

Panel 1. // August 22, 2016



Smart-Citizen and Smart-City Systems and Services



Panel SOTICS/
CENTRIC 2016

Panelists

Moderator

Stephan Böhm, RheinMain University of Applied Sciences, Germany

Panelists

Valentin Plenk, Institute of Information Systems at Hof University, Germany

Mariusz Nowostawski, NTNU Norwegian University of Science and Technology, Norway

Andrea Nanetti, Nanyang Technological University Singapore, Singapore

Roy George, Clark Atlanta University, USA

Panelists: Stephan Böhm



Dr. Böhm is a **Professor of Telecommunications and Mobile Media** at the Faculty of Media Management at the RheinMain University.

Co-founder of the Center for Advanced E-Business Studies (CAEBUS) in Wiesbaden and of the Mobile Media Forum.

Teaches media technology and media management topics in bachelor and master programs

Visiting professor at the International College of the NIDA in Bangkok, Thailand.

Research Interests:

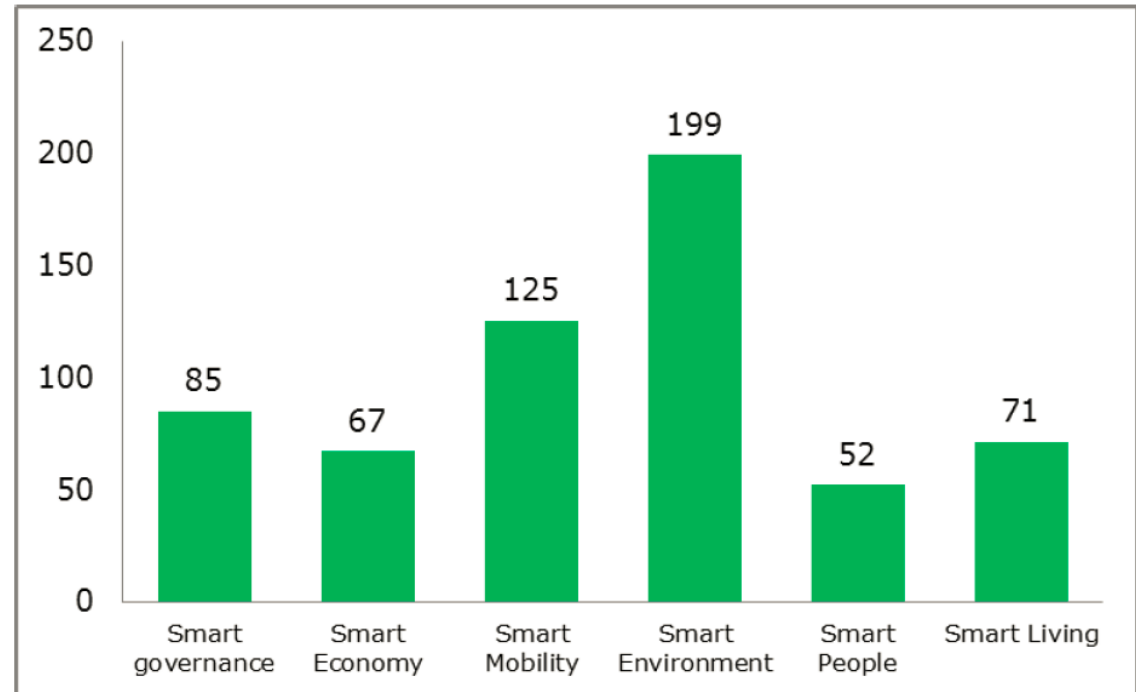
- Innovation Management and Marketing,
- Technology Acceptance for Mobile Applications and Services,
- Up-front User Research for Mobile Applications,
- Mobile Prototyping,
- Mobile HCI



RheinMain University
of Applied Sciences

“A Smart City is a city seeking to address public issues via ICT-based solutions on the basis of a multi-stakeholder, municipally based partnership.”

Figure 6 : The number of Smart Cities in the EU presenting the six Smart City characteristics



Note: totals are higher than the number of Smart Cities as each Smart City can have more than one Smart City characteristic.

#1 // Smart cities – more as a trend term for modern usage of ITC mainly for mobility and environment?

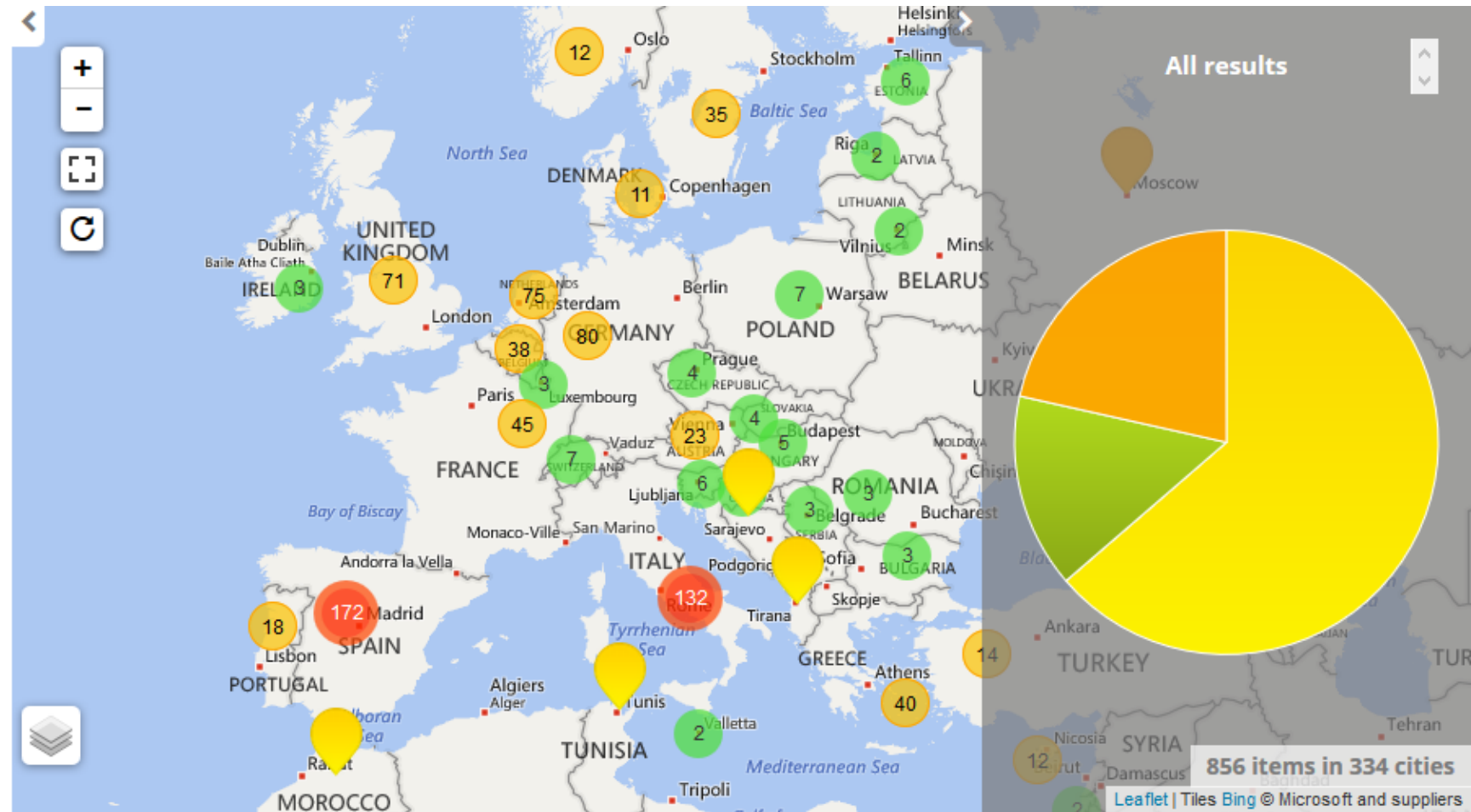
#2 // Smart city initiatives seem to be everywhere and strongly driven by the industry and public/research project funding.

