need for enhanced protection of work-related social rights.

3. Draft recommendation adopted unanimously by the Committee on 22 September 2020.

C. Explanatory memorandum by Mr Stefan Schennach, rapporteur

1. Introduction

1. In December 2018, the Committee on Social Affairs, Health and Sustainable Development (“the committee”) discussed the opportunities and challenges that the spread of artificial intelligence (AI) technologies is expected to bring into our lives and the way we work. It then decided to further pursue the consideration of this issue and tabled a motion for a resolution on the subject (Doc. 14778). The motion points to the game-changing aspects of AI technologies which “may offer countless new opportunities and benefits for many”, but “may also significantly disrupt the current patterns of work” and “affect workers’ rights”. We, as policy makers at national and European level, have to take a strategic look at the challenges in the making and propose adequate regulatory options. When the motion was referred to the committee for report, I was appointed rapporteur on 9 April 2019.

2. The committee then held exchanges of views with Ms Judith Pühringer, Managing Director of Arbeit plus (Austria), on 14 May 2019 and with Ms Corinna Engelhardt-Nowitzki, Head of the Industrial Engineering department at the University of Applied Sciences, Vienna, on 3 December 2019.⁴ I also participated in the OECD Global Parliamentary Network meeting on 10-11 October 2019 and carried out a fact-finding visit – together with our Committee’s rapporteur on “Artificial intelligence in health care: medical, legal and ethical challenges ahead” – to the International Labour Organization (ILO) and the World Health Organization (WHO) in Geneva on 16-17 January 2020.

3. This report will seek to present a global picture of the opportunities and challenges in the making for the world of work due to AI and will look at the policy implications from the Council of Europe perspective. It will review options for organising man-machine working patterns and the existing examples of such practice so as to draw lessons and recommendations for the national and European decision-makers with a view to smoothing the transition to a different world of work and minimising disruptions in society. The report should also explore what safeguards should not be transgressed in order to uphold the fundamental rights of people at work, and how to address or prevent potential inequalities, prejudices and stereotypes in this context.

2. AI: what is it?

4. As the Council of Europe Commissioner for Human Rights notes in her Recommendation “Unboxing Artificial Intelligence: 10 steps to protect Human Rights” (May 2019),⁵ there is no agreed definition of AI. The term is commonly used to describe automated data-processing techniques that significantly improve the ability of machines to perform tasks requiring intelligence – something that has been a nearly exclusive domain of humans so far. Equipped with algorithms, modern machines and robots can effectively “learn” new things, change the way they perform tasks and implement their own decisions without any human intervention. The appendix to this report contains a tentative description of AI, “machine learning” and “deep learning” concepts, as well as an overview of key ethical principles for trustworthy AI, from the Council of Europe perspective.

5. The Organisation for Economic Cooperation and Development (OECD) and United Nations Conference on Trade and Development (UNCTAD) have described AI as “the ability of machines and systems to acquire and apply knowledge, and to carry out intelligent behaviour”. This definition shows that AI comprises a variety of technologies capable of manipulating objects and of cognitive tasks (such as sensing, reasoning, learning, making decisions). In its factsheet on a Digital Single Market, the European Commission refers to AI as “systems that show intelligent behaviour; by analysing their environment they can perform various tasks with some degree of autonomy to achieve specific goals”.⁶ More recently, the European Union described AI simply as “a collection of technologies that combine data, algorithms and computing power”.⁷ Moreover, as one ILO research paper notes, AI is aiming to replace humans in strenuous mental tasks rather than physical ones which has largely happened with the previous waves of automation and robotisation.⁸

4. See documents AS/Soc (2019) PV 04 and AS/Soc (2019) PV 08.

5. “Unboxing Artificial Intelligence: 10 steps to protect Human Rights”.

6. European Commission, “Fact Sheet on a Digital Single Market: Artificial Intelligence for Europe”, 25 April 2018, <https://ec.europa.eu/digital-single-market/en/news/factsheet-artificial-intelligence-europe>.

7. European Commission, *White Paper on Artificial Intelligence - A European approach to excellence and trust*, COM(2020) 65 final, 19 February 2020.

8. “The economics of artificial intelligence: Implications for the future of work”, ILO future of work research paper series, 2018.

3. Ethical aspects of AI in general and in relation to human work

6. AI technologies and practical applications are developing fast: they no longer belong to a science fiction domain, and we are increasingly likely to encounter them in daily life, sometimes even without realising it. Both commercial and public entities already employ AI to analyse, predict, reinforce and even control human behaviour via surveillance techniques⁹. They can assist and facilitate our work and render it more efficient but can also manipulate our decisions or decisions affecting us in the context of employment.

