

Living Lab

Stratumseind

- Tinus Kanters
- Gemeente Eindhoven





Stratumseind

Stratumseind 2.0

(The street called "Stratumseind" is a 300 meters long concentration of about 50 pubs in the centre of Eindhoven with many (young) visitors and a kind of "weekly event" with 20.000 people.)

Mission Stratumseind 2.0 project
(Polyground, PvA, concept, juni 2013),
approved by the City Council:

- "Together with all partners, as entrepreneurs, breweries, property owners, visitors, neighbours, police, City Council, we will structurally improve and increase the economic and social functioning and activities on the Stratumseind."
- This structural improvement will have three main-theme's:
Safety, Livability and Attractivity



Living Lab

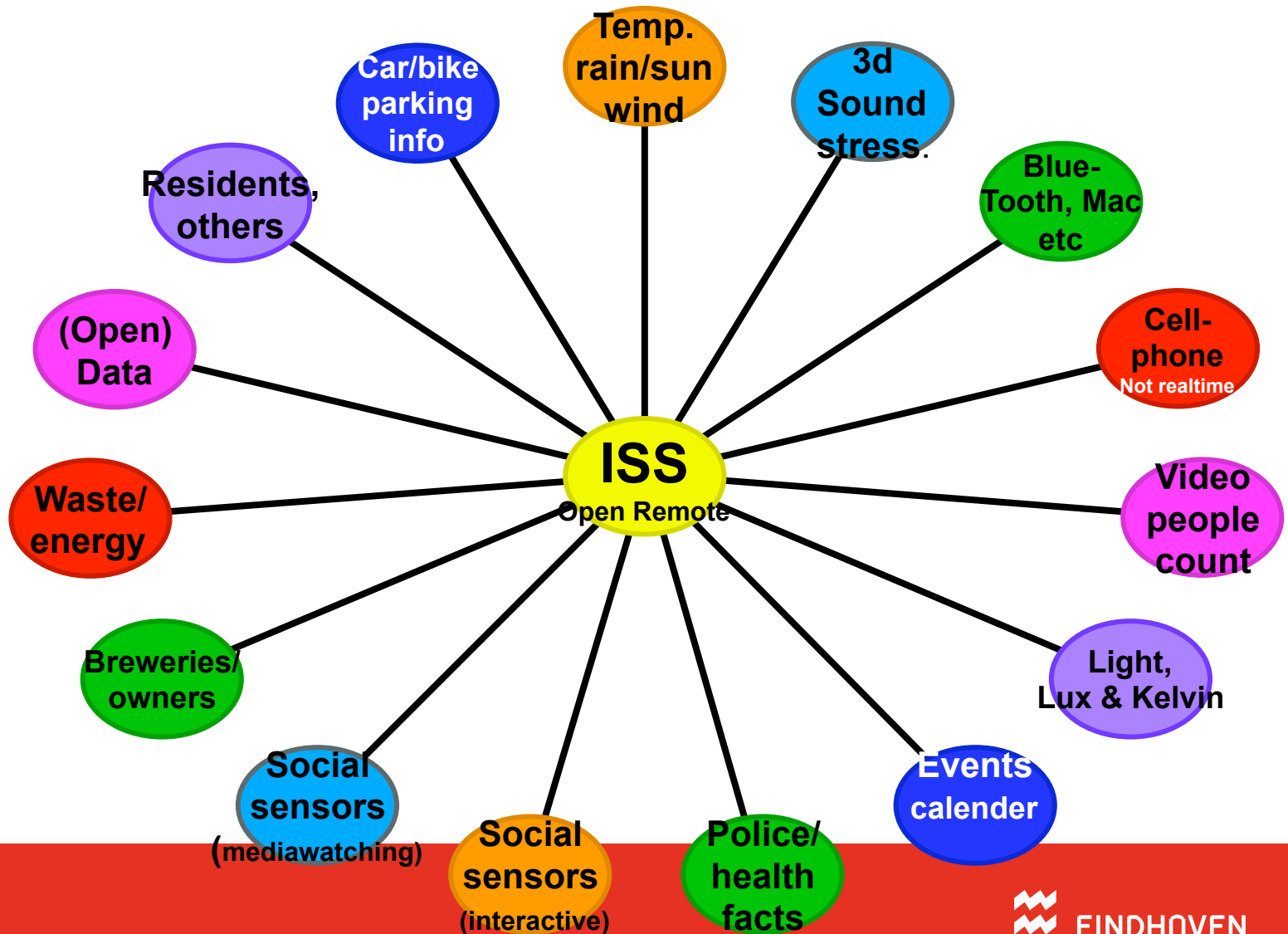
- **Living Lab, an 'instrument' to measure influences of interactions (light, smell, design).**
smart sensors, smart interfaces, smart actors, smart lights, smart data, smart design, gaming

-Part of the Stratumseind 2.0 project.

-Part of the Smart City project.



Integration of sensorsystems



Livinglab Stratumseind

LivingLab
(People)

Citizens, visitors, Police, City Guards, Entrepreneurs, Civil Servants,
Businesses, researchers

Fieldlabs
(research
project)



Livinglab
(Structural
services)

LivingLab fundamentals:
sensors, infrastructure, social network, actors, monitoring, bigdata storage, 3D models,
organization and people, etc, etc

