MIT - Sensable City Laboratory

„ (...) [The] Sensable City Laboratory [is] a research initiative at the Massachusetts Institute of Technology (...). The mission is (...) (to understand and) to anticipate radically transformed cities and study them from a critical point of view. (...) Through design and science, the Lap develops (...) tools to learn about cities - so that cities can learn from us.“ [1]

The examples „Copenhagen Wheel“, „Trains of data“, „Art Traffic at The Louvre“ and „One Country Two Lungs“ give a rough insight. In total the Laboratory deals with more than 70 projects.
Visualized and animated analysis helps human two understand fast and real. They are great tools in the design process and strengthen the purpose of designers.

Copenhagen Wheel

The „Copenhagen Wheel“ should convince people to use the bicycle in cities. „ (...) [It] is a new emblem for urban mobility. (...) [and] was unveiled (...) at the COP15 United Nations Climate Conference.“ [2]
„The Copenhagen Wheel turns the bike you already own, quickly and easily into an electric bike. (...) The wheel harvests the energy you input while braking and cycling and stores it for when you need a bit of a boost.
At the same time, sensors in the wheel are collecting information about air and noise pollution, congestion (...) [,] road conditions (...) noise (db), relative humidity and temperature. (...) the wheel is controlled through your Smart Phone (...). Simply place your phone on the handlebars, and its
Bluetooth module syncs with the Bluetooth module in the hub of the Copenhagen Wheel. You can then use your phone (...) to unlock and lock your bike, change gears, select how much the motor assists you and for viewing relevant real-time information. (...)

You can (...) share your data, anonymously, with your city. When many cyclists donate the information their wheel is collecting, your city gains access to a new scale of fine-grained environmental information (...): Cross analyze different types of environmental data (...) [,] build a more detailed understanding of the impact of transportation, (...) or study dynamic phenomena like urban heat islands. (...) this type of crowd sourcing can influence how your city allocates its resources, how it responds to environmental conditions in real-time or how it structures and implements environmental and transportation policies.“ [3]

Trains of data

„ [This project deals with] new ways of gaining insight into how people access different parts of France using the country‘s high speed railway system. (...) [Due to] (...) sensors and digital systems [in the trains, the researcher gain] (...) new perspectives on how France moves on rail.(...) a rail network operator is interested in reducing overall delay (...). Visualization[s] (...) combine data on the time trains run behind schedule with the actual number of passengers on any train at any moment.

With this, a rail operator can quickly understand where many passengers are affected by train delays and use this information to take appropriate action, ultimately limiting delay per passenger and increasing overall passenger satisfaction.“ [4]

Handout

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Art Traffic at the Louvre

Primarily the projects objective is „(...) [to improve] the museums‘s environment and visitors experience.“ [5]
The researcher „(...) analyze visitors‘ sequential movements, the spatial layout, and the relationship between them in a large- scale art museum - The Louvre Museum - using anonymized data collected through noninvasive Bluetooth sensors.“ [5]

„This simulation-based prediction and analysis of visitor flows reveals valuable information such as crowd density, local congestions and capacity estimations.“ [6]

Referring to the climate change the operator of The Louvre Museum can think about smart opportunitys to make the museum more sustainable (e.g. consumption of electricity, water, ventilation..):
Light in museum rooms or public restrooms is not necessary whenever no human are inside. Heating in those can be reduce whenever lot‘s of human are inside, due to body temperature and so forth.

Handout

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One Country Two Lungs

The investigation „One Country Two Lungs“ uncovers the air polution in Shenzen and Hong Kong by means of specific parameters. „Sensor data reveals atmospheric boundaries between the two cities (...).
Initial results show that air pollution in Shenzhen is higher than in Hong Kong (...). (...) [The project] explores how this divide still persists in one of the less visible dimensions of urban life: distinct but interconnected atmospheres. A living map split by very real divisions... made of nothing but air. [Alarming facts motivate the investigation:] (...) since 2008, more than half of the human population lives in cities.

(...) The World Health Organization estimates [air pollutions effect to] over one million deaths per year. Hong Kong and Shenzhen[‘s] (...) metropolitan area with over 17 million inhabitants [is] one of the world’s largest and most densely populated urban spaces.
[The] emissions from traffic and coal-powered electricity plants on mainland China create pollution, while Hong Kong’s tall buildings sequester stagnant air.
Toxic impact: researchers estimate the financial burden of air pollution to Hong Kong at approx. HK$21.2 billion (USD$2.7 billion) a year due to hospital admissions and lost productivity.“ [7]

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Quotes

1 http://senseable.mit.edu/ , 22.03.2016
2 http://www.mit.edu , 22.03.2016
3 http://senseable.mit.edu/copenhagenwheel/contactUs.html, 22.03.2016
4 http://senseable.mit.edu/trainsofdata/ , 23.03.2016
5 http://epb.sagepub.com/content/41/6/1113.abstract?id=b130047p, 23.03.2016
6 http://senseable.mit.edu/louvre/# , 23.03.2016
7 senseable.mit.edu/twolungs/, 23.03.2016

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