7. Concerned about legal and ethical aspects of AI within the existing human rights framework, the Council of Europe, through its Ad Hoc Committee on Artificial Intelligence (CAHAI),¹⁰ has undertaken a comprehensive mapping exercise with a view to exploring the feasibility of a standard-setting instrument, possibly a convention. Its inventory includes amongst others the first European Ethical Charter on the use of AI in judicial systems, the Guidelines on AI and data protection, the Declaration by the Committee of Ministers on manipulative capabilities of algorithmic processes, and the Study on human rights dimensions of automated data processing techniques, as well as the above-mentioned recommendation by the Commissioner for Human Rights and, more recently, Recommendation CM/Rec(2020)1 of the Committee of Ministers to member States on the human rights impacts of algorithmic systems. The Commissioner's recommendation refers to the need to "monitor the potential negative impacts on the right to work and plan for mitigation, including through schooling". The Council of Europe's overview of international studies on ethical principles of AI has identified some core benchmarks (see the appendix), notably transparency, justice and fairness, responsibility, safety and security, and privacy.

8. Considering AI as a strategic technology that can benefit society and the economy, the European Commission published a European strategy (April 2018), a co-ordinated plan (December 2018) and a Communication (April 2019)¹¹ putting emphasis on human-centred development of AI "with the ultimate aim of increasing human well-being". The Commission's High-Level Expert Group on AI issued guidelines for trustworthy AI that stress seven major requirements that AI applications should respect: human oversight, technical safety, personal data governance, transparency, diversity and non-discrimination, societal (and environmental) well-being, and accountability.

9. From June 2019, these guidelines have been tested and assessed by various stakeholders and individuals from both the private and the public sector, and a white paper was issued in February 2020. The latter singles out the issue of employment equality for all sectors, underscoring that the use of AI for recruitment and in situations affecting workers' rights should always be treated as "high-risk" and hence heightened regulatory requirements should apply. In July 2020, the High-Level Expert Group launched the Assessment List for Trustworthy AI (ALTAI) to help AI developers and users check AI applications against the requirements of trustworthy AI. The European Union has been pleading for the elaboration of international AI ethics guidelines, including through multilateral fora such as the G7 and G20. The latter has endorsed "Principles on Human-centred AI" in June 2019.

10. The Foresight Brief on "Labour in the age of AI" by the European Trade Union Institute (ETUI)¹² warns about potential violations to human dignity caused by AI-powered surveillance technologies in the workplace which illustrates the need to better protect the right to privacy and personal data protection in line with requirements of the Council of Europe Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data (ETS No. 108) and its amending Protocol (CETS No. 223, "Convention 108+") and the General Data Protection Regulation (GDPR). The ETUI also calls on European countries to guarantee the right to explanation of decisions made by AI, since algorithmic decisions are based on large data sets that may reflect human biases and prejudice, thus inheriting them and potentially producing discriminatory decisions. We should recall that article 12 of the GDPR guarantees the right to obtain information that is understandable, meaningful and actionable, while article 9.1.a. of Convention 108+ insists on every individual's right "not to be subject to a decision significantly affecting him or her based solely on an automated processing of data without having his or her views taken into consideration".

9. Already in 2013, at its 1173rd meeting, the Council of Europe's Committee of Ministers adopted a Declaration on Risks to Fundamental Rights stemming from Digital Tracking and other Surveillance Technologies, stressing member States' "negative obligations, that is, to refrain from interference with fundamental rights, and positive obligations, that is, to actively protect these rights" including the "protection of individuals from action by non-state actors".

10. See the website of the Council of Europe on AI: www.coe.int/ai, and www.coe.int/cahai.

11. "Building trust in human-centric artificial intelligence", Communication from the European Commission to the European Parliament, the Council, the European economic and Social Committee and the Committee of the Regions, COM(2019)168 final, 8 April 2019.

12. Foresight Brief, "Labour in the age of AI: why regulation is needed to protect workers", Aida Ponce Del Castillo, European Trade Union Institute (ETUI).

11. The OECD for its part adopted (on 22 May 2019) the first intergovernmental policy guidelines on AI in seeking to uphold international standards towards ensuring the design and operation of “robust, safe, fair and trustworthy” AI systems which could deliver “the best outcomes for all”. The OECD principles on AI have the support of the European Commission and echo the latter’s guidelines for trustworthy AI. Although not legally binding, they have a very strong potential to become a global benchmark and to influence national legislation across the world. As rapporteur, I note the OECD’s recommendation to governments to “equip people with the skills for AI and support workers to ensure a fair transition”.

