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# Mass Notification and Intelligent Response™ The European Way

Infrastructure & Cities, Building Technologies, Innovation & Industry Affairs  
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# A changing world needs changed concepts and technologies

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## Trends



Threats

- New threats



Building Infrastructure

- More multiuse buildings
- Buildings with large number of people



Liability

- standards/regulations to restrict/manage liability
- Performance based codes evolving

## Needs

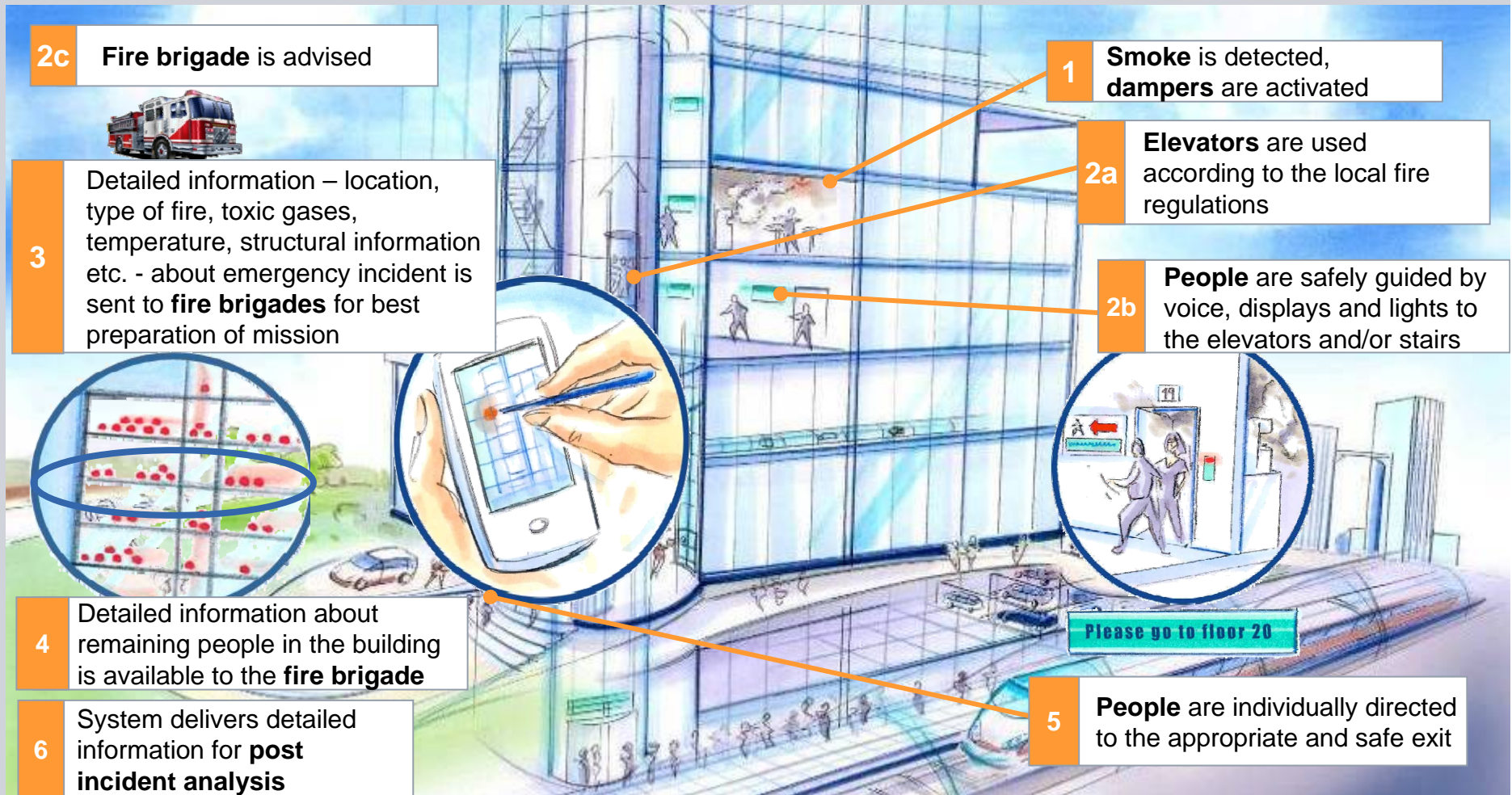
Scenario related concepts are superior to a 'one size fits all' approach