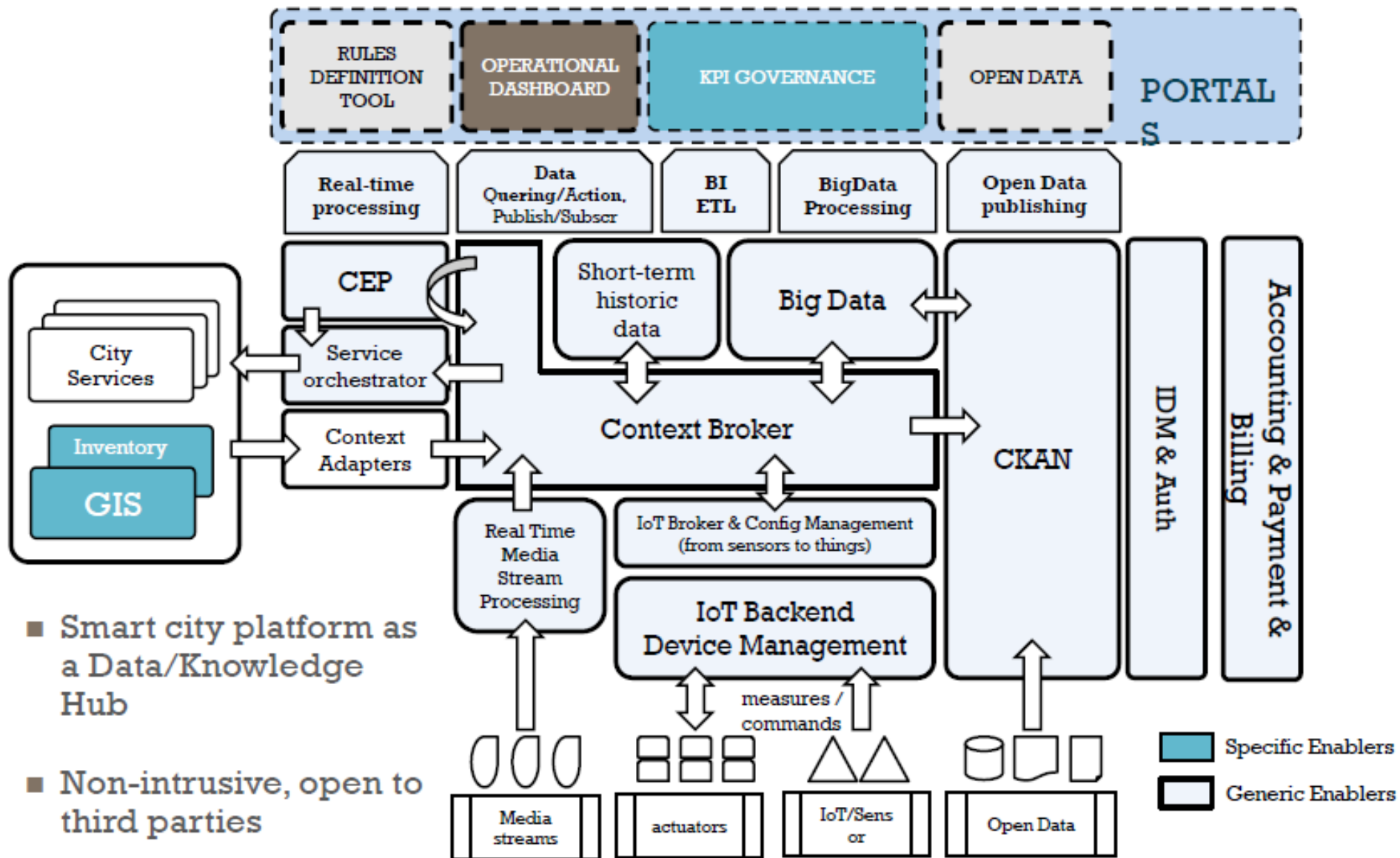
Privacy, an issue NOT to be ignored!

In contact with:

- Autoriteit Persoonsgegevens(voorheen College Bescherming Persoonsgegevens-National Institute for Privacy),
- TILT (Tilburg Institute of Law and Technology),
- Tilburg University,
- Nat. Dep. of Internal Affairs,
- Nat. Dep. of Justice and others



Smart City platform



Livinglab Stratumseind

LivingLab
(People)

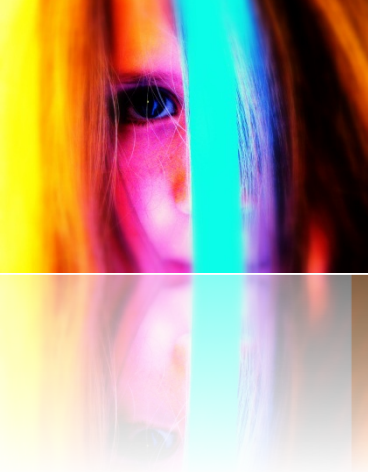
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DE-ESCALATE



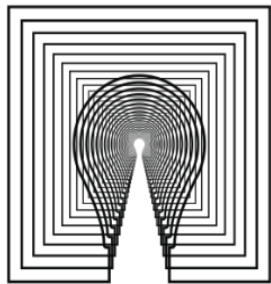
Defusing escalating behaviour through the use of interactive light scenarios



EINDHOVEN

TU/e Technische Universiteit
Eindhoven
University of Technology

PHILIPS



Intelligent Lighting Institute



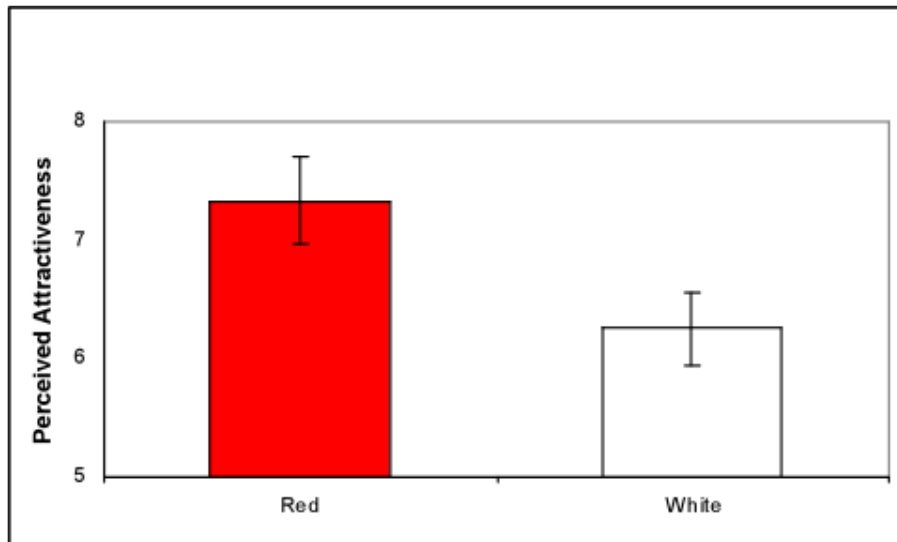
CRIMINEE!