12. In this context, the ILO’s Global Commission on the Future of Work has proposed a human-centred strategy to cushion the impact of AI. It urges investment in people’s skills, lifelong learning (acquiring skills, reskilling and upskilling) and institutions for learning, as well as in decent and sustainable work. The latter aspects imply additional efforts to ensure “work with freedom, dignity, economic security and equality”. This is a tall order: as we saw during the exchange of views with the representative of Arbeit plus, the first algorithmic applications used in Austria by employment agencies do not have the trust of the civil society nor of the social partners as to their capacity to make adequate assessments of human potential and motivation to work, and risk perpetuating a gender bias, sclerotic stereotypes and inequalities.

13. Some States have already published national strategies for responsible AI; they include France, Germany, Italy, New Zealand and the United States of America. The Italian AI strategy is viewed as one of the most comprehensive ones: it takes a human-centric approach considering that AI should be designed as a service for humans and should not seek to replace humans, but merely to enhance their capacities and lives. This strategy also highlights the need for strong government guidance and regulation of the labour market to preserve employment quality, to mainstream sustainability (notably inclusiveness and equal opportunities) and to prevent high levels of unemployment; it also pleads for systemic changes in the education system so as to provide for robust lifelong learning paths for workers.¹³

4. Growing job insecurity and the transformation of jobs

14. AI clearly crystallises fears around the possibility of AI to replace humans in more jobs than it could create new ones, and thus uncertainty about how we are going to earn our living in the world with super-smart robots and “black-box” applications everywhere. Various studies point to a potential rise in income and wealth inequalities as a result of increased automation. Some reports find that up to 35% of workers in the United Kingdom and 47% in the United States risk being ousted from their jobs by AI over the next 20 years or so.¹⁴ The World Bank predicts an even more gloomy scenario for developing countries with 69% of jobs being at risk in India and 77% in China where multinational companies may be tempted to use more and more automation despite abundance of still cheap but gradually more expensive labour. Not all researchers are alarmist though, pointing to job displacements and transformation. The OECD, for instance, estimates that about 14% of jobs in its member countries are “highly automatable”, whilst another 32% are likely to be substantially transformed due to advanced technologies.

15. ILO research shows that, unsurprisingly, businesses tend to introduce smart technologies for highly skilled tasks in substitution of workers if such changes are profitable and 24-hour service is necessary; AI applications are actually promising to optimise the performance of low-skilled workers by speeding up their work and reducing errors. As jobs are constituted by a set of tasks, if some of these tasks are automatised, job profiles might change by adding new tasks or modifying existing ones instead of suppressing a (human) job entirely. According to many observers, AI has the potential of new “general purpose technology” (such as electricity, computerisation, Internet) that could permeate our lives via multiple applications in different activities and occupations. At this stage, the ILO observes that there is little ‘hard evidence’ of net job displacements or actual job destruction. This, however, should not stop policy makers from anticipating deep, wide and multi-faceted impact of AI on human jobs.

16. The OECD foresees a very uneven spread of AI applications across countries, sectors and jobs. The most advanced AI systems appear still to be narrow in scope in as far as they are designed to carry out specific problem-solving or reasoning tasks. This is however no consolation to translators whose jobs are increasingly threatened by highly accurate, quasi-instantaneous and cheap, if not free, translation applications such as Google Translate (applicable to more than 130 languages), DeepL, Dict Box, Microsoft Translator,

13. See www.living-innovation.net/news/article?id=172&title=the-ai-national-strategy-in-italy-setting-out-best-practices (accessed on 4 September 2020).

14. C.B. Frey; M. A. Osborne, “The future of employment: How susceptible are jobs to computerization?”, 2017, published in *Technological Forecasting and Social Change*, Vol. 114, Issue C, pp. 254-280.

Day Translations, Waygo and iTranslate, to mention just a few most used systems globally. This might probably not render translators' jobs totally obsolete but might gradually transform them into proof-reading jobs, at least for some, to make sure that important aspects do not get "lost in [machine] translation".

17. A study on the ethics of artificial intelligence by the Scientific Foresight Unit (STOA Panel) of the European Parliament¹⁵ predicts that AI and automation may exacerbate existing social and economic inequalities, emphasising the disproportionate impact on young people entering the labour market with little technical experience and minorities lacking high-skill training.