Reliable detection of people in case of an event

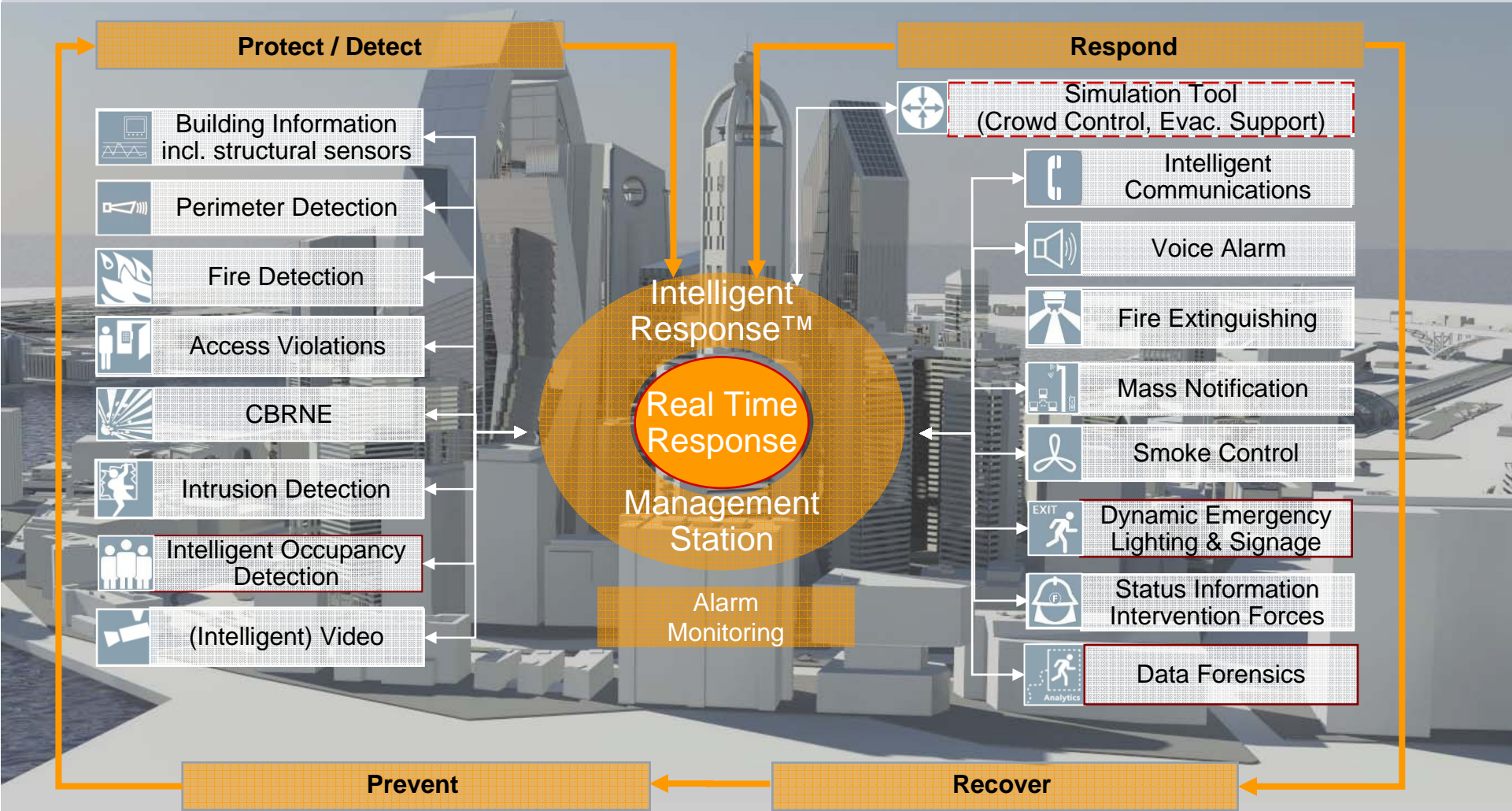
Correct, customized instructions

Adaption of regulations and standards

## Intelligent Response™ at work

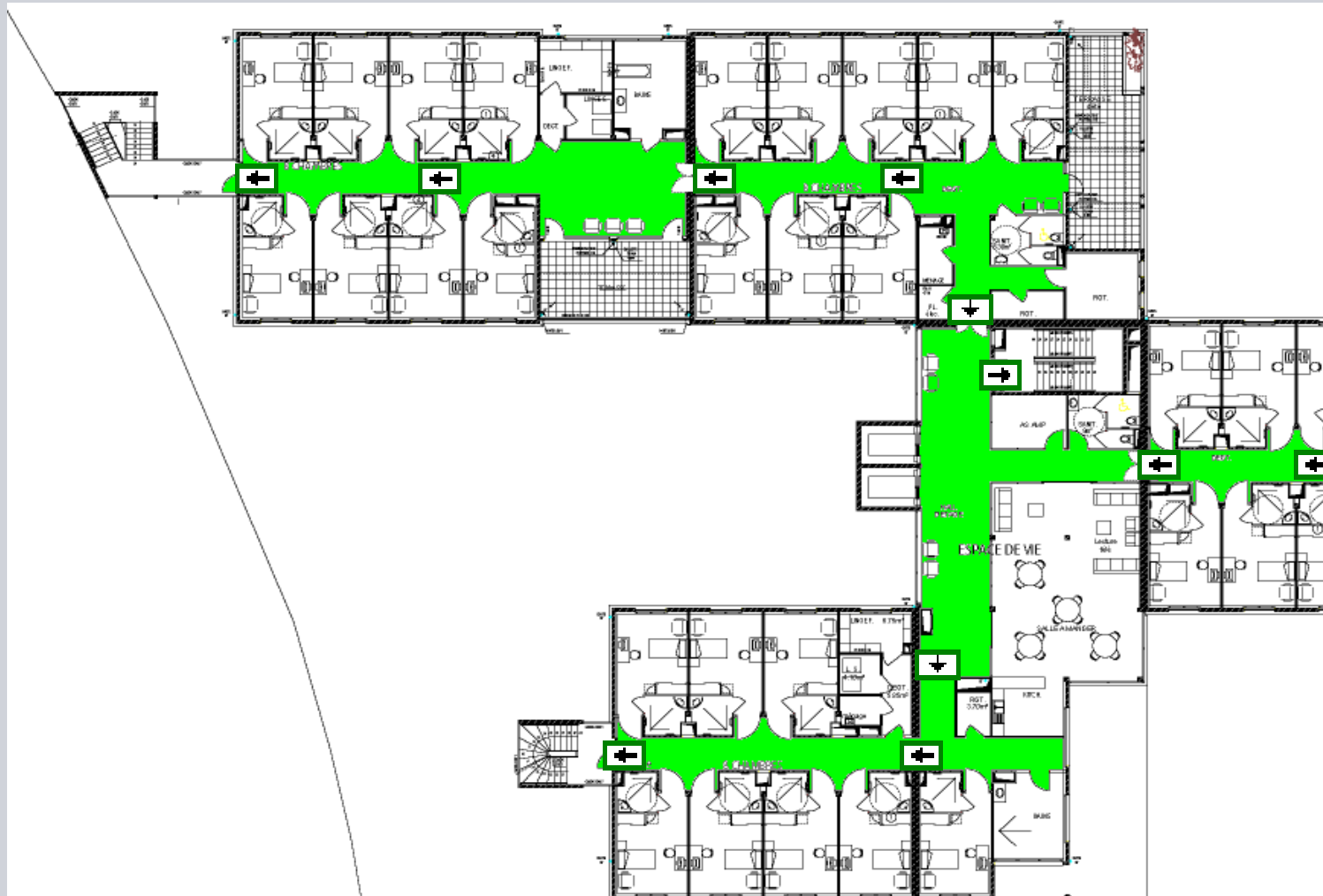


# The building blocks of Intelligent Response™



# Emergency lighting systems Classic solution

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# Emergency lighting systems

