

Research project Fieldlab Evenementen phase II: trade exhibition

Data collection and monitoring of group dynamics between visitors of the Fieldlab Evenementen pilot events

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1. Introduction

The focus in this report is on a variant on the previously defined event types I-IV and covers venues with an unstructured fluid crowd movement. The pilot event executed was an indoor trade exhibition. Specifically, the research was conducted during the “EventSummit, the largest one-day platform for the event industry” organised by EventSummit.

2. The event

The definition of events with an unstructured fluid crowd movement is not as such described in Pilots for Low-Contact Events (Fieldlab Evenementen, 2020). In this report the following definition for venues with an unstructured fluid crowd movement will be used:

Events with an unstructured fluid crowd movement are characterised as events that take place in- or outdoors and have an active character. Visitors are enthusiastic, sociable and have an interest in visiting attraction points such as stands.

On Thursday May 20th the first venue with an unstructured fluid crowd movement pilot event, initiated by Fieldlab events, took place. The event, a trade exhibition, was organised by EventSummit and was located at the Jaarbeurs in Utrecht. The start of this event was at 10.30h and lasted till 19.00h.

3. Risk profile

The building block visitor dynamics, focuses on minimising the risk of infection at events. In order to map the profile of the event, a distinction is made between factors that normally play a role when analysing the risks at events in a non-covid situation. A distinction is made between the activity profile, the spatial profile and the public profile (van den Brand & Abbing, 2003).

3.1. Activity profile

The activity profile presented in Table 1 came about through a brainstorming session with various stakeholders (Logistics Community Brabant, 2020). It concerns the processes at the event where visitors come together and where there is a possible risk of contamination. This involves visitors meeting each other at a certain location, for a certain length of time and at a certain risk. By localising, describing, and analysing the risks, processes can be optimised, and the spread of risks minimised.

Table 1. Activity profile

Touchpoints (Ingress)	
Parking	Nearby car park
Entrance	Ticket, negative test result and after receiving tag
Placing	not applicable
Visitation	not applicable
Touchpoints (Circulation)	
Beverage	Bars
Food	Applicable
Toilets	At location
Entrance process	Through entrance gate manned by steward(s)
Exit process	Via exit gate manned by steward(s)
Routes	Via signage
Touchpoints (Egress)	
Parking	Nearby parking area
Exit	Accompanied by stewards and after return of tags

3.2. Space profile

Not one event is like another. It is therefore useful to use general characteristics when classifying events. (van Rijn & van Damme, 2011) describe several general characteristics related to events in addition to the characteristics mentioned by Fieldlab. These general characteristics (Table 2) give direction to the expectations regarding the dynamics of visitors to events.

Table 2. Spatial profile

Event name	EventSummit
Spatial Profile	
Event location	Jaarbeurs
Event type	Flow location
Sort event	Public event
Event specification	Business event
Attractiveness	Local
Duration	Daytime
Location (indoor/outdoor)	Indoor
Accessibility	Fixed location - existing
Size	medium < 500-5000
Access	Ticket sales

The hall in the event location Jaarbeurs in Utrecht can accommodate 6400 visitors and exhibitors in a normal situation. For this occasion, 200 stands will occupy 6148 m², enough for a planned 500 exhibitors and 1500 visitors, resulting in an occupation rate of about 70%.

Prior to the events, clear and strict guidelines have been drawn up for all those directly involved. The main condition for participating in the event is the submission of a negative rapid test result at the entrance to the event site. This test must be taken at one of the affiliated test locations within 24 hours before the end of the event. Apart from this condition, additional conditions have been communicated through a developed app. For example, outside the event site, the RIVM guidelines apply to everyone involved and no specific measures or restrictions apply on the event site.

3.3. Public profile

It is essential to know the characteristics of the audience of a specific event in order to anticipate on their behaviour. Audience is inextricably linked to behaviour. Before zooming in on behaviour and mood, the type of audience is mentioned. In addition to the distinction in audiences, social characteristics of audiences are indicated. Audiences display specific behaviour, but they are difficult to define and cannot easily be classified (Still, 2014).

The following characteristics of behaviour apply, to a greater or lesser extent, to visitors to both events in the different phases of the event:

Casual	<p>People come and go;</p> <p>Not organised but can be in loose groups;</p> <p>Accepts guidance from authority;</p> <p>Behaves well.</p>
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The participant in the event setting, passive behaviour applies during ingress and egress. During the movement phase quiet and interesting behaviour applies. The conclusion that in this event the visitors are to be typified as "casual" means that no extra safety measures has been implemented other than in- and egress processes.

4. Safety measures

The events took place in a protected and controlled environment. In order to realise this environment, different safety measures were taken, such as the requirement for a negative COVID-19 test for entrance, direct communication with the visitors and ventilation requirements. This report will focus on the measures regarding visitor dynamics, such as time slots. The use of time slots aims to achieve a gradual and controlled ingress and is directly related to the starting times and physical size of the starting areas. The layout of the starting areas and the allocation of time slots were achieved through intensive cooperation between various parties involved.

