



# Crowd Management Platform

A PwC Product

**Analysis and control of the  
movement behaviour of  
your event visitors**

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# Your challenge



The event industry is currently **facing numerous challenges more than ever before: Digitization, competitive pressure, increasing safety requirements, and the growing demands of visitors for an overall experience** are forcing organizers to constantly improve the conditions for events.

To remain attractive in the future, you need to be innovative – not only on stage, but also behind the scenes as well as on the entire event site. **Intelligent data analysis is becoming a decisive competitive edge.** But in this area in particular, most event organizers have so hardly exploited their potential so far. The **lack of access to potential data sources** and the supposedly complex analyses mean that only a few event organizers know the actual movement behaviour of their visitors. **The lack of data** also makes it impossible to react quickly to changes in behaviour and make adjustments. Dangerous situations are also not recognized early enough, so that **countermeasures are often initiated too late.** In addition, only partial information from past events is stored and used for planning and optimizing future events.

# Our solution:

# Crowd Management Platform



**In the field of major events, mobility and public safety, the Crowd Management Platform enables the efficient analysis and control of crowd movement behaviour via intelligent communication services.**

With the help of smartphone sensor data, the platform creates a situational picture of crowd behaviour.

Movement paths, densities, mobility types, infrastructure use and potential problem areas can be recognised and evaluated in real time.

### **High data protection according to GDPR**

Data from end users is never collected without consent.

### **IoT sensor integration**

External data sources such as IoT sensors can be easily integrated at any time.

### **Out-of-the-box functions**

Our features work without the need of complex hardware installations.

# Technical features

- **Visitor flow analysis**

Visitor flows are visualised in terms of density, direction of movement and speed in real time on the map of your event site.

- **Mobility analysis**

The platform records the types of mobility used by visitors as well as the intensity of use of stations, routes and sections of routes on the way to and from your venue. The data is visualised and can be exported for analysis purposes.

- **Long-term analyses**

With a customised dashboard, the platform's web application enables efficient as well as intuitive data processing and use for long-term analysis.

- **Artificial intelligence**

The artificial intelligence of the Crowd Management Platform analyses incoming data streams and detects anomalies as well as trends. It helps to ensure that events with large crowds and streams of visitors run without incident.

- **Integration of external data sources**

External sensors of any kind can be integrated into the platform. These additional data sources give you access to more valuable information about movement behaviour in your urban infrastructure.

# Technical features

- **Intelligent messaging**

Messages can be sent to app users in defined zones based on their location. Possible use cases include targeted information, intelligent service messages or marketing campaigns. For example, visitor groups can be notified of crowded vending stations and alternatives.

- **Geo information**

You can individually enter and manage geographical locations, routes and zones in your event site map - visible to your visitors in your app. For example, visitors can be informed about the locations of your event infrastructure (entrances, sanitary facilities, emergency aid points, etc.).

- **Asset tracking**

The geographical locations as well as movement data of your mobile assets (employees, task forces and vehicles) are automatically recorded and accessible for you at any time.

- **Asset messaging & reporting**

Using our free Command and Communicate App, your assets and responders can report any information and incidents to your control centre quickly and easily. In case of a medical emergency on your event site, you can quickly and efficiently contact and instruct an emergency crew. Furthermore, this emergency person can give feedback and, for example, ask for reinforcement.

- **Logbook**

All interactions and reports are saved in a logbook and stored long-term. You and your employees can add manual entries to the logbook at any time. The logbook can be filtered and exported as a PDF.

# Use case

## Recognise and avoid risk situations in time

1



Before the start of a sports event, spectators arrive in front of the stadium grounds. The streams of visitors mainly head for the southern main entrance.

2



### Visitor flow analysis:

The control centre detects a significantly increased number of people in front of this entrance.

3



### Intelligent messaging:

The operations centre informs the affected streams of visitors based on their location and recommends to use alternative nearby entrances.

4



The visitor groups follow the recommendations and distribute themselves to the surrounding entrances in order to be able to enter the stadium more quickly.

# Use case

## Coordinate assets efficiently

1



During an event, a visitor is injured and needs medical attention.

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2



**Asset reporting:** A security guard from your event is on site and reports the emergency via the Command and Communicate App.

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3



**Asset tracking:** The operations centre receives the message and requests available medical care with a short route to the emergency.

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4



**Asset messaging:** The requested paramedic confirms the takeover and follows the instructions on the map of the Command and Communicate App to the location of the injured visitor.

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5



The paramedic reaches the location of the injured visitor and quickly provides her with medical care.

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6



**Logbook:** All messages and instructions of this incident are automatically saved in the logbook.

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# Use case

## Improve the planning of your future events with past data

1



The event planning team of a music festival starts with organising the next event.

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2



### Long-term analyses:

The event planners use the information collected from the past events.

The platform allows access to the analyses regarding the utilisation of the zones of the respective event stages.

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3



It is also possible to evaluate how the groups of visitors have moved between the individual stage performances.

This enables the organisers to optimise the program of the next event with regard to the sequence and allocation of stages.

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## Answers to the most frequently asked questions

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### How to define crowd management?

Crowd management (crowd and movement management or audience safety management) refers to the systematic organization of crowds of people. It is important to continuously monitor and analyze the movements and dynamics in order to ensure the safety, protection and preservation of the well-being of all participants on site.

### Why is crowd management important?

People behave differently in large crowds than they do alone. Dynamics can easily spread and lead to irrational behaviour. Through targeted intervention, the behaviour of crowds can be influenced to everyone's advantage and dangerous situations such as blocked escape routes and mass panic can be prevented. In addition to avoiding dangerous situations, efficiency gains and logistical advantages can also be achieved. For example, it is possible to better adapt services to user behaviour and reduce long lines and waiting times. On the other hand, resources can be used in a more targeted and efficient manner - regardless of whether this involves goods or infrastructure.

### How does crowd management work?

Crowd management explicitly does not mean the control, but the steering of crowds. This is done primarily by specifically influencing the behaviour and conditions for the behaviour of crowds. For such targeted control, it is first necessary to collect information about the behaviour of a crowd and then derive models from this information - in today's world, usually through the use of AI. Based on these models, problems can be identified and predicted. Having a well-founded overview now makes it possible to intervene in a more targeted and efficient manner.

### How can the system be used to optimize future events?

Through the long-term analyses and thus the recording of performance metrics of the event within the Crowd Management Platform, meaningful predictions can be made for future events and thus events can be planned promisingly on a data basis such as the measurement of the utilization of attractions or sales booths.



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# Unlock the value of your event data – we explain how!



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