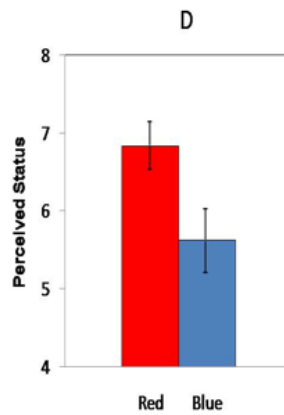
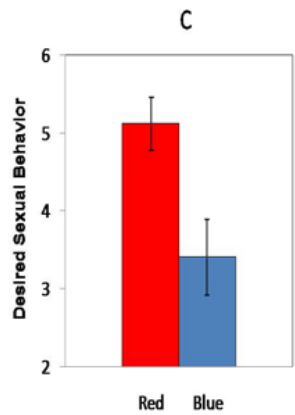
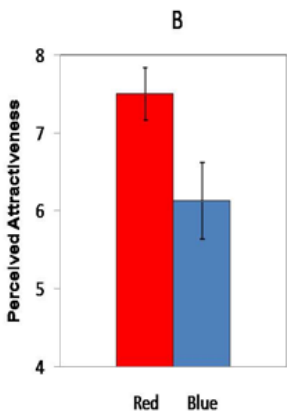


Donders Institute
for Brain, Cognition and Behaviour



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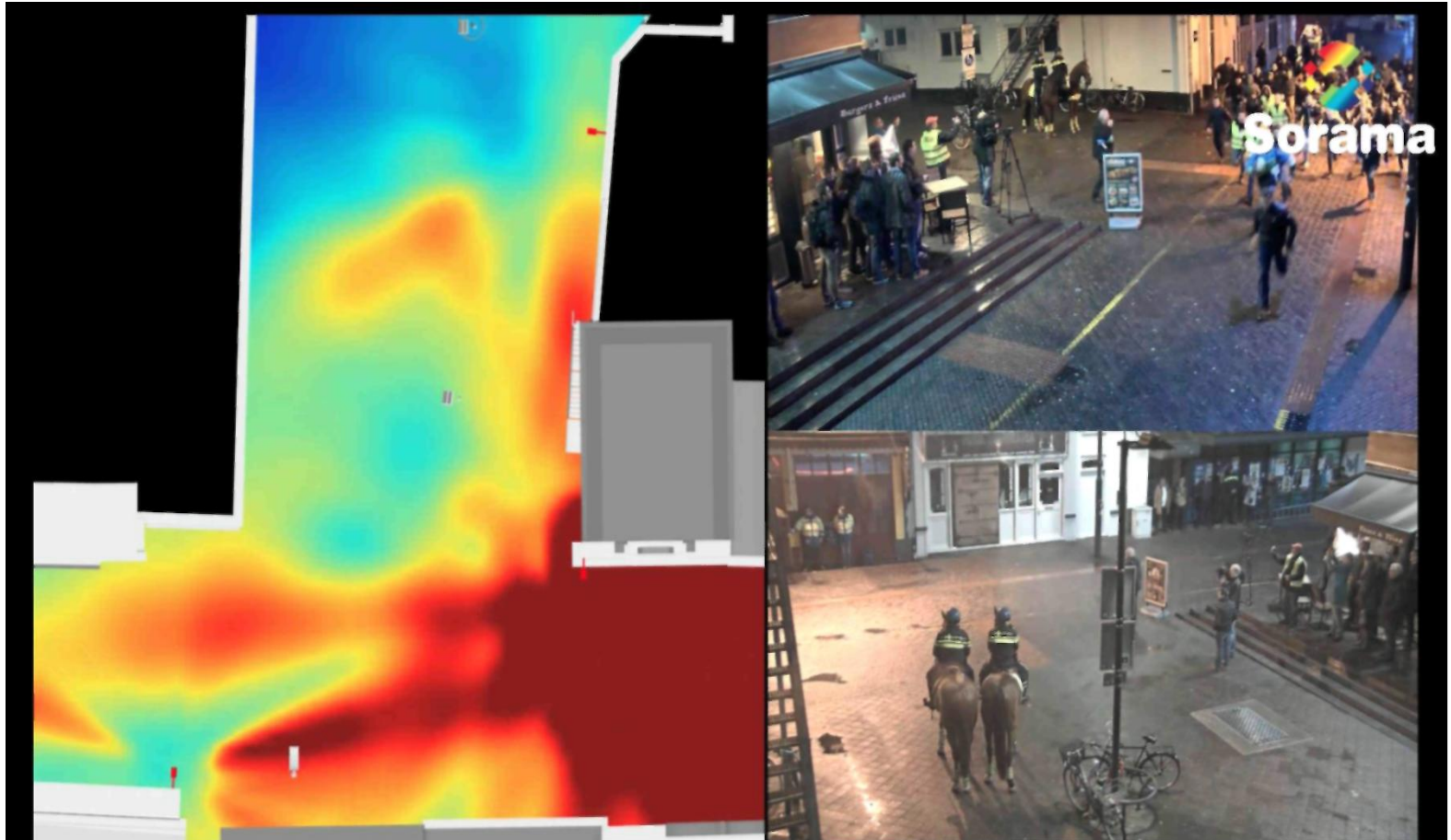


