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Vision & Intelligence

EVIDENCE BRIEF
NOVEMBER 2026

EVIDENCE BRIEF · EVENT MANAGEMENT

Crowds Are Still Managed by Eye

Can crowd data be used in real time?

Business events drew around 1.65 billion participants in 2025, and Europe's certified exhibitions alone recorded 49.9 million visits. Studies of festivals, city events and a global summit show that crowds are still planned on paper and watched by eye, while the data that could steer them arrive after the event.

By Eventamin · How we work 12 November 2026

Netherlands, UK, Germany, Singapore, Europe

4 studies · 3 industry sources

crowd management | crowd safety | real-time crowd monitoring | crowd density | event data | smartphone tracking | Wi-Fi analytics | event operations | mass gatherings | situation awareness

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EDITION	Evidence brief · Published 12 November 2026
DOI	https://doi.org/10.5281/zenodo.24378112
CITE AS	Eventamin. (2026). Crowds Are Still Managed by Eye: Can Crowd Data Be Used in Real Time? [Evidence brief]. https://doi.org/10.5281/zenodo.24378112
WEB EDITION	eventamin.com/evidence/event-management/can-crowd-data-be-used-in-real-time, with interactive charts, chart data and the corrections log
LICENCE	Creative Commons Attribution 4.0 International (CC BY 4.0) · © 2026 Eventamin

KEY FINDING

Crowd management remains planning-heavy and human-centric: around 90 percent of the effort goes into planning, live monitoring relies on stewards and cameras, and sensor data are mostly analyzed after the event. Smartphone and Wi-Fi data can map density and footprint, but samples are thin and the methods proprietary.

Four studies, 2012–2025; industry data 2026

Key findings

- **Planning dominates.** Dutch crowd managers spend around 90 percent of their effort on planning and around 10 percent on running the event itself[1].
- **Live monitoring relies on people.** Crowds are watched by stewards and by staff in front of camera screens, and data sit in separate systems of the agencies involved[1].
- **Sensor data arrive too late.** Turnstile and barrier sensor counts are mostly analyzed after events to redesign layouts, not to steer crowds in real time[1].
- **Fewer than one percent of visitors can map a crowd.** At the 2011 Lord Mayor's Show in London, location data from 828 app users estimated crowd density in close agreement with police camera counts[2].
- **Events occupy less of a city than their audience suggests.** Wi-Fi data showed that Kiel Week, with around 3 million reported visitors, concentrated its impact on a few streets along the waterfront[3].

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FOR THE MARKET

Market outcomes

What the studies mean for each part of the industry.

Organisers & associations	Real-time crowd data pay off only if they reach the control room in one view across agencies; in practice, sensor counts mostly improve the next edition's layout. Rehearsed scenarios remain the strongest safeguard for the live event.
Venues & destinations	Wi-Fi and turnstile data already map where crowds concentrate, which supports venue and city planning between editions. Live use requires shared data across operators, police and transport.

Crowds at the scale of the industry

Events move very large crowds. According to the Events Industry Council and Oxford Economics, around 1.65 billion people took part in business events worldwide in 2025[4]. In Europe, the 1,758 certified exhibitions covered by UFI's Euro Fair Statistics recorded 49.9 million visits in 2025[5].

Data and automation are spreading in the industry. In UFI's Global Exhibition Barometer of July 2026, 91 percent of exhibition companies used AI in some form, although 70 percent used only standard tools[6]. Studies of crowd management show how far this reaches into the live handling of crowds.

Where crowd management effort goes

Crowd management is mostly done before the gates open. Experts from ten Dutch organizations that handle some of the largest crowds in the country, from music festivals and a conference to stadiums, train stations and a theme park, estimated

that planning takes around 90 percent of the effort and execution around 10 percent[1]. Plans draw on experience, guidelines from past events, simulation and what-if scenarios covering visitor profiles, location, event type and weather[1].

During the event, the priorities are practical: keeping flows moving, avoiding waits of more than about eight minutes and telling visitors how long they will wait and why[1].

Share of crowd management effort spent on planning and execution in the Netherlands

Share of total effort, as estimated by crowd management experts.



Source: Martella et al. · Release date: 2017 · Region: Netherlands · Number of interviewees: 10 (crowds of 1,000 to 700,000)

Data before, during and after the event

Live monitoring remains human-centric. Crowds are watched by stewards and by staff in front of camera screens, because automatic video analysis loses accuracy in dense crowds[1]. Information sits in separate systems of the organizer, police, security and transport operators, and is shared in person or by phone[1].

The data that do exist are mostly used afterwards. Turnstile counts and pressure sensors in barriers are analyzed after events to redesign layouts rather than to steer crowds in real time[1]. Crowd managers asked for a live map of density, movement and flows across critical areas, the whole site and its surroundings, and for ways to intervene without force[1].

Use of crowd data at events, by data source and phase

Classification of the studies' findings.