Commitments [View all](#)
Connected vehicles concept based on inexpensive s...
Smart Cities for gender and diversity
Smart cities framework for the Mediterranean area

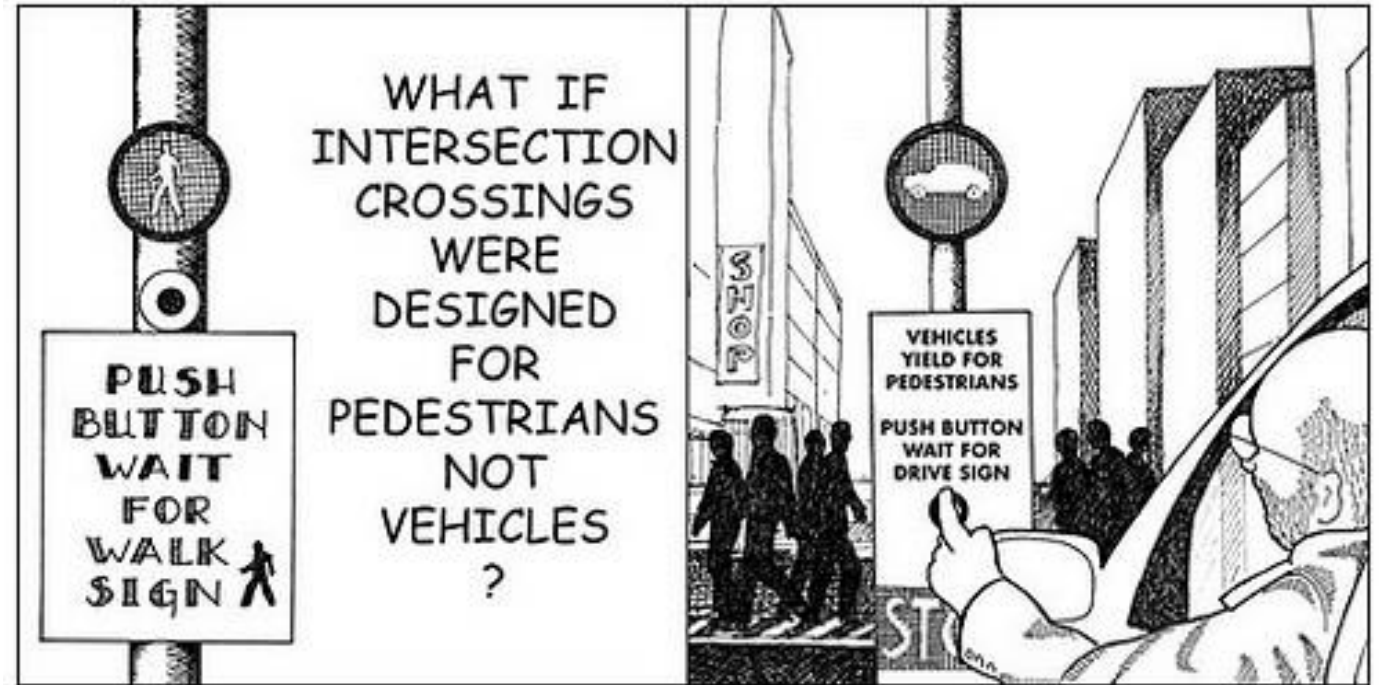
EU projects [View all](#)
cityfied - replicable and innovative future efficient dis...
direction - demonstration at european level of innov...
r2cities - regeneration model for accelerating the sm...

Solution proposals [View all](#)
taxi kilometers, jams and co2
city congestion management
v2i on-board information

[View all 1241 results](#)



“Crucial success factors for successful Smart Cities and the deployment of solutions are a clear vision, the involvement of citizens, representatives and local businesses as well as efficient processes.”



Picture source: http://farm6.static.flickr.com/5024/5621376031_c5a170a089.jpg

#3 // Smart cities are often “technocratic visions” but user involvement seems to be a key success factor (smart human cities).