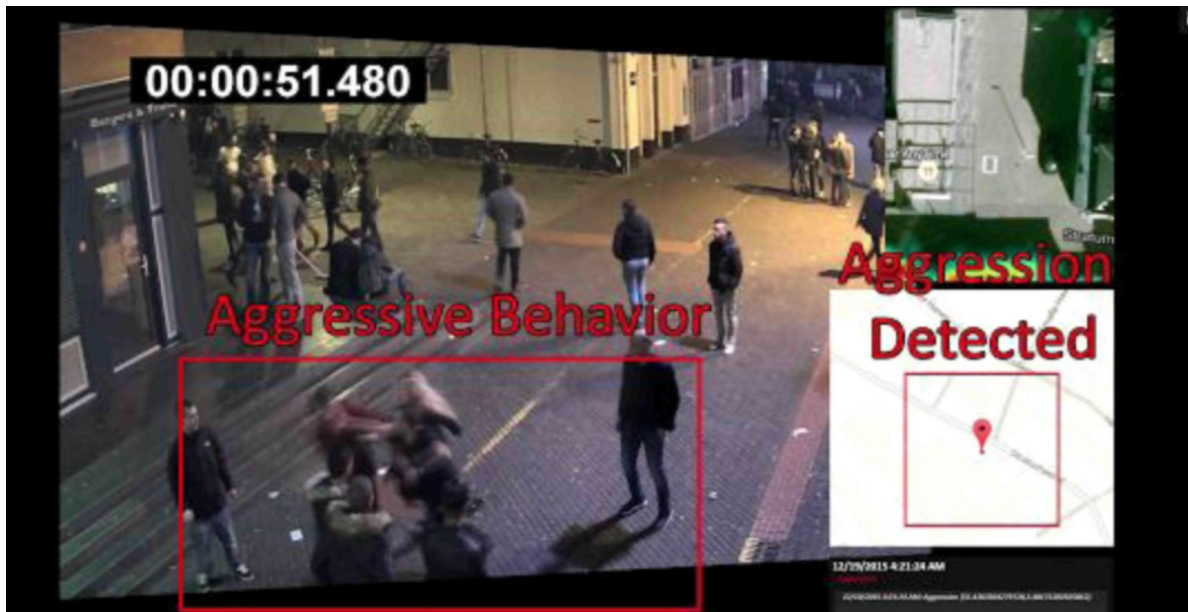


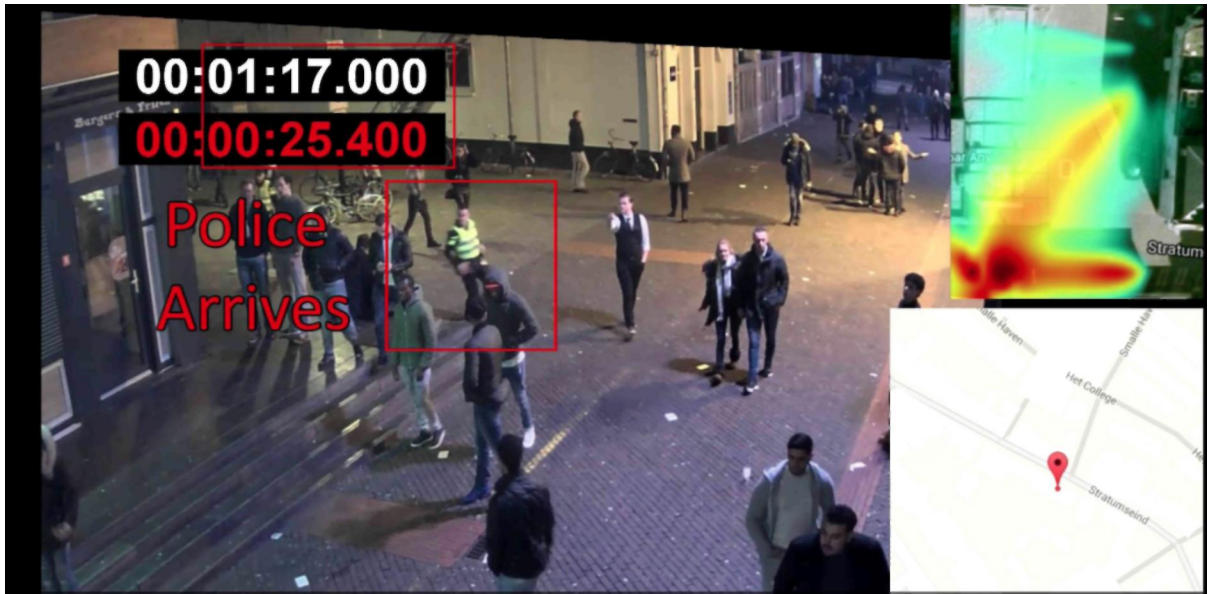
ELLIOT ET AL. (2010) JEP:GEN

Test met de ME: politie Eindhoven

Samen met de politie Eindhoven is een test uitgevoerd, waarin een groep figuranten agressief gedrag naspeelden. Onderstaand plaatje geeft links aan hoe het geluid wordt gelokaliseerd bij een rennende, schreeuwende menigte, waarbij is gesynchroniseerd met videocamera's van partner ViNotion. Op de plattegrond is in rood te zien waar het meeste geluid vandaan kwam.