Main use · Some use · Rarely used · No data

	Before the event (planning)	During the event (real time)	After the event (review)
Stewards and staff-watched cameras	✕	✓	·
Turnstile counts	◐	✕	✓
Barrier pressure sensors	·	✕	✓
Social media monitoring	·	◐	·
Smartphone location data	·	◐	◐
Wi-Fi signals	·	·	✓

Sources: Martella et al.; Wirz et al.; Reif et al. · Release dates: 2013 to 2025 · Regions: Netherlands; United Kingdom; Germany · Classification: Eventamin

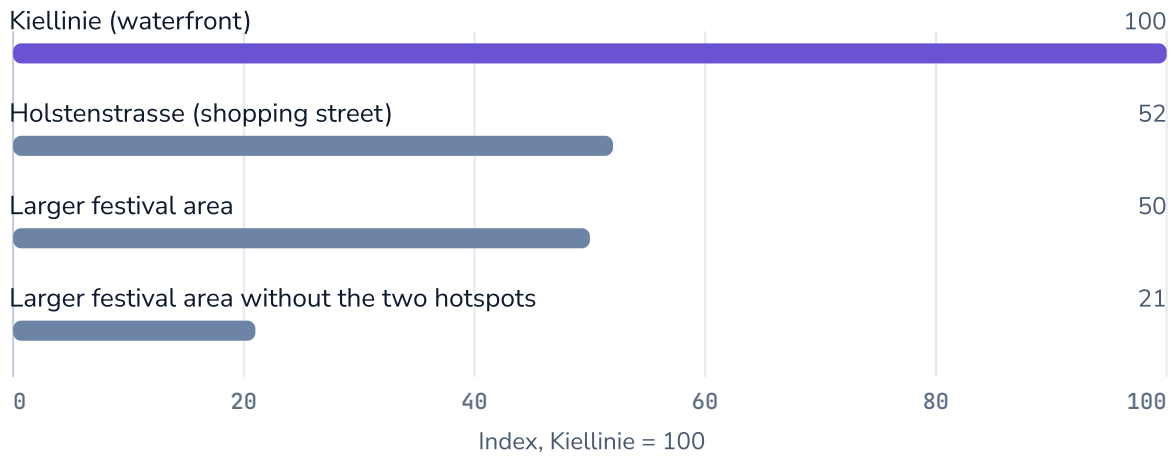
What smartphones and Wi-Fi can show

A small share of visitors can map a large crowd. At the 2011 Lord Mayor's Show in London, the official event app collected around 3.9 million location updates from 828 users, fewer than one percent of around half a million spectators[2]. Density estimates from these traces agreed closely with police camera counts, but only when measured over areas with a radius of around 55 meters[2].

City-wide data show how concentrated an event is. At Kiel Week 2022, which organizers put at around 3 million visitors, Wi-Fi signals rose most strongly along the Kiellinie waterfront, where most of the event's infrastructure stands[3]. Across the wider festival area, the increase fell to around a fifth of the waterfront level once the two hotspots were excluded[3]. Smartphone data from commercial providers behaved unexpectedly, and their algorithms were not disclosed[3].

Increase in Wi-Fi activity during Kiel Week 2022 compared with the surrounding weeks, by area

Index of the hourly increase: Kiellinie = 100.



Source: Reif et al. · Release date: 2025 · Region: Germany (Kiel) · Survey period: 2022 · Data: Wi-Fi, LiDAR and smartphone signals

Rehearsed systems at a global summit

Large summits show what prepared information systems can do. For the 2006 annual meetings of the International Monetary Fund and the World Bank in Singapore, the organizers defined three requirements: staying connected, situation awareness and security at all times[7]. A purpose-built tracking system monitored the event around the clock through more than 400 mobile phones carried by delegate liaison officers[7].

Rehearsal made the difference. Teams that had practiced scenarios such as virus attacks and slow networks contained the same incidents during the meetings, while a project management system introduced late in the preparation was little used because teams had already built their own tools[7].

SYSTEM	PURPOSE	USE DURING THE MEETINGS
Event tracking and update system	Real-time monitoring of the event and incident response	More than 400 mobile phones carried by liaison officers, run around the clock [7]
Personnel record system	Delegate personnel information	Linked to the tracking system [7]
E-mail system	Internal messaging for delegates	30 e-messaging kiosks [7]
Web-based repository	Document sharing among government agencies	Used extensively during planning [7]
Enterprise project management system	Coordination across agencies	Little used: introduced after teams had built their own tools [7]

Notes on the data

The figures are based on four studies published between 2012 and 2025: interviews with ten Dutch crowd management experts, location data from 828 app users at one London event, three big data sources at one edition of Kiel Week, and 11 interviews on one summit in Singapore [1–3,7]. Each study covers a single country or event. Index values compare areas within the Kiel study only. The classification of data use is Eventamin's coding of the reported findings.

Sources

● Study ○ Industry source

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The evidence

4 studies · 3 industry sources

SAMPLE

Four studies: 10 expert interviews, 828 app users, three big data sources and 11 summit interviews; three industry releases

YEARS

2012–2025 (studies); 2026 (industry data)

METHOD

Crowd management interviews in the Netherlands, smartphone tracking in London, Wi-Fi and smartphone data in Kiel, a summit case study in Singapore

About Eventamin

Eventamin reads the peer-reviewed research on events, exhibitions and hospitality, sets it against industry data and states what it means for the market. Every brief is published by Eventamin as an organisation: its sources, method and corrections are open.

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