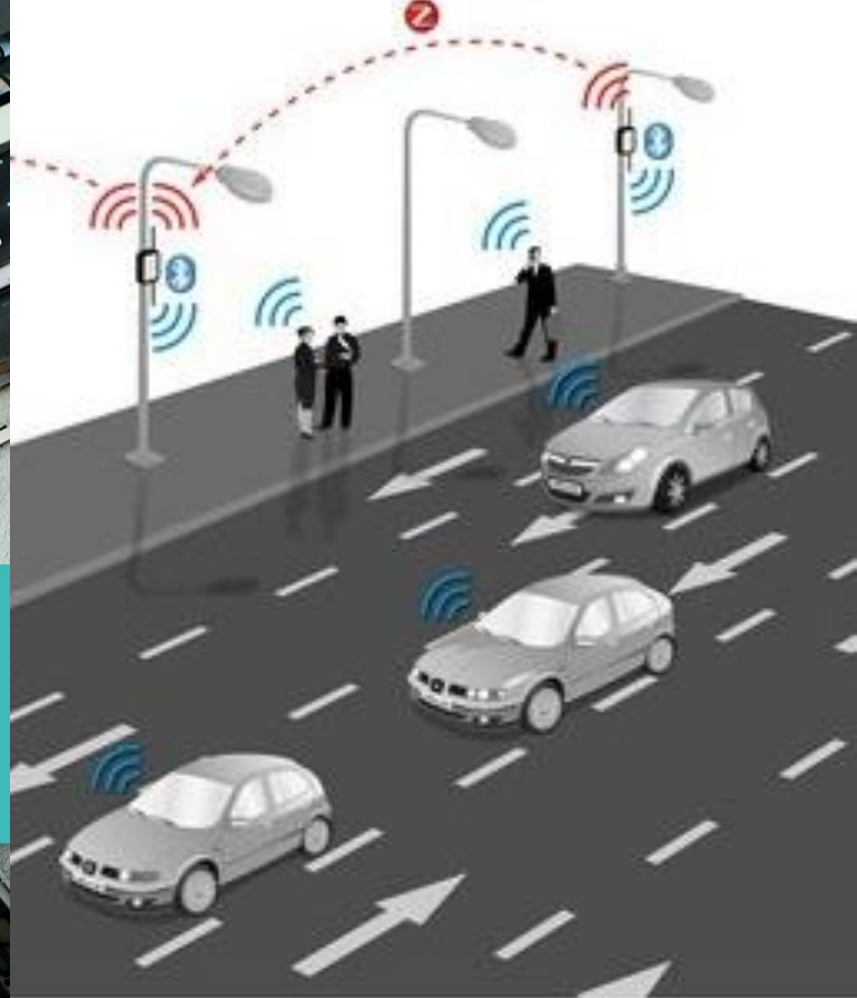


#4 // Technologies and standards – why and how should problems be solved for smart cities that could not be solved before?





Studies show that roughly 30% of all traffic congestion in urban areas is caused by drivers circling and struggling to find a parking spot



#5 // How to cope with long life-circles and required large scale pre-financing for smart city infrastructures?



Andrea NANETTI, PhD
NTU School of Art, Design and Media
NTU Complexity Institute

in collaboration with
Microsoft Research

How to Design the Data City "Standing on the Shoulders of Giants"?

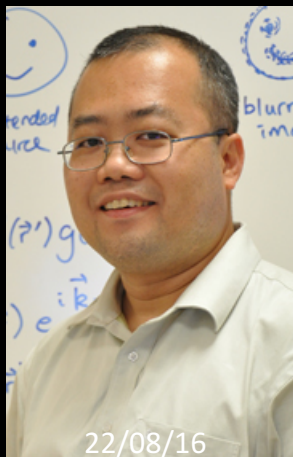
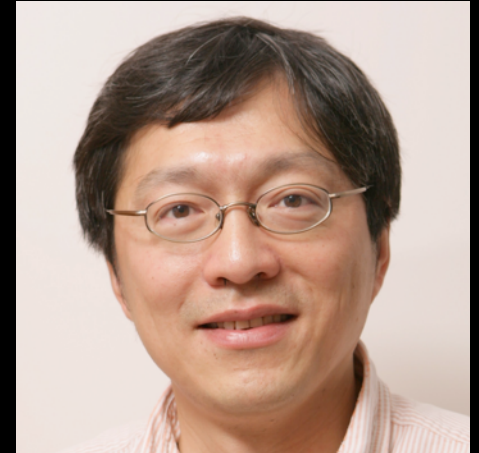
*Smart-Citizen and Smart-City Systems and
Services – Panel Discussion*
(Roma, CENTRIC/SOTICS 2016
22 August 2016)

teamwork



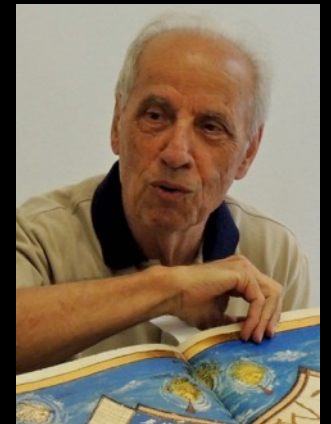
Andrea Nanetti
Nanyang Technological
University, SINGAPORE