To realise a gradual ingress, the choice was made to use various time slots. Table 3 shows the time slots and the number of visitors per time slot.

Table 3. Timeslots and visitors

Timeslots	# visitors
10:00h - 11:00h	500
11.00h - 12.00h	500
12.00h - 13.00h	500

To ensure a safe and regulated ingress (minimum contact moments), the ingress process is visualised in the Figure 1. Based on this process, process calculations were made to determine the capacity of the ingress process per entrance row.

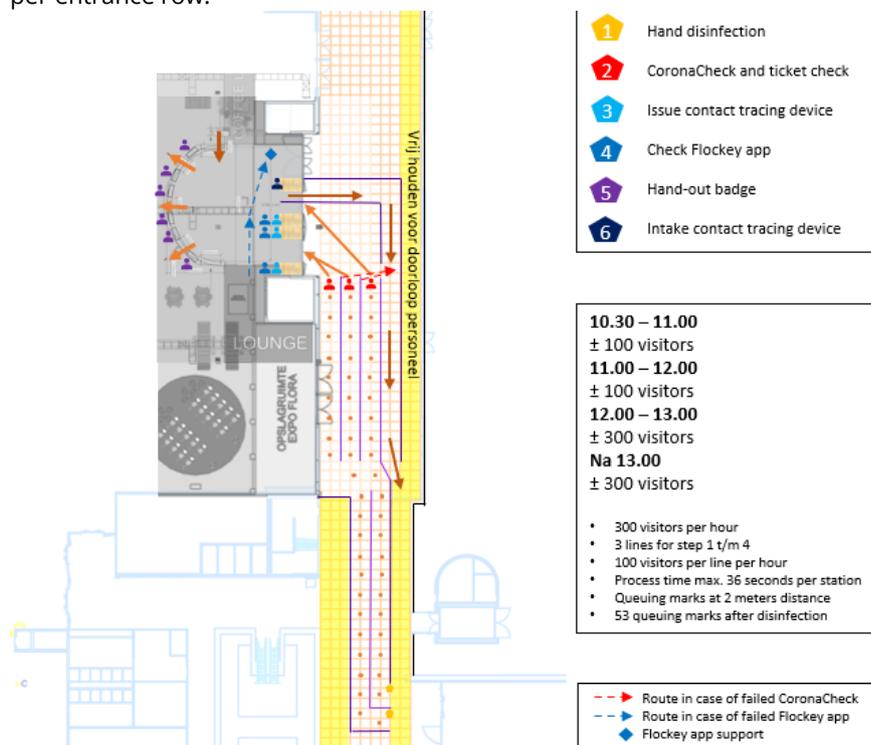


Figure 1. Entrance proces

5. Results

On May 20th 2021, 1263 individuals attended a trade exhibition in the Jaarbeurs Utrecht. The main research goal of this pilot was to assess the extent to which a new type of event would reveal new findings in relation to the original research question. Data for this study were collected using the same research instrument as those of phase I of the research program. Due to the nature of the event no specific bubbles were formed and visitors were able to freely walk around the exhibition floor. However, a distinction is made between visitors and exhibitors.

Table 4 presents the general statistics of the event. On average a visitor had 8.1 unique contacts (IQR= 4-11) lasting more than 15 minutes cumulative within 1.5 meters. Exhibitors had -on average- a slightly higher number of unique contacts; 10.3 (IQR= 5-14). However, visitors had on average 2.2 contacts per hour, whereas exhibitors only had 1.4 contacts on average per hour, based on the participation time.

Table 4. General statistics trade exhibition

Event	Bubbel	N	Average participation time	Average amount of contacts (IQR)	Distribution
events summit	Visitors	894	03:37:03	8.1 (4-11)	
	Exhibitors	369	07:30:45	10.3 (5-14)	

As shown in Figure 2 during the trade exhibition itself, when all contacts are considered, the number of contacts is stable. At the end of the fair a small network event was organized for all attendees which translates into a relative high number of contacts in comparison to the rest of the event. A further analysis of the total number of contacts over time shows that, as illustrated in Figure 3, visitors have a higher number of total contacts than the exhibitors. In contrast to earlier findings, that show that exhibitors have a higher total number of critical contacts on average.