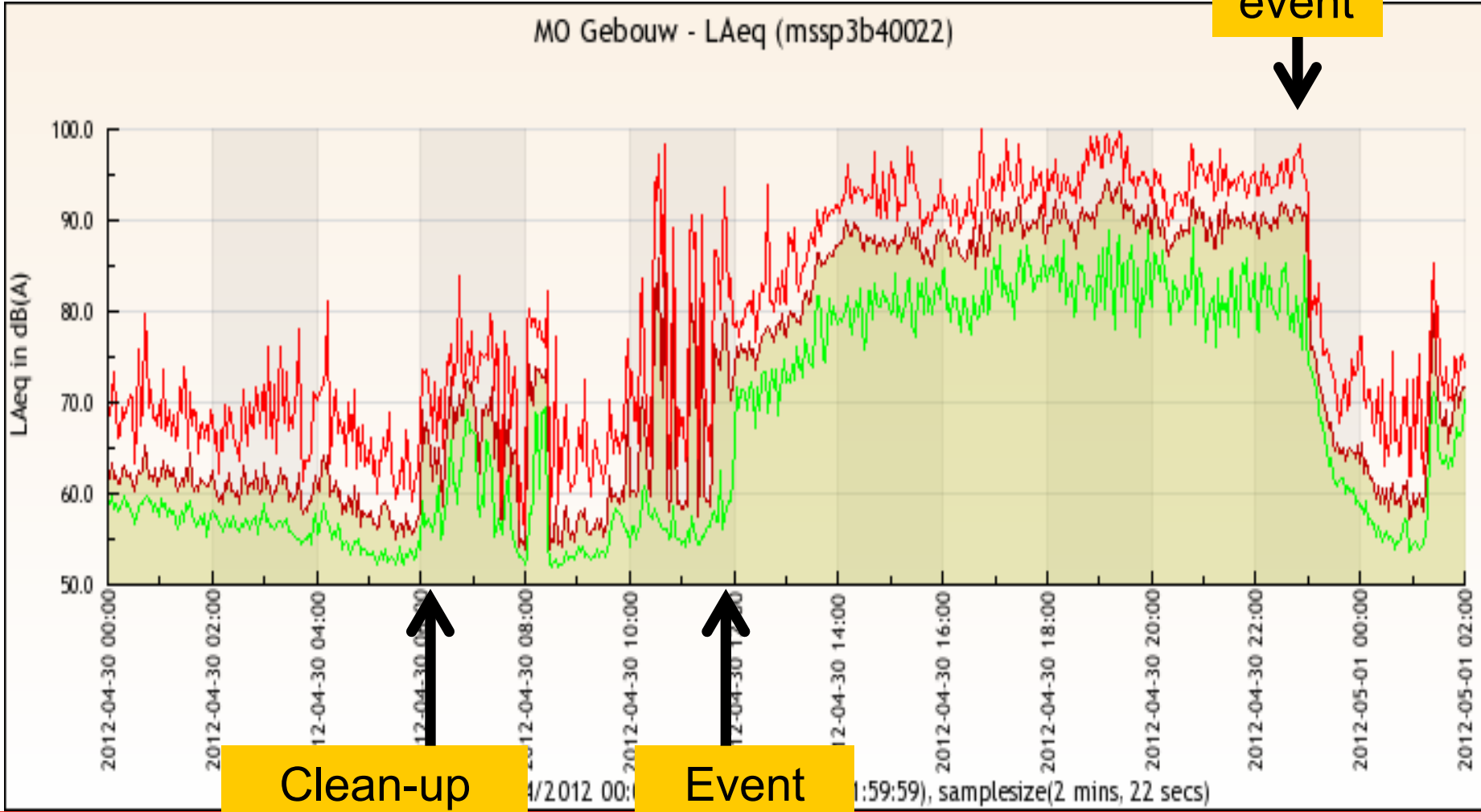






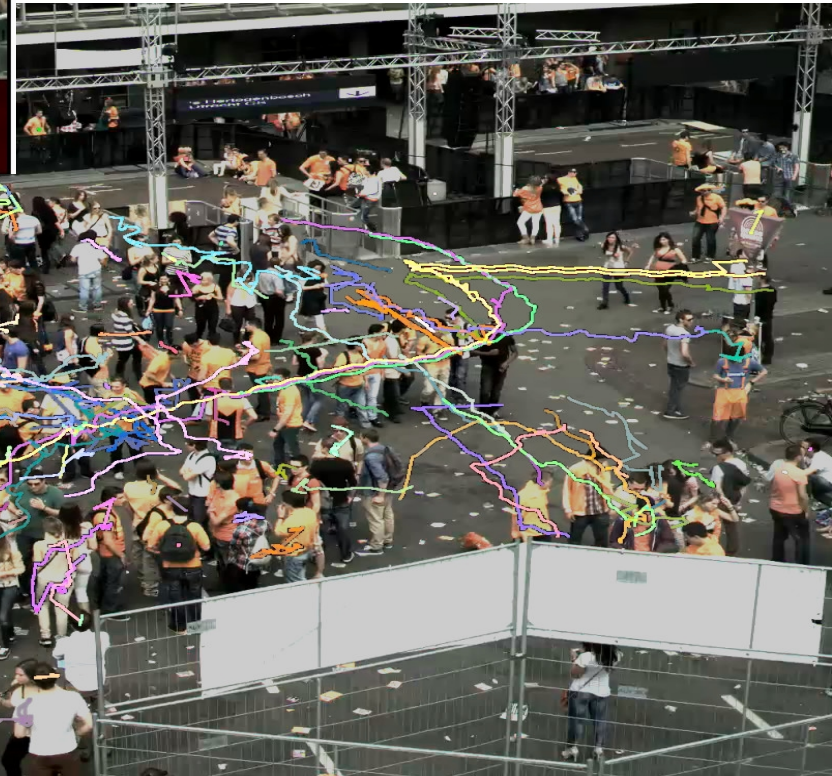
EINDHOVEN

Realtime sound measurement





Counting of visitors



People Density Sample

Camera 2 / ProDrive camera / Smalle Haven / College plein



Camera was calibrated by measuring real distances
Area of measurement (red) = 120 m²
Number of people that stand inside region = 46
Number of people / m² = 46 / 120 = 0.4

People Density Sample

Camera 1 / Axis Q1604 camera / Gagelstraat



Camera was calibrated by measuring real distances
Area of measurement (red) = 154 m²
Number of people that stand inside region = 63
Number of people / m² = 62 / 154 = 0.4