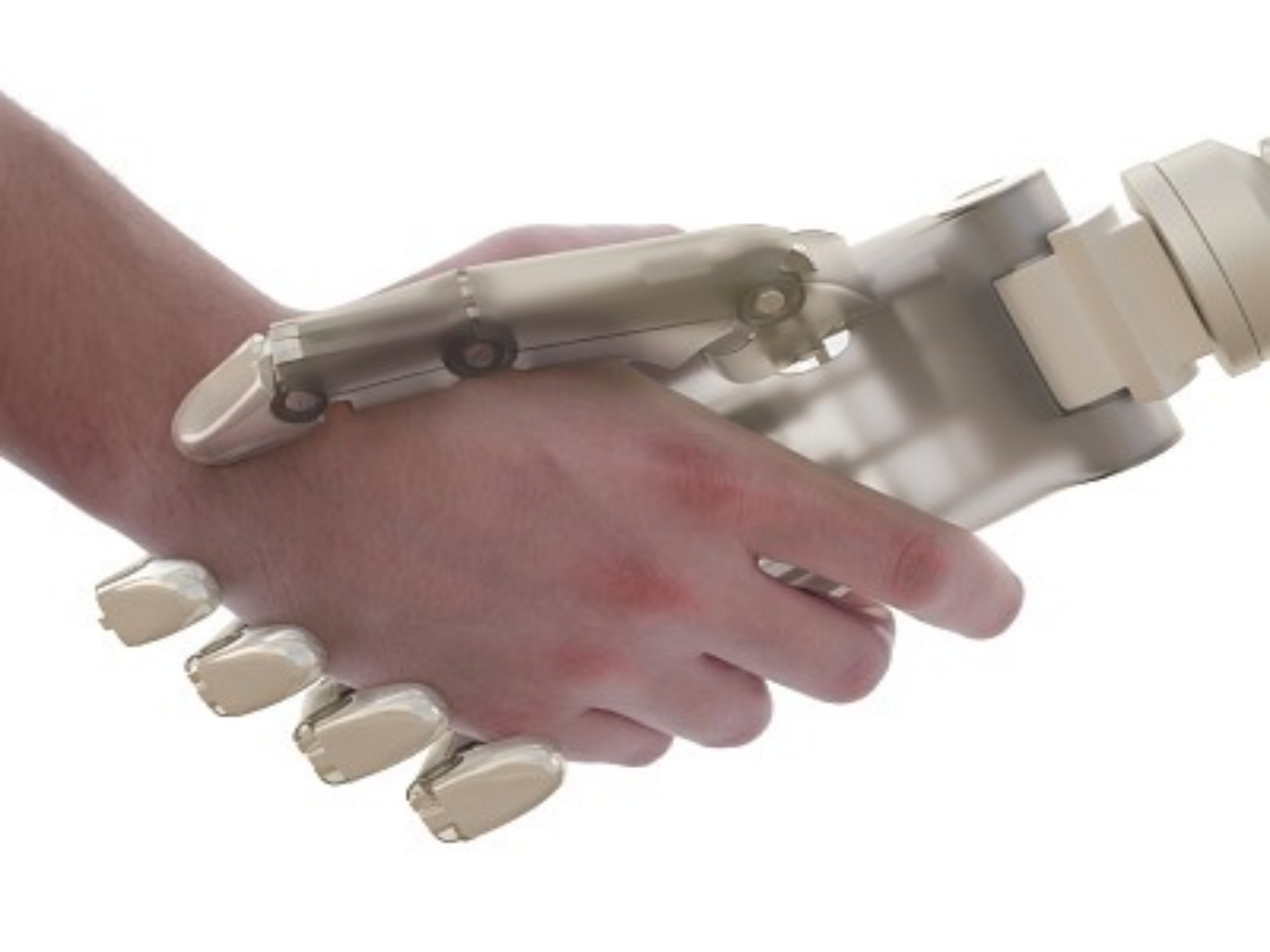
Chin-Yew Lin
Microsoft Research,
Beijing, CHINA



Siew Ann Cheong
Nanyang Technological
University, SINGAPORE

Mario Giberti
Architect,
Imola, ITALY





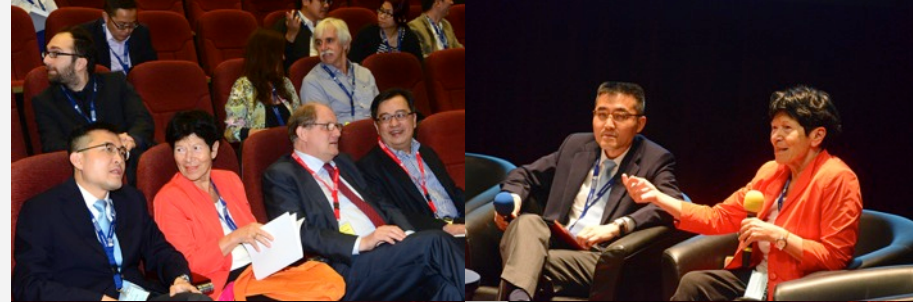


Nanyang Technological University, Singapore
Complexity Institute and School of Art, Design and Media
cordially invites you to the

1st Singapore Heritage Science Conference on
Heritage Science as a Complex System

In the conference we propose to answer the questions: · What does Heritage mean for the future of Singapore? · How can complexity science help Singapore to make the best possible decisions with regard to its heritage and the way it may help Singapore to face the challenges of the 21st century?

Opening Reception: Monday 6 January 9 am
ADM Auditorium,
School of Art, Design & Media (Level 2)



ADM Auditorium, Level 2,
School of Art, Design and Media,
Nanyang Technological University,
81 Nanyang Drive
Singapore 637458

CONFERENCE CHAIRS

Siew Ann Cheong
School of Physical & Mathematical Sciences,
Nanyang Technological University Singapore

Andrea Nanetti
School of Art, Design, and Media,
Nanyang Technological University Singapore