## Classic solution

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# Intelligent emergency lighting systems

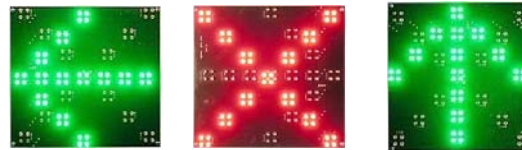
## Dynamic solution

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# Example Emergency lighting systems

## Guide people to safety faster with intelligent emergency lighting systems



- Dynamic escape routes
  - Faster
  - Safer

- Today legally not feasible
  - Static signage is mandatory
  - Liability not clear



## Example

### Re-use of existing infrastructure

In nearly every commercial building you have existing systems that can be used for emergency „communications“

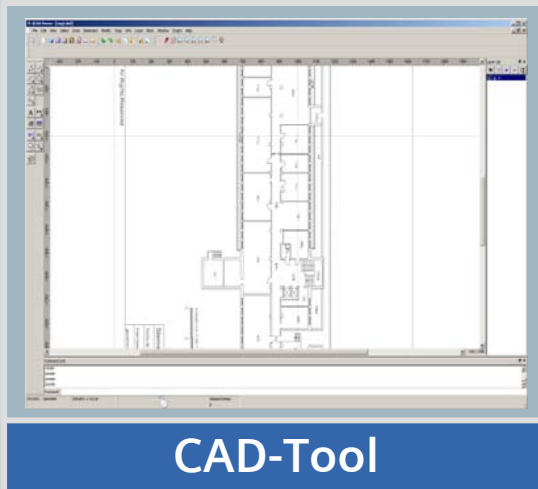
- Electronic billboards
- Passenger information systems
  - Display arrows and messages instead of arrival/departure information