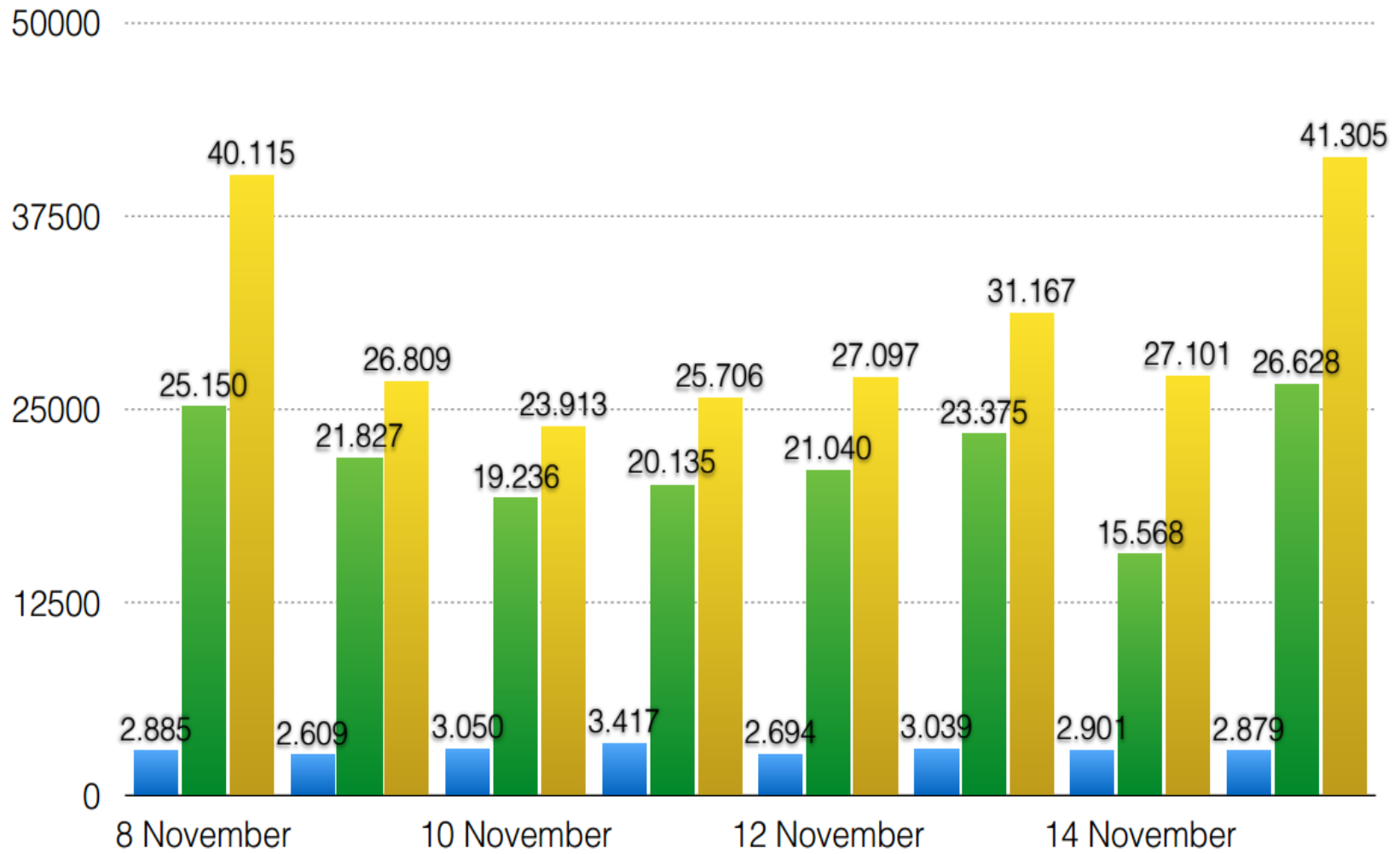


EINDHOVEN

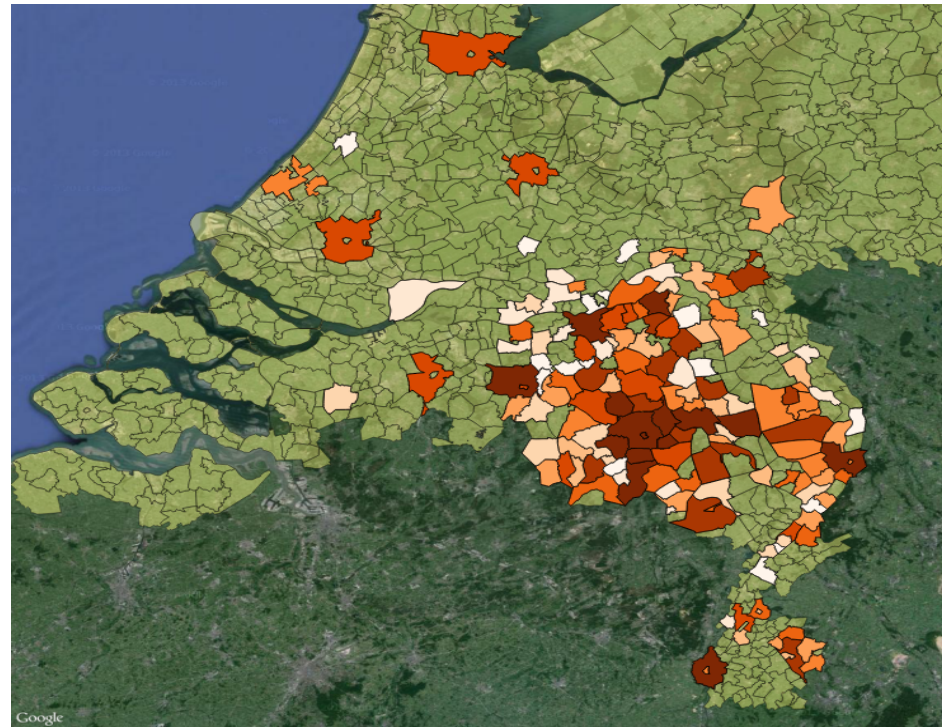
18:30

21:00

24:00



Herkomst	Percentage
Eindhoven Overig	27,05%
Eindhoven Centrum	8,95%
Helmond	3,76%
Veldhoven	3,10%
Tilburg Overig	2,77%
Oss	2,59%
Best	2,45%
Valkenswaard	1,84%
Geldrop	1,82%
's-Hertogenbosch	1,77%
Deurne	1,74%
Venlo Overig	1,67%
Maastricht Overig	1,44%
Nuenen	1,36%
Waalre	1,26%
Heerlen Overig	1,22%
Nijmegen	1,20%
Uden	1,14%
Son en Breugel	1,04%
Boxtel	1,02%
Heesch	1,01%
Veghel	0,94%
Venray	0,88%
Gemert e.o.	0,87%
Mierlo	0,86%
Horst e.o.	0,85%
Eersel e.o.	0,85%
Someren	0,81%
Asten	0,80%
Weert Overig	0,80%
Breda Overig	0,78%
Rotterdam Overig	0,76%
Vught	0,76%
Oirschot	0,76%
Utrecht Overig	0,74%