**CONFERENCE IS FREE AND REGISTRATION IS
NEEDED FOR THIS EVENT**

INVITED SPEAKERS

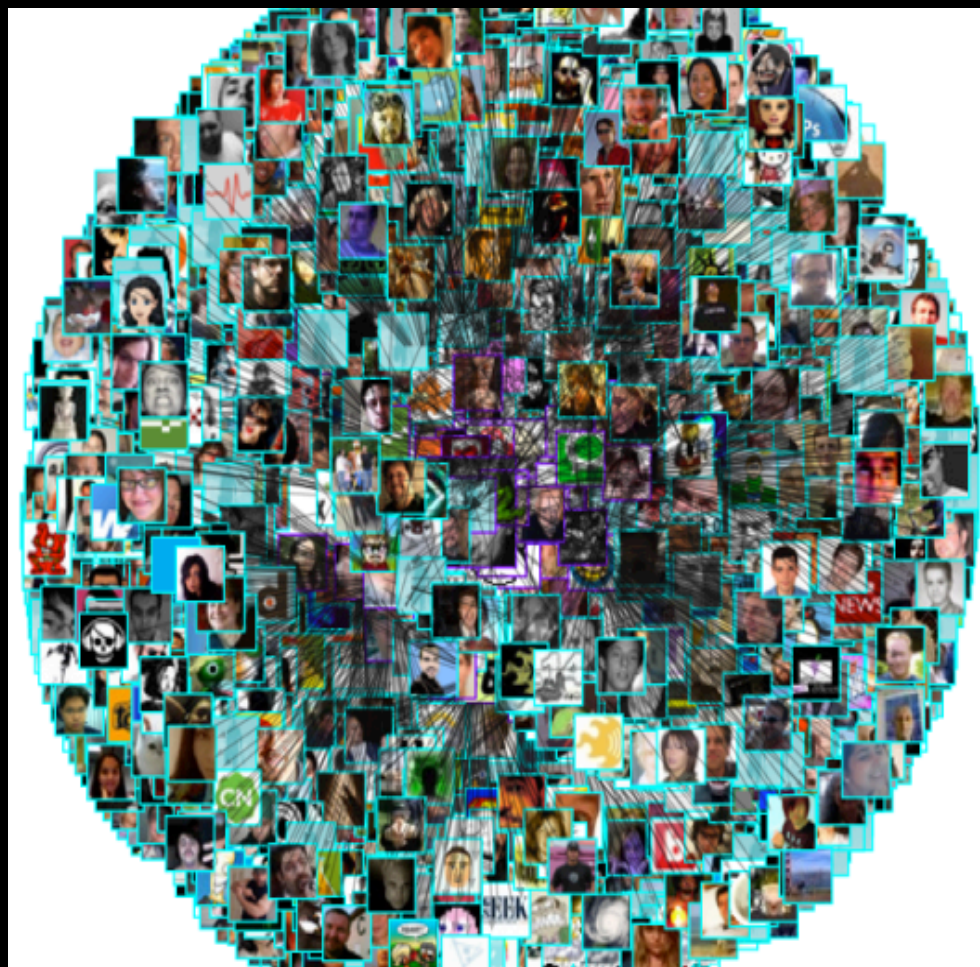
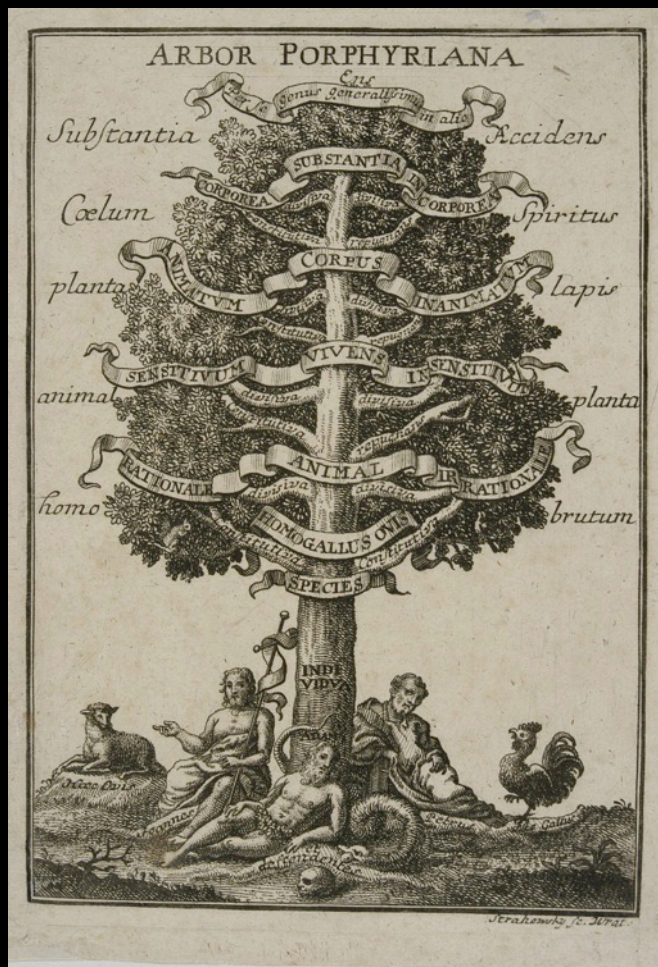
- Lisa Ackerman, World Monuments Fund, USA
- Stefano Bertocci, University of Florence, Italy
- Yongkang Cao, Shanghai Jiaotong University, China
- Julia Chee, Oral History Centre, National Library Board, Singapore
- Min Fui Chee, National Institute for Education, Singapore
- Al Lin Chua, National University of Singapore, Singapore
- Roland Fletcher, University of Sydney, Australia
- John Stephen Lansing, Nanyang Technological University, Singapore
- Kai Khiun Liew, Nanyang Technological University, Singapore
- Ivy Maria Lim, National Institute of Education, Singapore
- Bee Chin Ng, Nanyang Technological University, Singapore
- Helga Nowotny, European Research Council, Vienna, Austria
- Alessio Re, UNESCO-TRECH and SITI, Italy
- Hui Lin Lena Teo, Independent Scholar, Former at Ministry of Education, Singapore
- Wei Pin Wan, National Library Board, Singapore
- Julia Watson, Columbia University, USA
- Jean Wee, Preservation of Sites & Monuments, National Heritage Board, Singapore
- Kang Shua Yeo, Singapore University of Technology and Design, Singapore

ANDREA NANETTI - Smart Heritage (Rome, 22
Aug 2016)

SMART HERITAGE

I. THE BIG PICTURE

From the Tree to the Labyrinth



SMART HERITAGE

II. HOW TO DESIGN A DATA CITY "STANDING ON THE SHOULDERS OF GIANTS"

Click to select other visualisations



Town plan of Imola (c. 1502?)

Pencil, chalk, pen and wash on paper, 440 x 602 mm (Windsor, UK)



SMART HERITAGE

III. IMOLA AS AN ADVANTAGED CASE STUDY



Handwritten notes in Italian, likely describing the historical plan or the city's layout.

Handwritten notes in Italian, likely describing the modern city or the changes over time.