#### Next Departures

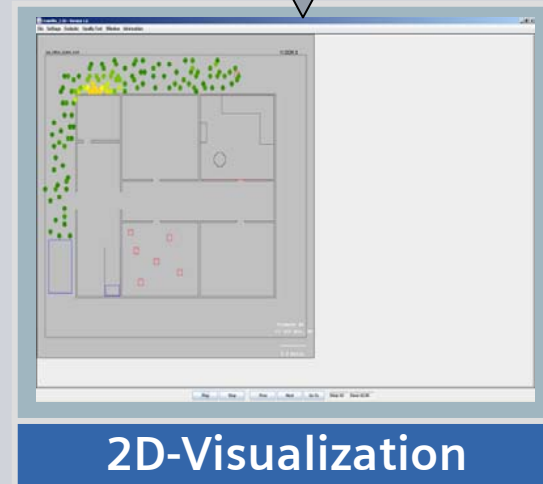
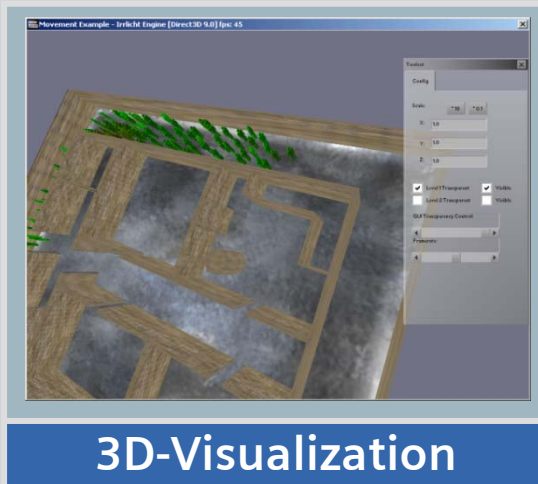
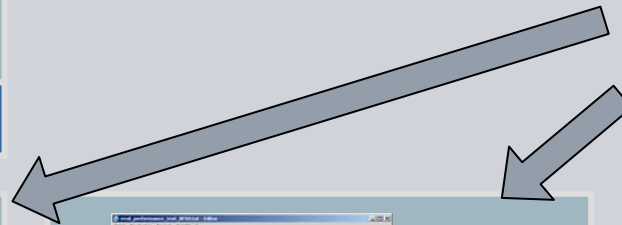
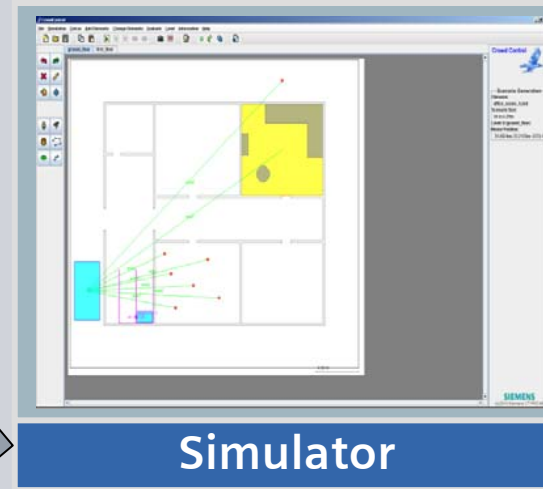
Time	Exp.	Destination	Flight	Check-in	Gate
14:35		DUBAI	EK 088	2	E53
14:35		FRANKFURT	LH 1191	1	A63
14:40		JERSEY	937	2	D54
14:50		BERLIN	AB 8211	3	B38
14:50		HAMBURG	LH 3145	1	A53
14:55		LONDON	BA 715	2	D33
15:15		DOHA	QR 064	2	E46