18. This job-replacement trend can be observed more obviously in European pharmacies with pharmaceuticals-dispensing robots, whilst in the USA this trend is already well advanced and the pharmaceutical robots' market is estimated to weigh over USD 430 million by 2025. The best performing pharma-machines are now capable of dispensing about 225 types of drugs, allegedly make fewer mistakes than humans and cost about USD 12 per hour compared to about USD 18 per hour of human pharmacist in the US. In addition, pharma-robots are being trained to help identify counterfeit or fraudulent drugs, can reduce contamination for locally packed drugs and are available to serve clients at round-the-clock hours. The risk though is to see the devaluation of human skills and diminishing human responsibility, control and advice that are so important in the medical sector.¹⁶

19. If the earlier waves of automation put more low-skilled jobs at risk, AI-driven machines will also affect the so-called white-collar jobs, namely those with high-skills. As one expert explained during our Committee's recent exchange of views¹⁷, technically speaking, machines so far are not really creative; they are merely imitating humans and their reasoning capacity. However, in certain sectors, more advanced AI applications already provide a relatively good basis for decision making even though they remain limited by algorithms' probabilistic nature and potential bias based on analysis of past or current behavioural patterns. Indeed, AI machines and algorithms lack the disruptive ability to enact positive change to eliminate bias or errors. In some sectors, such as medicine, professionals' reliance on AI could even be dangerous (due to lack of understanding of machine- and data-related limitations) and might gradually lead to deskilling of professionals. I believe that rather than allowing smart machines to take over human decisions completely, we should consider instead how man-machine synergy could be optimised in order to facilitate human work and to enhance the quality of the end result.

20. Given that AI could potentially boost labour productivity by up to 40% by 2035 in developed countries, private sector enterprises are not the only ones rushing to tap the potential of AI. The public sector agencies, also in Europe, have been testing AI applications in delivering services to the population, such as in Italy where the Ministry of Economy and Finance has introduced an AI-driven help desk for handling citizen calls, and saw customer satisfaction grow by 85%. In the United Kingdom, the British Department for Work and Pensions started using AI to process incoming correspondence.¹⁸ More and more managers view AI as an "enabler" for working differently – in new and better ways.

21. Demographic changes in Europe may also lead to the need to embrace AI-enabled solutions more widely. On the one hand, Europe's population is aging and there is already a shortage of workforce in the (social and medical) care-giving sector, also to assist persons with disabilities; on the other hand, scores of young people and the long-term unemployed are struggling to find jobs as their skills do not necessarily match the employers' and society's needs. AI can support care-giving jobs by alleviating humans from strenuous physical tasks and freeing them for more interactive and problem-solving work that requires more emotional intelligence than smart machines can currently offer. This means that European society will need many new workers with skills allowing for a professional and responsible use of AI options. At the same time, I must caution States against the massive deployment of assistive AI technology if this is done to the detriment of traditional care and if it deprives persons with special needs of a meaningful choice of affordable and accessible care.¹⁹

15. "The ethics of artificial intelligence: Issues and initiatives", study published in March 2020 by the Panel for the Future of Science and Technology, Scientific Foresight Unit (STOA).

16. Proceedings of the international conference on new technologies in health held in Thessaloniki (Greece) on 21-22 November 2019.

17. Exchange of views with Corinna Engelhardt-Nowitzki, op. cit.

18. Accenture Consulting, "Artificial intelligence, genuine impact. Public services in the era of artificial intelligence", 2018.

19. See the report of the Independent Expert on the enjoyment of all human rights by older persons, document A/HRC/36/48 of 21 July 2017, for the United Nations Human Rights Council.

5. Taming AI-driven disruptions through social policy innovations: protect people, not jobs?

22. While the future of work is in the making following the successive waves of digitalisation of data, computerisation of processes and big data management, then automation, robotisation and smart-reasoning machines, the nature of human work is undergoing rapid transformation and some even talk about the ‘end of work’, well may be not for all but for increasing numbers and types of jobs. Some researchers argue that we should aim to better protect people/workers, not jobs.²⁰ Unlike machines, we as humans are more creative at work, seek and nourish social contacts, have empathy, use critical thinking and are attentive to avoid discrimination; but we also get tired, may project our stereotypes on others and make mistakes. We defend our right to work because work equals self-accomplishment and income. Work has a major social value that we want to preserve for the current and future generations of Europeans. As one observer puts it, “We have a choice between a society that ‘works to live’ and one that ‘lives to work’, arguing that the latter is what makes humanity great and calling to “preserve the social role of work”.²¹