	Gemiddelde reisafstand
Koningsnacht	25 km
Gemiddeld April	12 km

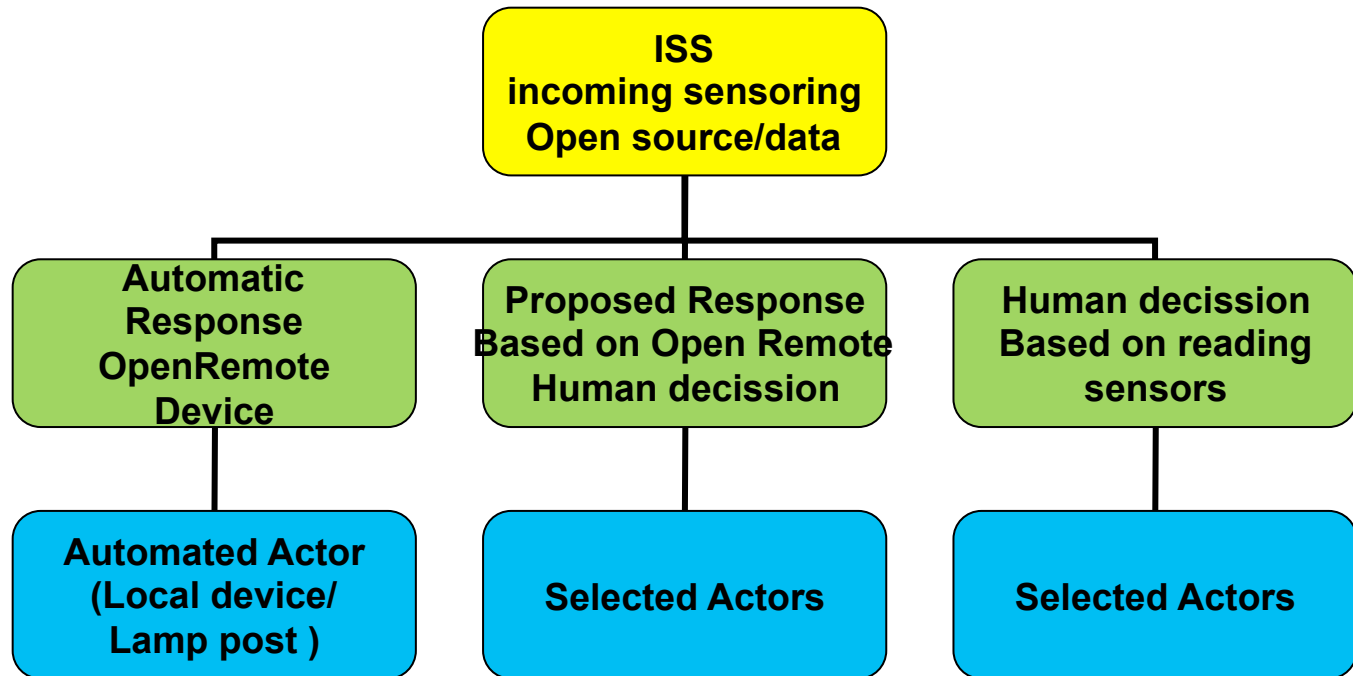
Police facts

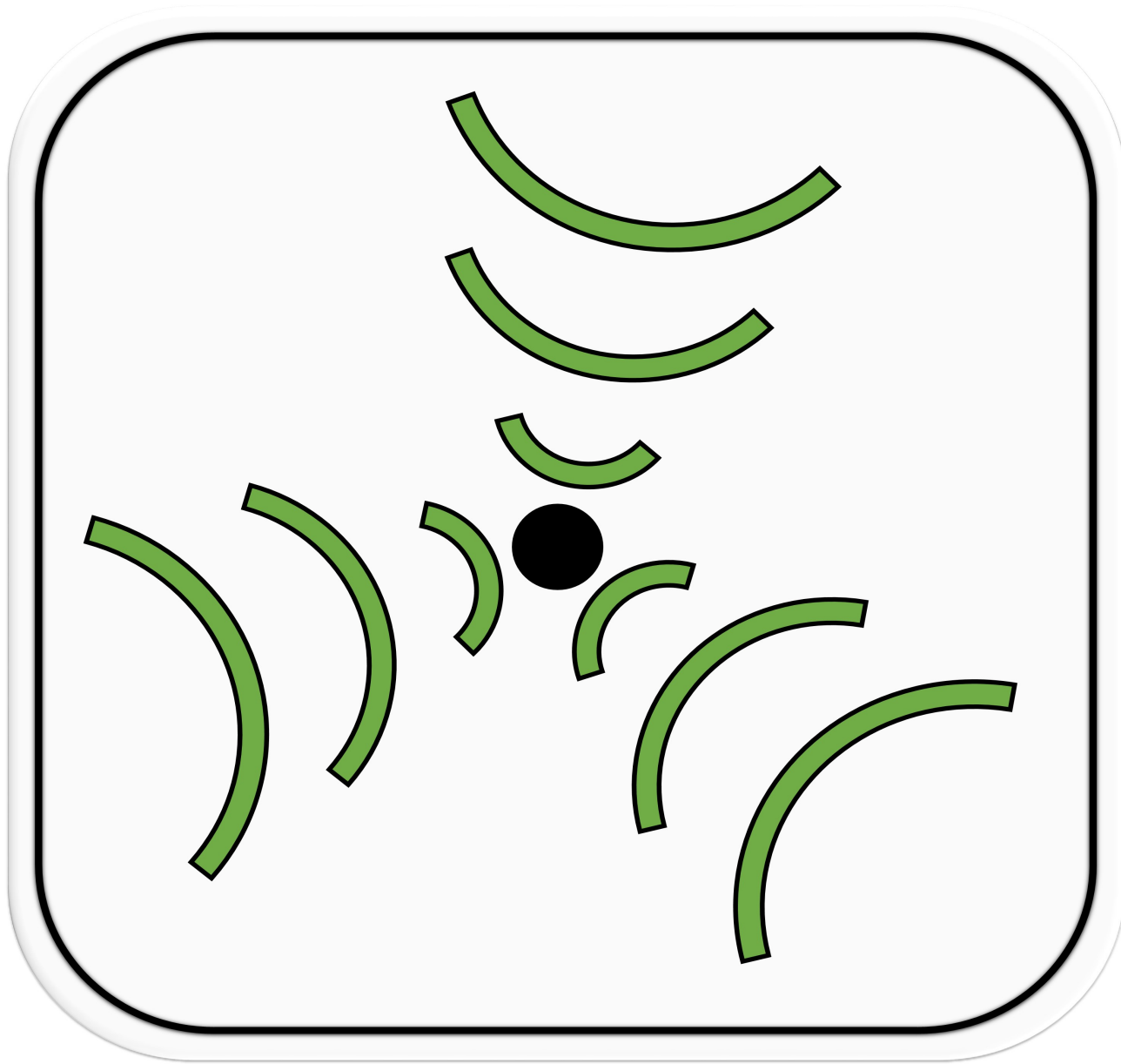
Tabel 1: Alle uitgaansgebieden opgesplitst naar incident voor de periode 2009-(15-12)2011 tijdens uitgaansavonden (absolute aantallen)

kode	Klasse-omschrijving	2009	2010	2011 (tot 15-12- 2011)	2011 t.o.v. 2010 (in %)
F11	Openlijke geweldpleging tegen goederen	3	2	2	0
F12	Openlijke geweldpleging tegen personen	56	47	24	-49
F16	Lokaalvredebreuk	3	0	0	0
F17	Wederspanningheid (verzet)	16	40	36	-10
F18	Niet voldoen aan bevel/vordering	63	56	54	-4
F40	Bezit hard-drugs (lijst 1)	34	19	21	11
F41	Bezit softdrugs (lijst 2)	4	3	3	0
F42	Handel e.d. hard-drugs (lijst 1)	7	1	2	100
F46	Aantreffen drugs (geen verdachte)	3	5	2	-60
F47	Overige drugsdelicten	4	0	0	0
F50	Discriminatie	1	0	1	100
F51	Belediging	116	72	142	97
F530	Bedreiging	22	16	40	150
F531	Overige misdrijven tegen de persoonlijke vrijheid	1	0	0	0
F550	Eenvoudige mishandeling	187	217	225	4
F551	Zware mishandeling	17	34	39	15
F552	Overige mishandeling	15	10	0	-100

Integration sensorsystems

- All Sensors and info alligned with open standards
- Analyses of the data together with partners
(such as Atos, the De-Escalate project with TUE/ILI, Fontys University ICT/Lifestyle and ICT/Gaming and ICT/Datavisualisation, Tilburg University/Tilt, Geonovum, Amsterdam University, ViNotion, Sorama, Munisence, Icen, Police-academy, Philips, LuxLab and Strijp-s/Light-s)