SMART HERITAGE

IV. DATASET AND ONTOLOGY

information society as a complex system

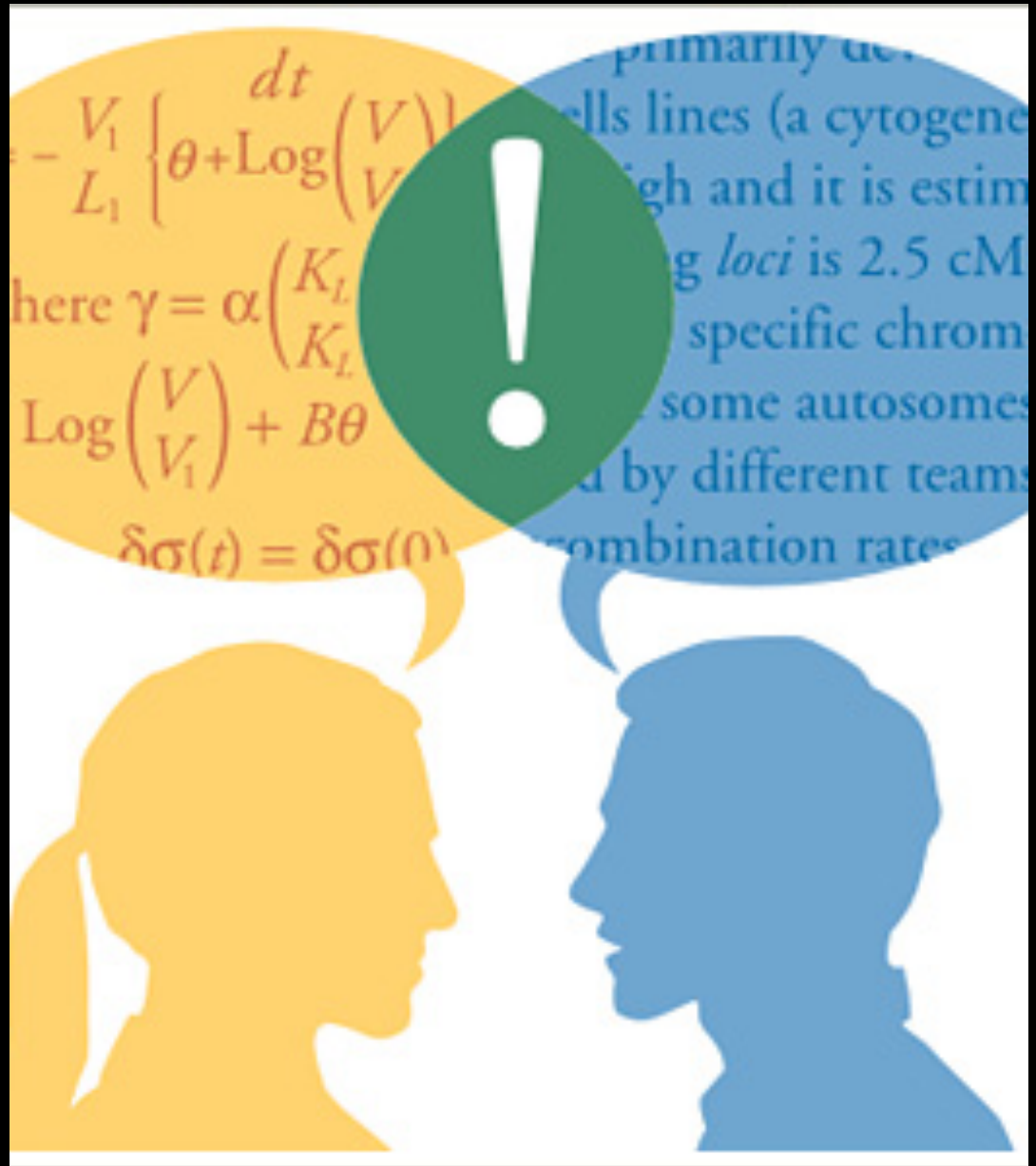


Interdisciplinary methods/problems

- To answer complex questions;
- To address broad issues;
- To explore disciplinary and professional relations;
- To solve problems that are beyond the scope of any one discipline;
- To achieve unity of knowledge, whether on a limited or a grand scale