23. AI innovation brings with it new options for optimising and organising our work, compelling us to diversify our skills, to be more flexible and also to share some jobs with machines or other humans (such as by reducing work hours or workloads). This trend combines with the continuous economic globalisation which already caused the relocation of so many “European” jobs to developing countries and the increasing precariousness of the remaining jobs due to the global race to the bottom in terms of standards for ‘decent work’ and fierce global competition. Thus, in some countries, workers in non-standard forms of work (including platform workers) are 40-50% less likely to obtain social benefits when they lose their job than those in “traditional” jobs.²² The pace of change with the deployment of intelligent machines has accelerated so much that policy makers have to adapt the existing legal frameworks and social systems without having a full picture of all the challenges ahead.

24. We have been through the disaster of global financial and economic crisis brought about by derivative financial products which their users did not really understand and high-frequency trading that humans did not master; we now face the ‘black box’ of algorithmic applications which may lead to the best, as much as the worst outcomes. Unlike the earlier generation of digital machines with linear lines of action, AI technology can produce unpredictable outcomes, aggravate and perpetuate existing biases and discrimination on the labour markets, but it can also be more neutral than some humans and actually help correct or prevent biases, discrimination and inequalities. The quality of data and algorithm is key: from a human rights perspective, we must ensure that fundamental ethical, legal and social safeguards are in place through public policies. Policy makers should clarify benchmarks on different sources of personal information to be used by algorithmic systems for decision-making, especially in areas that may be subject to discrimination (for instance, in recruitment processes).

25. On a global scale, a few big countries currently dominate the development of AI applications and patents (the United States, China, Russia), and European countries are advancing at variable speed. We should note that total European investment (public and private) in research and innovation is much lower than that of other regions of the world: about €3.2 billion were invested in AI in Europe in 2016, compared to €12.1 billion in North America and €6.5 billion in Asia.²³ In the last three years, the European Union’s funding for AI research and development increased substantially – by 70% – and reached €1.5 billion. This effort builds on a “Coordinated plan on AI”²⁴, with the aim to mobilise some €20 billion annually in AI-related investment across the European Union in the next decade.

26. In this context, the EU’s White Paper on *Artificial Intelligence - A European approach to excellence and trust* calls for a “common European approach to AI”. It notably supports a dual approach based on regulation and investment (through an ‘ecosystem of excellence and trust’) in order to promote the uptake of AI and to tackle risks inherent in the use of AI technology, and pledges for Europe to become a global leader in the domain²⁵.

27. Uncertainties surrounding the future of human jobs with AI and subsistence earnings that go with them should compel us to have a fresh look at the idea of a basic income. This concept is no longer dismissed as utopia and is getting traction among experts,²⁶ business leaders²⁷ and politicians as an alternative system of

20. “The Globotics Upheaval. Globalisation, Robotics and the Future of Work”, Richard Baldwin, Oxford University Press, 2019.

21. “The future of work: robots cooking free lunches?”, Žiga Turk, Wilfried Martens Centre for European Studies.

22. OECD Observer, No. 317-318, Q1-Q2 2019.

23. “10 imperatives for Europe in the age of AI and automation”, McKinsey (2017).

24. COM(2018) 795.

25. Communication on “A European strategy for data”, COM(2020)66 final, 19 February 2020.

income distribution. Past experiments with a limited-scale basic income have largely demonstrated positive effects on human well-being. The analysis of the most recent basic income experiment in Finland over 2017-2018, published in June 2020, confirms improved well-being and economic security among those concerned. I should recall this Assembly's [Resolution 2197 \(2018\)](#) "The case for a basic citizenship income" which stated that "introducing a basic income could guarantee equal opportunities for all more effectively than the existing patchwork of social benefits, services and programmes" and urged member States to study "the modalities for such a permanently guaranteed income and the ways of funding it as part of a new social contract between citizens and the State".