## Simulator overall operational concept

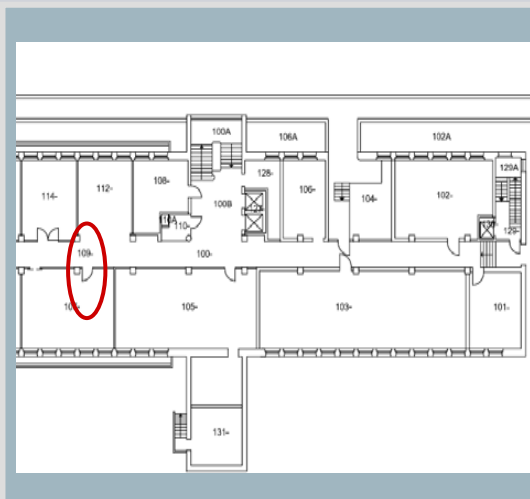


data import  
DXF/IFC → XML

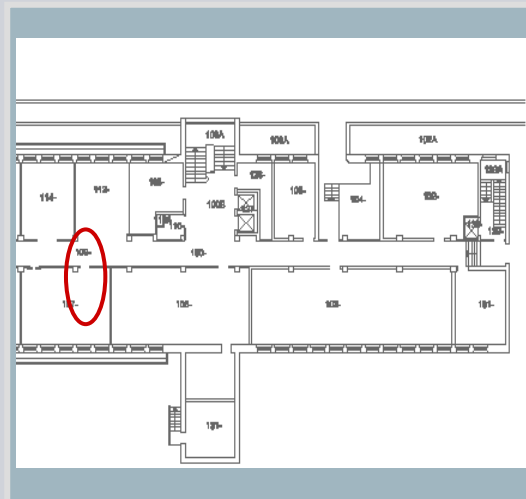


## Preparing the plans for import

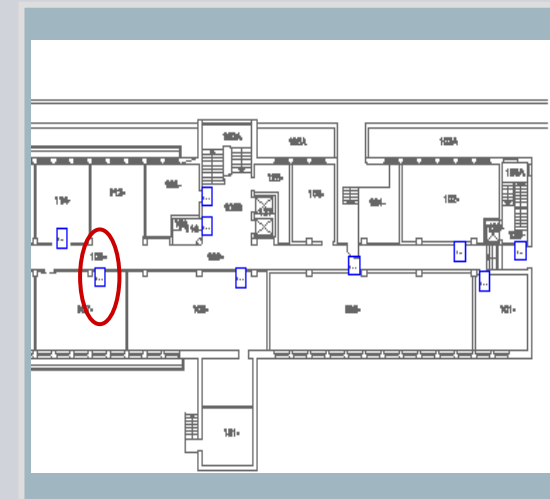
Building plans (it doesn't matter if it's A-CAD or a different architecture software or BIM) will be prepared for the import depending on their format.



Architecture plan



Doors will be removed as a standard



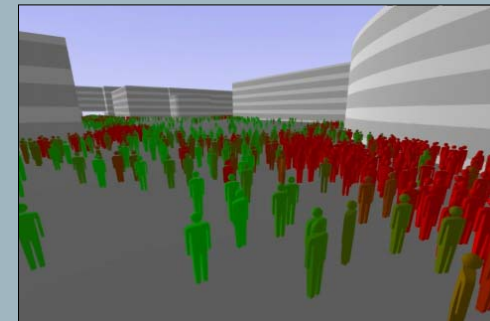
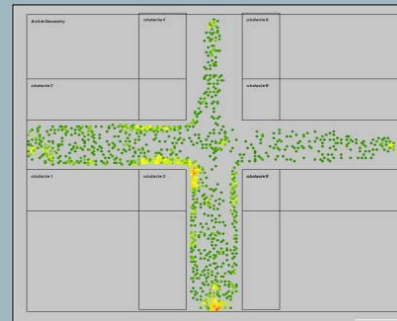
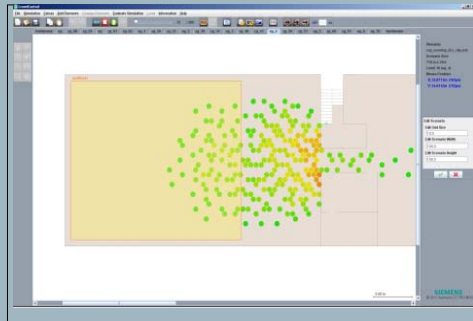
doors are replaced by control objects

# Crowd & evacuation simulation

## Benefits

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- Trustworthy
- Fast
- Leading technology



# Crowd & evacuation simulation Planning

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the layout of the infrastrucatur



for reconstructions  
and temporary blockings



Pre-planned events



# Crowd & evacuation simulation Training

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for security staff  
and first responders  
to uncover „bottlenecks“  
in the evacuation process