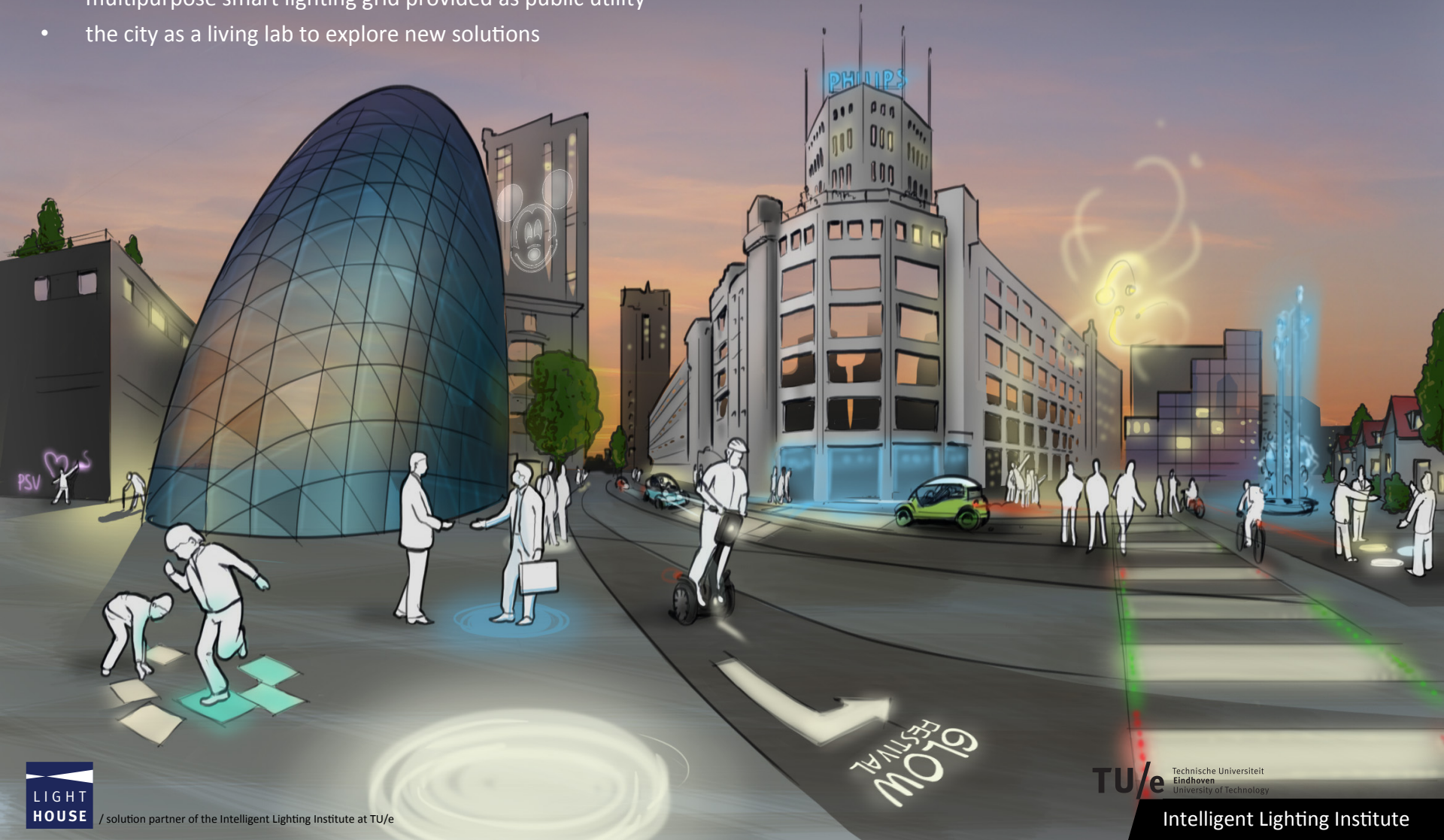


EINDHOVEN

Eindhoven Smart Light

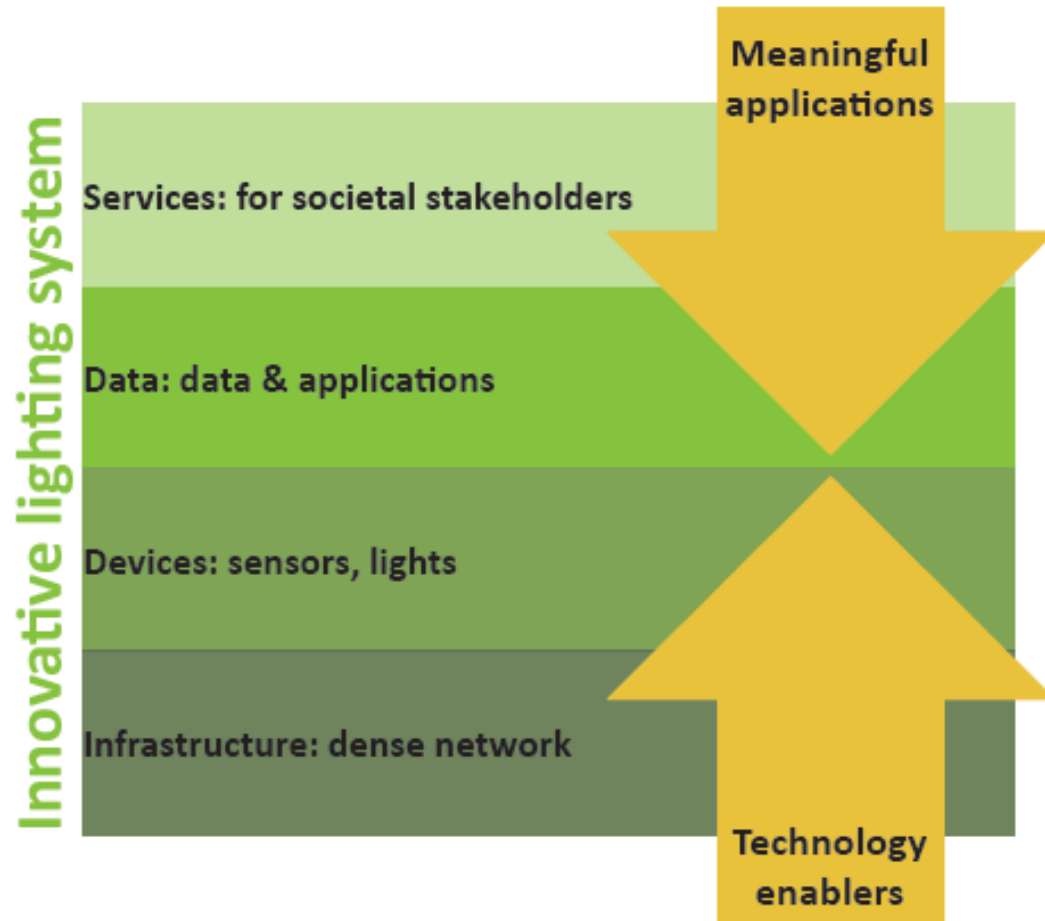
Procurement of continuous innovation in lighting

- technology to improve quality of life in the city
- multipurpose smart lighting grid provided as public utility
- the city as a living lab to explore new solutions





Towards smart city services



- The transition from regular lighting systems to smart ICT-based lighting systems requires adaptation of ***all four layers*** of the innovative lighting system.
- The transition towards smart ICT-based lighting systems also requires rethinking of ***collaborative business models***.





Desired societal impact

A vibrant city

A vibrant city that is enjoyable to live in with all the activities, facilities and urban environment and where economic situation is good if not thriving.

Active & healthy citizens

Good economic climate

Strong social networks

A sustainable city

A sustainable city where the environment is respected and preserved without compromising the quality of life of the citizens and the economic climate.

Social wealth

Caring for the environment

Sustainable economy