Text: Klein 1990, p. 11

Illustration: Daniel Fazer in
HHMI, 18/3 (2005/Dec.),
Chronicle, p. 1



SMART HERITAGE

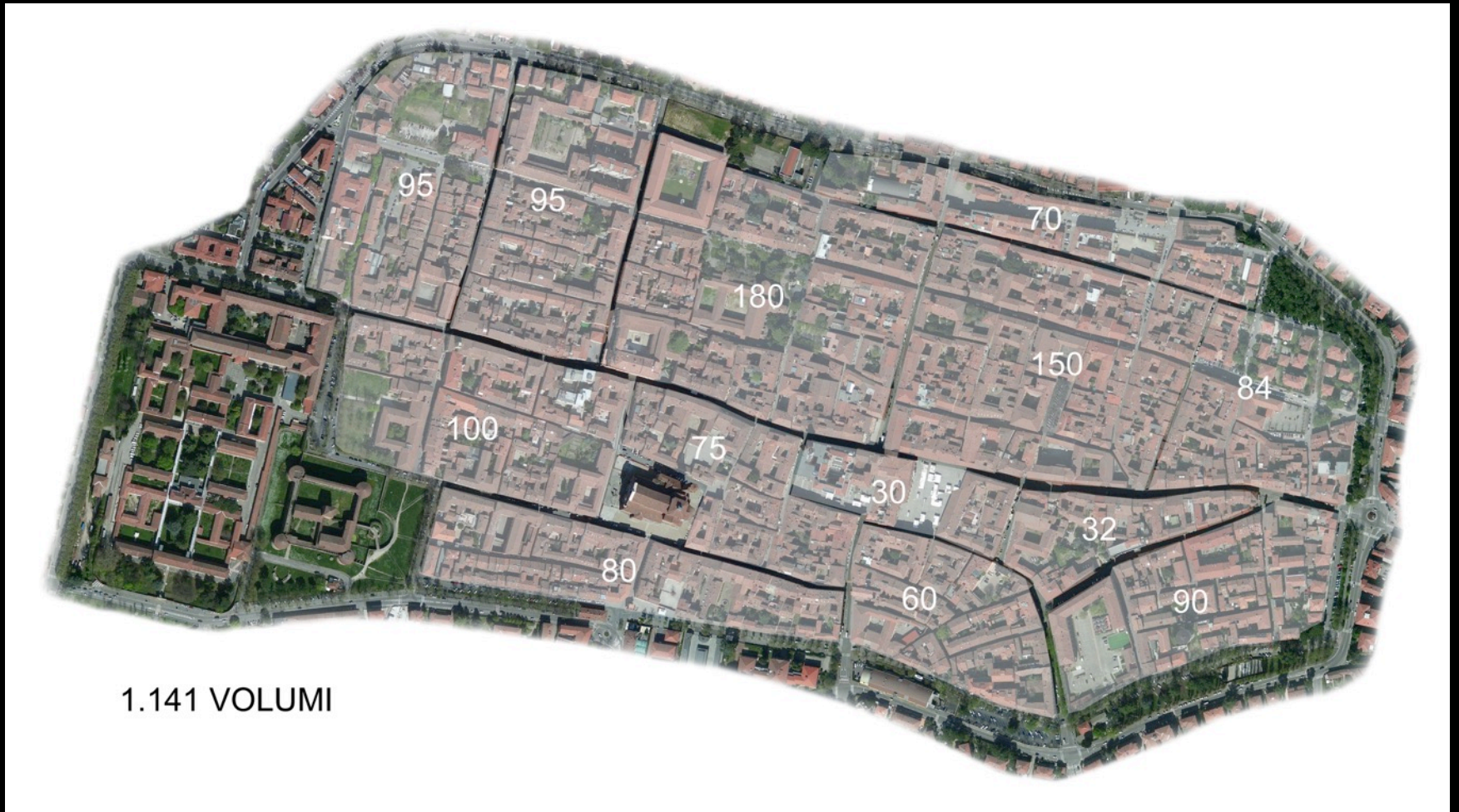
V. EXPERIMENTING

Topographic survey (total station)

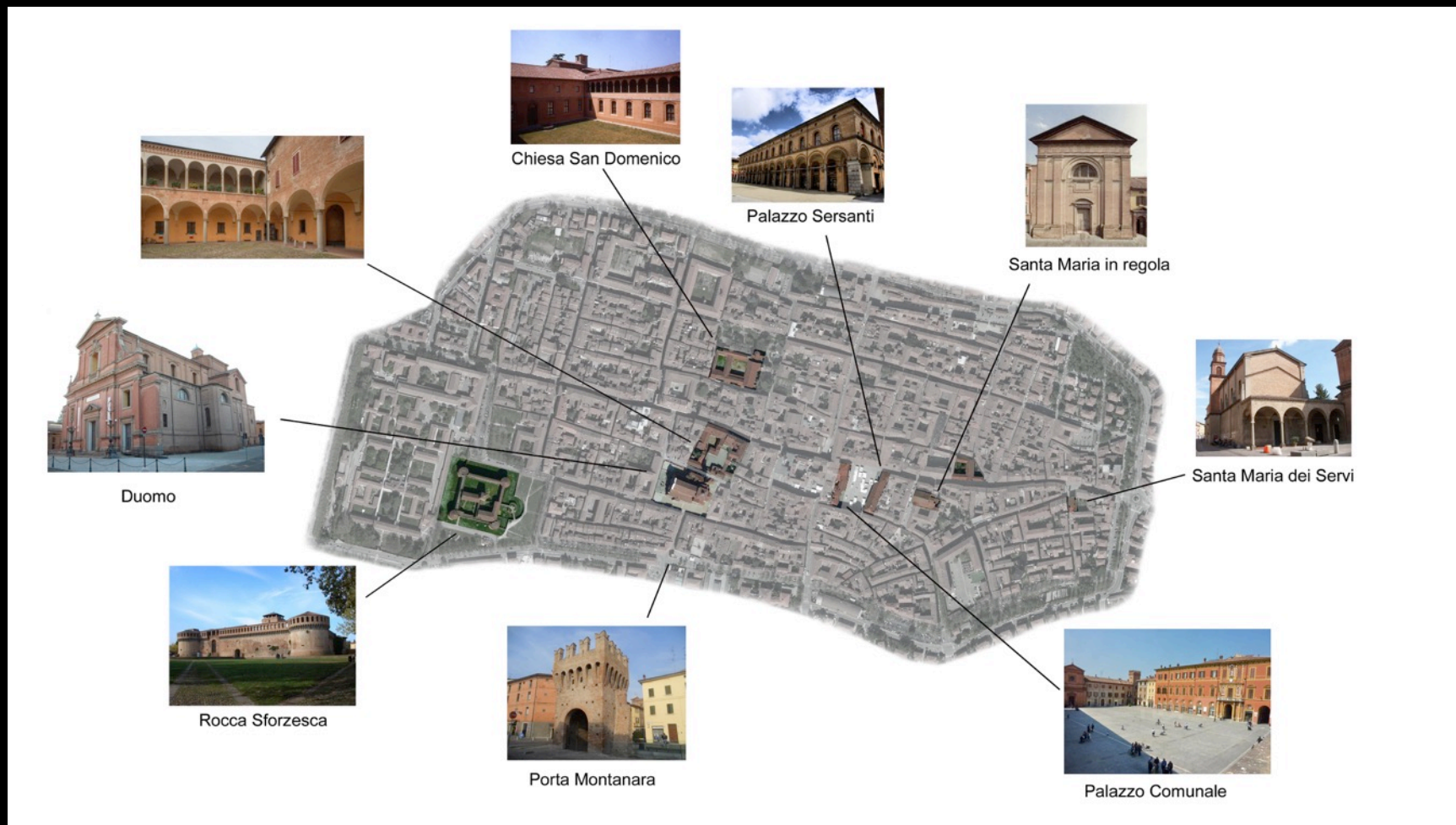


Bertocci – Parrinello (Florence and Pavia)