28. Another option to alleviate the impact of automation on human workers that is gaining consideration²⁸ is a 'robot tax' or so-called 'automation tax'. Levying a tax on the use of robots raises interrogations around the absence of an agreed upon definition of the term 'robot'. OECD researcher Xavier Oberson²⁹ – building upon the definition provided by a European Parliament resolution of February 2017 (2015/2103(INL))³⁰ – suggests taking a form-neutral approach on the term 'robot' in the context of taxation, which would then include not only tangible robots and smart machines but also virtual agents. The use of robots could then be taxed according to the "imputed hypothetical salary the robots should receive from equivalent work done by humans" or based on the ratio of a company's revenues to their number of robots. The ILO research also proposes to explore other promising solutions such as carbon taxes which could foster resource-saving rather than labour-saving innovation, thus helping address simultaneously climate change and inequalities (these would widen with AI-induced job polarisation between safe, well-paying jobs and precarious, less well paid jobs).³¹

29. Considering that AI technology will eliminate some jobs and significantly modify the organisation and structure of work around the man-machine partnership, we should note some expert proposals for regulatory frameworks. In line with requirements set out in the European Social Charter (ETS No. 35 and 163), policy makers should in particular consider the following regulatory priorities with regard to AI systems in relation to human work:

- algorithms ought to be explainable, transparent, ethical, gender sensitive and, as far as possible, certified at European level, with only mature algorithms being authorised for use in the public sphere;
- AI applications should be complementary to human work and should not be allowed to completely replace humans in decision-making;
- users should be notified whenever they are in contact with AI applications and should consequently have the choice of using them or not; any use of surveillance techniques at the workplace should be subject to special precautions in terms of consent and privacy protection;
- States should control algorithmic developments so that existing legal norms and standards are respected by AI developers and users, and a regulatory capture by some AI business giants is avoided;
- education and training systems should emphasise the differences between human and artificial intelligence and cater for more expert-level skill development.³²

6. Learning systems for matching workplace needs, education and know-how

30. While business enterprises have the appetite for AI as a way to increase productivity, economic competitiveness and profits, public institutions can use AI to deliver public services and to save resources more efficiently. The current wave of AI-driven automation is innovative and unstoppable, creating many winners but also losers, notably in terms of employment when there is a mismatch between labour market

26. See *Basic Income Studies*, Volume 13, Issue 2, 20180018, ISSN (Online) 1932-0183, DOI: <https://doi.org/10.1515/bis-2018-0018>.

27. Article "Billionaire Richard Branson: A.I. is going to eliminate jobs and free cash handouts will be necessary", published on 20 February 2018 in *CNBC Make It*, cites the opinions of entrepreneur Richard Branson, Microsoft co-founder Bill Gates, Tesla chief Elon Musk and Facebook head Mark Zuckerberg in support of basic income.

28. "The 'Robot Tax' Debate Heats Up", *The Wall Street Journal*, January 2020, retrieved from www.wsj.com/articles/the-robot-tax-debate-heats-up-11578495608.

29. "How taxing robots could help bridge future revenue gaps", OECD Yearbook 2017. Retrieved from www.oecd.org/employment/how-taxing-robots-could-help-bridge-future-revenue-gaps.htm.

30. European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)).

31. "The economics of artificial intelligence: Implications for the future of work", ILO future of work research paper series, 2018.

32. Exchange of views with Corinna Engelhardt-Nowitzki, op. cit.

needs and workers' skills. To narrow this gap and tap human potential fully, national education and training systems need to learn and adapt to mainstream basic knowledge about AI technology and ethical implications towards all generations; they need to help cultivate creativity and social intelligence which are most likely to preserve one's employability in the new era. In fact, many educational tools on AI and using AI are already available.³³

31. For sure, European countries need to focus more on AI literacy – both through digital education programmes for young people and life-long learning/training systems for all. Indeed, as life-long jobs are disappearing, many will have to move from job to job during their working years, and more time and resources will have to be devoted to adapting one's skills and competences. Public policies have to accommodate this reality at several levels of governance and involve the private sector more actively in supporting training or retraining paths.

32. Some countries, such as France, have introduced the concept of personal training accounts for all workers, which entails positive obligations for all employers to set up skills development plans or training.³⁴ Social partners in other countries could replicate this approach for handling technology change with AI and smoothing the transition to more fragmented careers. Moreover, educational and training systems should be better adapted to “fit the purpose of an aging society with (fast) technological change”³⁵ and an increased focus on a broad range of competences rather than skills. As the ILO recommends from a regulatory point of view, it is important to ensure certification and a greater portability of competences and to soften some occupational licencing requirements which hinder cross-sector mobility of professionals.