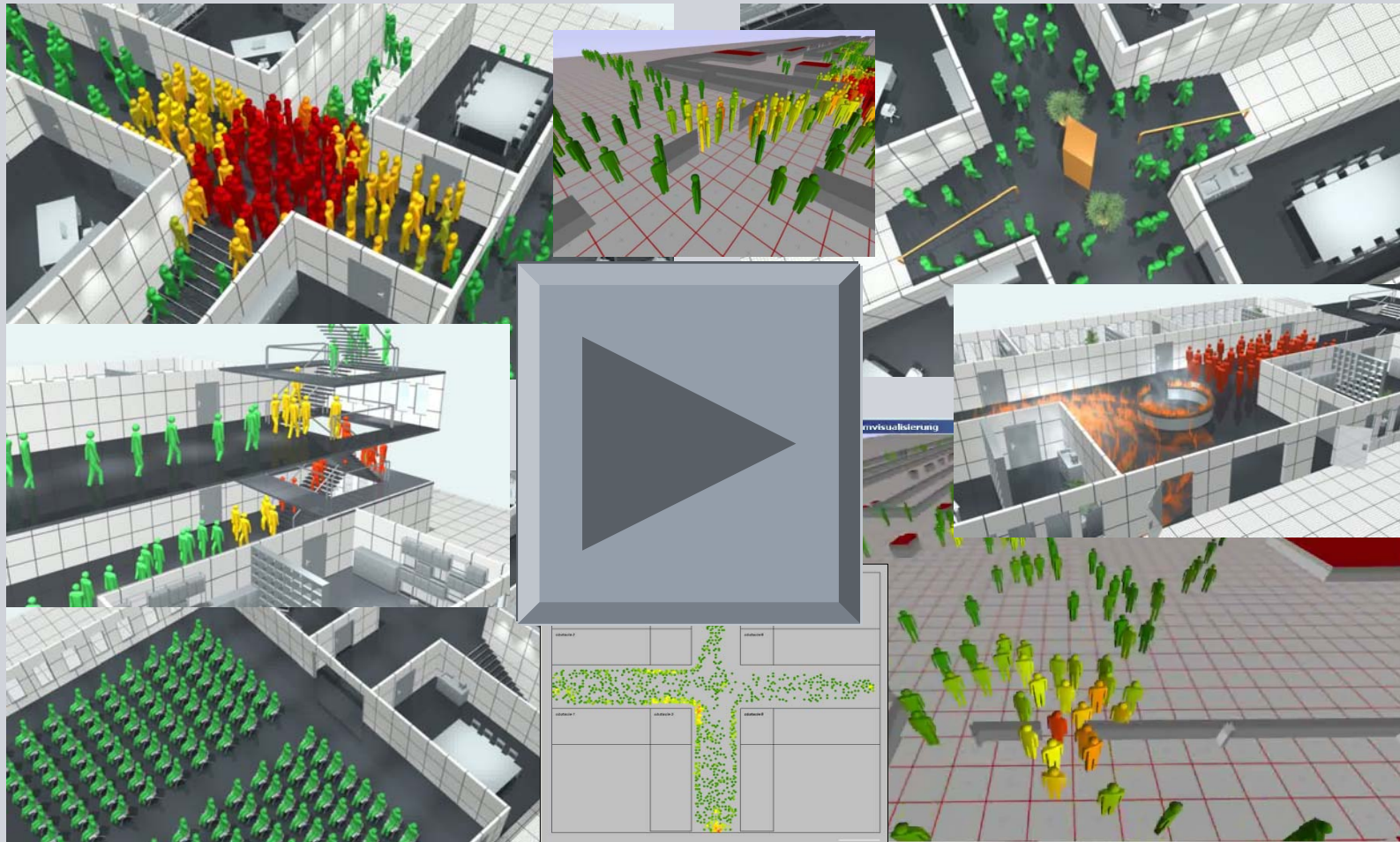


to show the impact of  
reconstructions and  
temporary blockings



# Crowd & evacuation simulation Live presentation

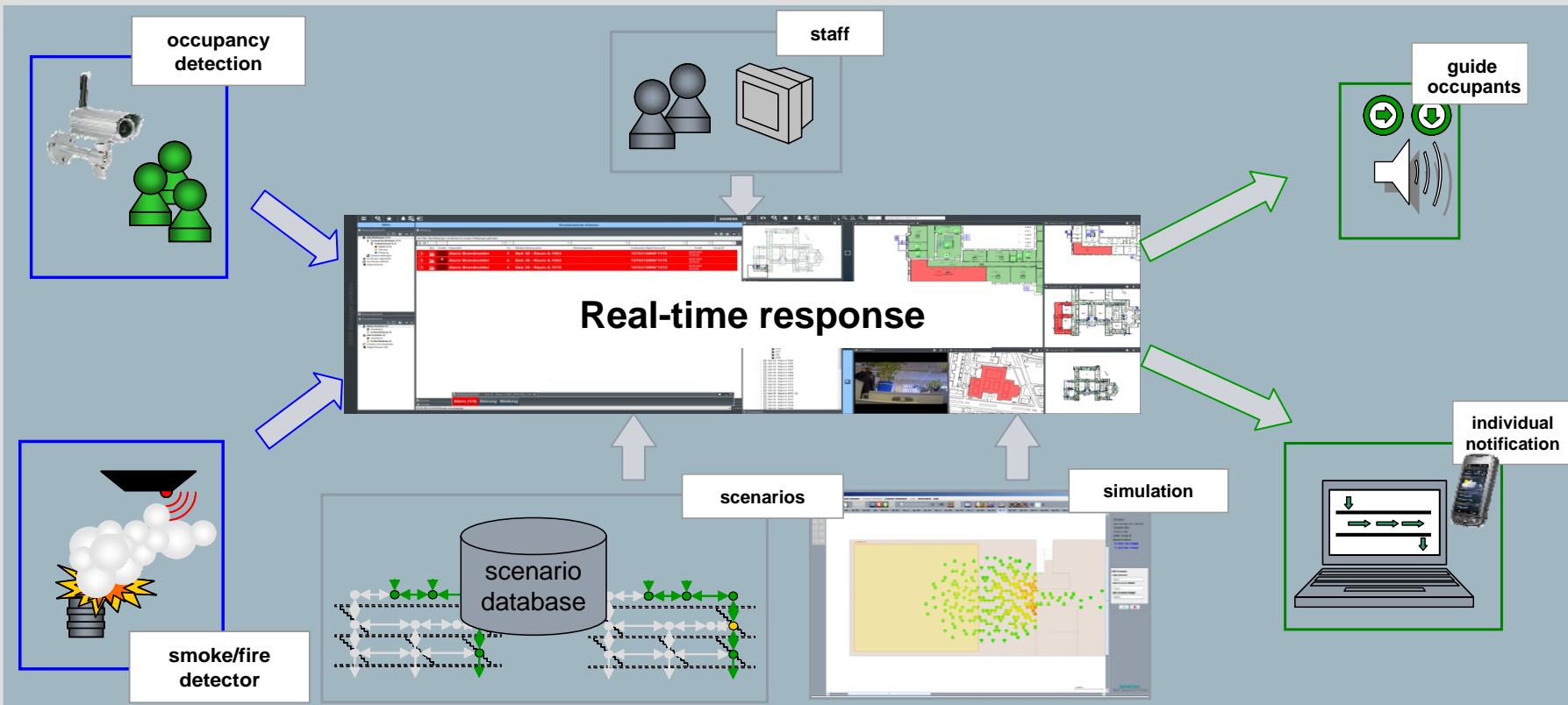
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## Our goal: the simulator as an online tool

Situational awareness and dynamic evacuation by the integration of sensor data from different sub-systems. The safest evacuation route is calculated and permanently re-evaluated (not only once a time)



## References – example projects



### Office Building

area: 10.500 m<sup>2</sup>  
floors: 8  
persons: 360



### Multiuse Building

area: 42.000 m<sup>2</sup>  
floors: 8  
persons: 1.200



### Primary school

area: 1200 m<sup>2</sup>  
floors: 2  
persons: 320

specific feature: 2 by 2 walk behavior



### Soccer stadium Simulation of the access path/routes

persons: 40.000

**Q&A**