Photographic and Photogrammetric Survey



3D model of exportable formats

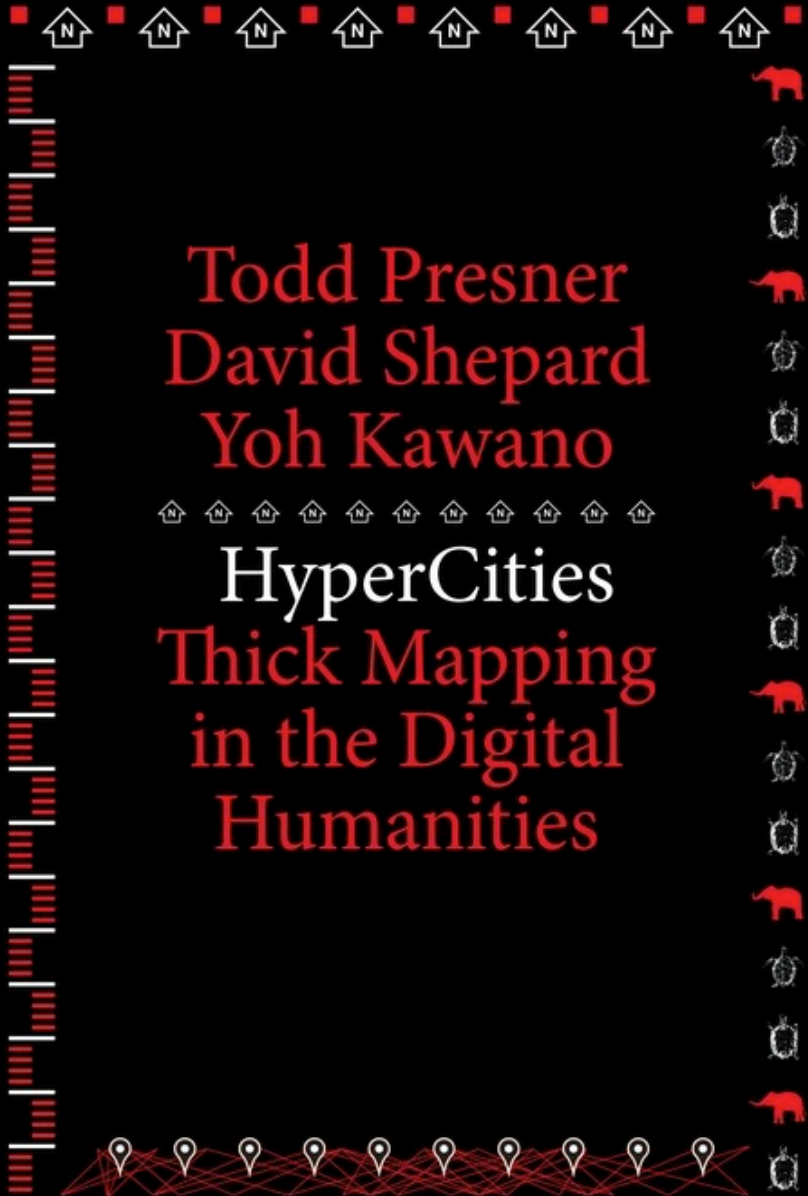


HyperCities (July 2014)

The prefix “hyper” refers to multiplicity and abundance. More than a physical space, a hypercity is a real city overlaid with information networks that document the past, catalyze the present, and project future possibilities. Hypercities are always under construction.

Todd Presner, David Shepard, and Yoh Kawano put digital humanities theory into practice to chart the proliferating cultural records of places around the world. A digital platform transmogrified into a book, it explains the ambitious online project of the same name that maps the historical layers of city spaces in an interactive, hypermedia environment. The authors examine the media archaeology of Google Earth and the cultural–historical meaning of map projections, and explore recent events—the “Arab Spring” and the Fukushima nuclear power plant disaster—through social media mapping that incorporates data visualizations, photographic documents, and Twitter streams. A collaboratively authored and designed work, *HyperCities* includes a “ghost map” of downtown Los Angeles, polyvocal memory maps of LA’s historic Filipinotown, avatar-based explorations of ancient Rome, and hour-by-hour mappings of the Tehran election protests of 2009.

Not a book about maps in the literal sense, *HyperCities* describes thick mapping: the humanist project of participating and listening that transforms mapping into an ethical undertaking. Ultimately, the digital humanities do not consist merely of computer-based methods for analyzing information. They are a means of integrating scholarship with the world of lived experience, making sense of the past in the layered spaces of the present for the sake of the open future.



Todd Presner
David Shepard
Yoh Kawano

HyperCities
Thick Mapping
in the Digital
Humanities

Acknowledgment

Teamwork



Thank You!

URL: <http://www.andreananetti.com>



SMART CITIZEN AND SMART CITIES

BLOCKCHAIN

ABOUT ME

- ▶ **Mariusz Nowostawski**
- ▶ Associate Professor at NTNU, Gjøvik, Norway
- ▶ Research/Teaching
 - ▶ Evolvable Machines and Self-Organising systems
 - ▶ Mobile computing, Computer Games
 - ▶ Peer-to-peer systems
 - ▶ Blockchain technologies

BLOCKCHAIN — WHAT IS IT?

- ▶ Transaction ledger
 - ▶ (Eventually) Consistent
 - ▶ Non corruptible, transparent, verifiable
 - ▶ Machine readable
- ▶ Distributed trust system
 - ▶ Possible to move trust from humans to algorithms
 - ▶ Possible to automate certain subsystems

BLOCKCHAIN — EXAMPLES

- ▶ Bitcoin, Litecoin, Dashcoin, etc.
 - ▶ Mostly focused on money-replacement
- ▶ Ethereum
 - ▶ Smart contracts
 - ▶ Task Automation and Autonomy
 - ▶ Well-suited to help with IoT micro-transactions (financially and operationally)

BLOCKCHAIN AND SMART CITIES

- ▶ Open system
- ▶ Removed barriers of entry: everyone can participate
- ▶ Fair system, shared economy
- ▶ Distributed value-chain
- ▶ Open innovation, easy integration of new ideas, easy to experiment,
- ▶ Potential for crowd-funding

Smart-Citizen and Smart-City Systems and Services



Valentin Plenk, Institute of Information System at Hof University,
valentin.plenk@iisys.de

Central question in automation – Who decides?

- Automation applications usually consist of
 - Process
 - Sensor(s)
 - Controller
- Who decides in the Controller
 - Machine
 - Machine and Human
 - Human
- „easy“ cases
 - e.g., cruise control
- „difficult“ cases
 - e.g., autonomous vehicle

„Human-centered manufacturing“

- Old: humans make decisions; machines do work
 - Steam engine / engineer
- Modern: machines make decisions; humans do work
 - Pick by light / ...
- Future: machines cooperate with humans / humans take decisions
 - Machine signals need for maintenance
 - Data processing and aggregation necessary
 - machine condition monitoring (as a service)
 - improving production processes / logistics (as a service)
 - improving machine availability (as a service)"

Smart Sensors / Ambient assisted living

- Health-Monitoring / Derivation of „Life signs“
 - Sensors acquire information about
 - Movement
 - Liquid / Solid intake
 - Personal hygiene
 - Use „standard devices“ as sensor
 - e.g., power consumption of TV in evening
 - ...
- Smart household appliances compensate for
 - forgotten food in oven
 - ...

Contact information

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Cyber-Physical Systems

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