33. The OECD analysts also point out that our educational systems need a vast overhaul to cater for the development of capabilities which machines do not master. A traditional widespread approach tended to emphasise the memorisation of facts, rules, equations, formulas and the like; what we rather need is to cultivate human values such as creativity, inquisitiveness, empathy, negotiation, social interaction, team-building and critical thinking. People should prepare for “jobs that have not yet been created, to use technologies that have not yet been invented, and to solve social problems that we don't yet know will arise [...] amid unforeseeable disruptions”.³⁶

7. Our ambition for the future – human-machine complementarity

34. Various States and in particular businesses are racing to embrace AI technology as innovation that will transform the way we live, work and interact. What is good for business and economic competitiveness, might not necessarily benefit people at work and even threaten their well-being if they drop out from the labour market or are unable to enter it. Although hard evidence on potential impacts of AI on labour markets is not yet available, it is clear that the contents of many human jobs will change in that they will have to teamwork with smart machines in complementarity. Humans must be prepared for more fragmented careers and life-long adjustment of their competences; they must never allow AI to take over decision-making completely.

35. Many experts concur in saying that policy makers need to think early about the economic strategies around AI, the continuous requalification of workers and the rebalancing of social protection systems in order to meet the challenges faced by our legal frameworks and our workforce, while reaping the benefits AI may bring into our lives. Running at the forefront of technological innovation and continuously reflecting on how AI might put human rights as well as human work at risk and how to respond to these hazards should be a collective priority for Europeans.

36. In this context, we should reiterate the message contained in Recommendation CM/Rec(2020)1 of the Committee of Ministers to member States on the human rights impacts of algorithmic systems: “private sector actors, in line with the United Nations Guiding Principles on Business and Human Rights, have the corporate responsibility to respect the human rights of their customers and of all affected parties”. Understanding the labour-related social rights as fundamental human rights means obligation for both States and businesses to adopt “flexible governance models” so as to ensure that “responsibility and accountability ... are effectively

33. See for instance “12 companies using AI in education to enhance the classroom”, Alyssa Schroer, updated on 25 March 2020, <https://builtin.com/artificial-intelligence/ai-in-education>.

34. “France: Employers obligation to provide skill development plans or training”, updated on 10 October 2019, the European Monitoring Centre on Change, EUROFOUND (European Foundation for the Improvement of Living and Working Conditions). See www.eurofound.europa.eu/observatories/emcc/erm/legislation/france-employers-obligation-to-provide-skill-development-plans-or-training, accessed on 26 February 2020.

35. Agrawal A.K.; Gans J.S.; Golldfarb A., “Prediction machines: the simple economics of artificial intelligence”, 2018, Boston, MA, Harvard Business Review Press.

36. A. Schleicher, OECD, “Educating for the 21st Century”, Big Think, 14 April 2014.

and clearly distributed throughout all stages of the process, from the proposal stage through to task identification, data selection, collection and analysis, system modelling and design, through to ongoing deployment, review and reporting requirements". As a further step, we should recall that the Committee of Ministers has accepted this Assembly's proposal to consider "the feasibility and advisability of revising the recommendation CM/Rec(2016)3" on Human rights and business, including as relates challenges linked to AI deployment.

37. This report has outlined some policy options for organising man-machine working patterns. As rapporteur, I wish to insist on the human-centred approach to AI development and deployment that is needed to protect human dignity, fundamental rights and the social value of work. We should not underestimate the potential harm to individuals and society at large if black-box algorithms get deployed massively in an unethical manner, and vested business interests prevail over the public interest. This points to the huge responsibility of policy makers and States to better anticipate the transformative effects of AI on human work and devise ambitious national strategies to accompany transition towards greater human-machine complementarity where rights-compliant AI is used as an enabler for working differently – in new and more flexible ways, to positive effect. To confront the uncertainties of the future with AI, we need public policies that tap human potential fully, ensure substantive human oversight of AI-based decision-making, help better match labour market needs and workers' qualifications, and cultivate essential ethical values, such as inclusiveness and sustainability. I therefore believe that it is time for the Council of Europe to start drafting a comprehensive standard-setting instrument on AI, such as a convention open to non-member States, that will build on our collective wisdom and vision for the future we want.

Appendix

Artificial Intelligence – description and ethical principles

There have been many attempts to define the term “artificial intelligence” since it was first used in 1955. These efforts are intensifying as standard-setting bodies, including the Council of Europe, respond to the increasing power and ubiquity of artificial intelligence by working towards its legal regulation. Nevertheless, there is still no single, universally accepted ‘technical’ or ‘legal’ definition.³⁷ For the purposes of this report, however, it will be necessary to describe the concept.