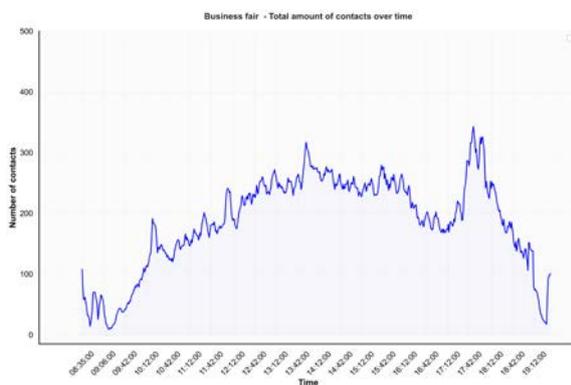


Figure 2. Total number of contacts over time

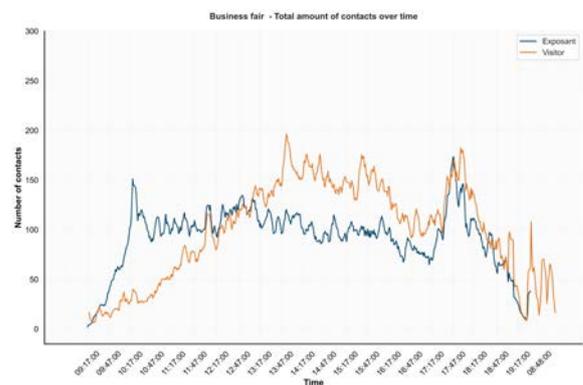


Figure 3. Total number of contacts over time, exhibitors vs. visitors

Table 4 provides an overview of the interactions between visitors and exhibitors. What is interesting about the data in this table is that on average exhibitors gather more critical contacts among themselves than with visitors. A possible explanation for this could be the fact that more than one representative of the company occupies the stand and thus have long lasting contact.

Table 5. Interactions between visitors and exhibitors

Interactions	Visitor	Exhibitors
Visitor	5.9	3.6
Exhibitors	5.6	5.2

Figure 4 shows the number of people and the average number of contacts within 1,5 meters at the entrance, bar and stands. There is a relatively high number of contacts at the entrance, possibly due to a lack of space. During the ingress, multiple printers did not function, which resulted the welcoming desk to become a bottleneck, as only one printer was operating. Unsurprisingly, a peak in contact moments is seen during the network drink.

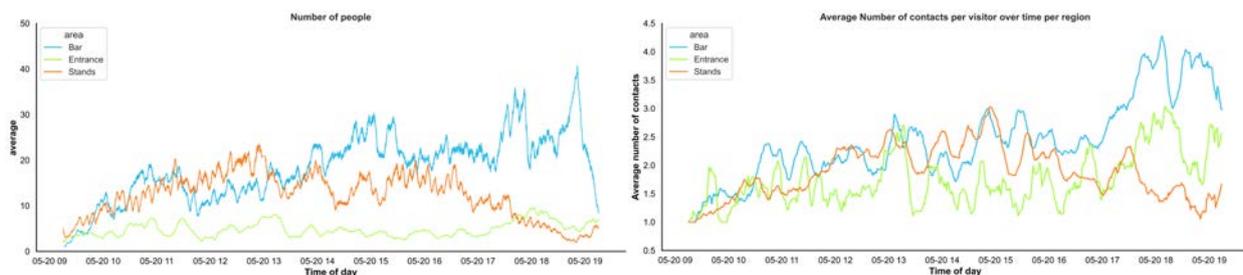


Figure 4. Number of people (left) and average number of contacts within 1,5m (right) at the entrance, bar and stands

The average number of contacts within 1,5 metres at the different exhibitor stand areas do seem to align pretty much, except for the area 'stands 2'. There is no obvious explanation for this.

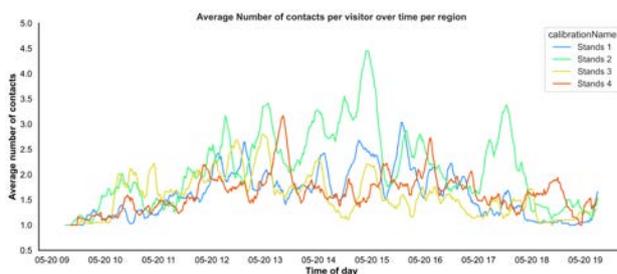


Figure 5. Average number of contacts within 1,5 metres at the different exhibitor stand areas

6. Discussion

This study was set out with the aim of assessing to which extent a new type of event would reveal new findings in relation to the original research question. On average, visitors were shown to have 8.1 contacts within 1.5 meters for a cumulative duration of 15 minutes or more. Exhibitors had on average a slightly higher number of contacts; 10.3. As for indication, these results are in line with the results for the pilot events for type I - indoor passive. Further analysis showed that the social gathering at the end of the event also resulted in a high number of contacts, which has been observed at multiple pilot events.

The generalisability of these results is subject to certain limitations. For instance, unforeseen circumstances (printers did not work) caused a bottleneck which resulted in a high number of contacts. Circumstances like this always have a chance of happening and should be proactively prepared for, for example by ensuring there is sufficient queuing space and by aligning processes with each other.

7. Bibliography

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