The term “artificial intelligence” (AI) is generally used nowadays to describe computer-based systems that can perceive and derive data from their environment, and then use statistical algorithms to process that data in order to produce results intended to achieve pre-determined goals. The algorithms consist of rules that may be established by human input, or set by the computer itself, which “trains” the algorithm by analysing massive datasets and continues to refine the rules as new data is received. The latter approach is known as “machine learning” (or “statistical learning”) and is currently the technique most widely used for complex applications, having only become possible in recent years thanks to increases in computer processing power and the availability of sufficient data. “Deep learning” is a particularly advanced form of machine learning, using multiple layers of “artificial neural networks” to process data. The algorithms developed by these systems may not be entirely susceptible to human analysis or comprehension, which is why they are sometimes described as “black boxes” (a term that is also, but for a different reason, sometimes used to describe proprietary AI systems protected by intellectual property rights).

All current forms of AI are “narrow”, meaning they are dedicated to a single, defined task. “Narrow” AI is also sometimes described as “weak”, even if modern facial recognition, natural language processing, autonomous driving and medical diagnostic systems, for example, are incredibly sophisticated and perform certain complex tasks with astonishing speed and accuracy. “Artificial general intelligence”, sometimes known as “strong” AI, able to perform all functions of the human brain, still lies in the future. “Artificial super-intelligence” refers to a system whose capabilities exceed those of the human brain.

As the number of areas in which artificial intelligence systems are being applied grows, spreading into fields with significant potential impact on individual rights and freedoms and on systems of democracy and the rule of law, increasing and increasingly urgent attention has been paid to the ethical dimension.

Numerous proposals have been made by a wide range of actors for sets of ethical principles that should be applied to AI systems. These proposals are rarely identical, differing both in the principles that they include and the ways in which those principles are defined. Research has shown that there is nevertheless extensive agreement on the core content of ethical principles that should be applied to AI systems, notably the following:³⁸

- *Transparency.* The principle of transparency can be interpreted widely to include accessibility, explainability and explicability of an AI system, in other words the possibilities for an individual to understand how the system works and how it produces its results.
- *Justice and fairness.* This principle includes non-discrimination, impartiality, consistency and respect for diversity and plurality. It further implies the possibility for the subject of an AI system’s operation to challenge the results, with the possibility of remedy and redress.
- *Responsibility.* This principle encompasses the requirement that a human being should be responsible for any decision affecting individual rights and freedoms, with defined accountability and legal liability for those decisions. This principle is thus closely related to that of justice and fairness.
- *Safety and security.* This implies that AI systems should be robust, secure against outside interference and safe against performing unintended actions, in accordance with the precautionary principle.
- *Privacy.* Whilst respect for human rights generally might be considered inherent in the principles of justice and fairness and of safety and security, the right to privacy is particularly important wherever an AI system is processing personal or private data. AI systems must therefore respect the binding

37. For a wide-ranging overview of attempts to define ‘artificial intelligence’, see *AI Watch: Defining Artificial Intelligence – Towards an operational definition and taxonomy of artificial intelligence*, Samoili S., López Cobo M., Gómez E., De Prato G., Martínez-Plumed F., and Delipetrev B., European Commission Joint Research Centre, 2020.

38. See *AI Ethics Guidelines: European and Global Perspectives*, Draft Report commissioned by the Council of Europe Ad Hoc Committee on Artificial Intelligence (CAHA), Ienca M. and Vayena E., March 2020.

standards of the EU General Data Protection Regulation (GDPR) and the Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data of the Council of Europe (ETS No. 108 and the 'modernised' convention 108+, CETS No. 223), as applicable.

The effective implementation of ethical principles in relation to AI systems requires an 'ethics by design' approach, including a human rights impact assessment so as to ensure compliance with established standards. It is not sufficient for systems to be designed on the basis of technical standards only and for elements to be added at later stages in an attempt to evince respect for ethical principles.

The extent to which respect for these principles should be built into particular AI systems depends on the intended and foreseeable uses to which those systems may be put: the greater the potential impact on public interests and individual rights and freedoms, the more stringent the safeguards that are needed. Ethical regulation can thus be implemented in various ways, from voluntary internal charters for the least sensitive areas to binding legal standards for the most sensitive. In all cases, it should include independent oversight mechanisms, as appropriate to the level of regulation.

These core principles focus on the AI system and its immediate context. They are not intended to be exhaustive or to exclude wider ethical concerns, such as democracy (pluralistic public involvement in the preparation of ethical and regulatory standards), solidarity (recognising the differing perspectives of diverse groups) or sustainability (preserving the planetary environment).