Chair for Information Architecture | FS2009

Elective Course Information Architecture

Information - The 5th Dimension in Architecture

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iA
Chair for Information Architecture

Overview

- Information as Raw Material
- Architecture - The Information Organism
- Case Study: YOUCITY

Overview

Information - The 5th Dimension in Architecture

Information as Raw Material

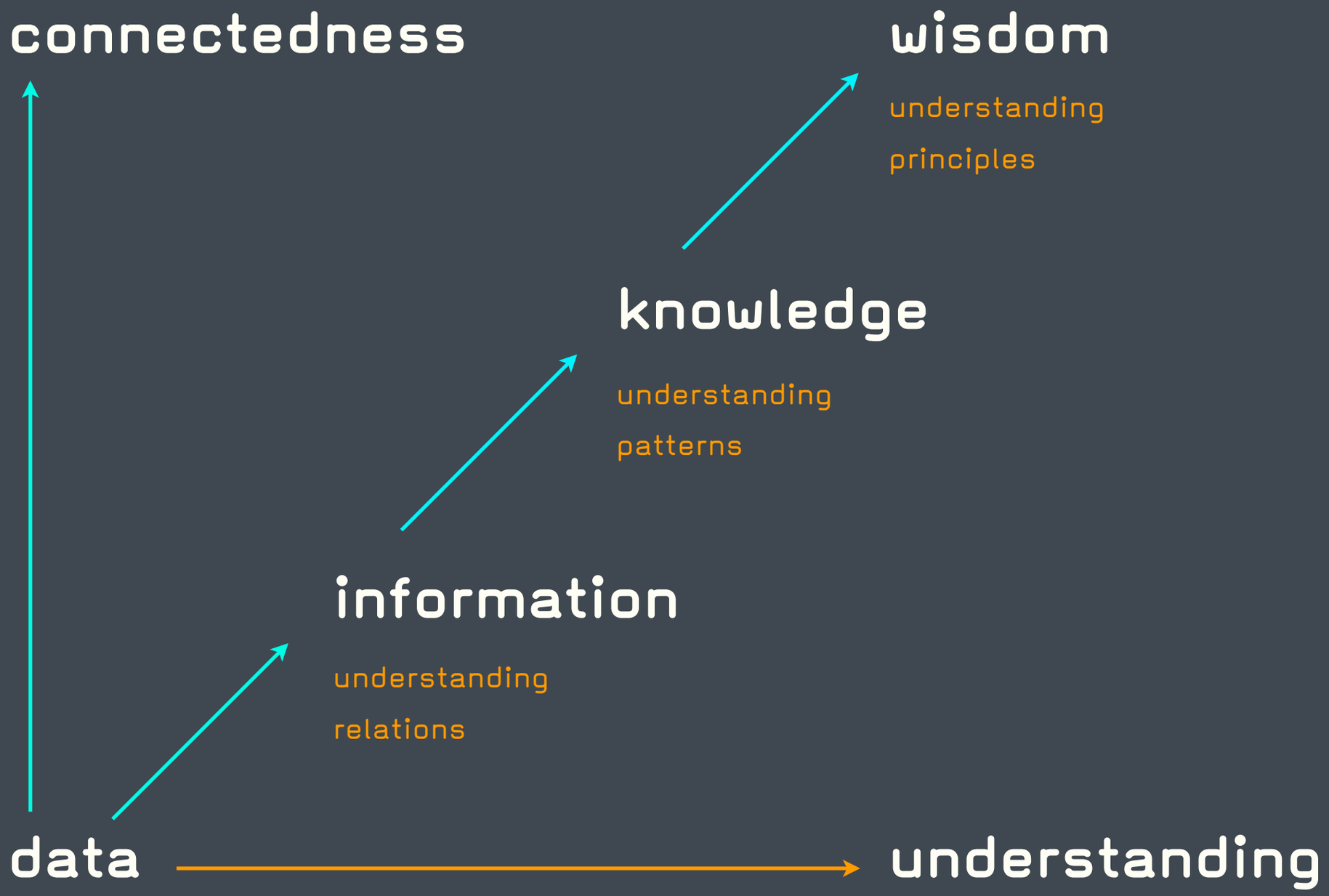
Information as Raw Material

Data is unprocessed facts and figures without any added interpretation or analysis

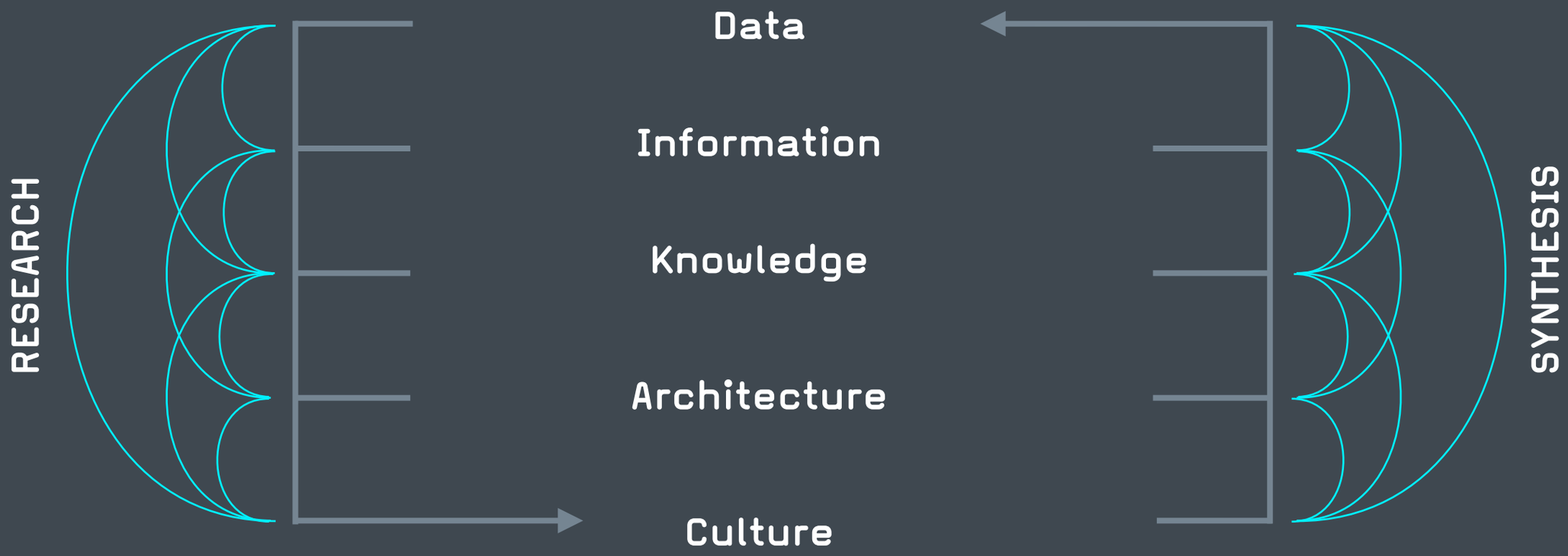
Information is data that has been interpreted so that it has meaning for the user

Knowledge is a combination of information, experience and insight that may be of benefit

Information as Raw Material



Information as Raw Material



Overview

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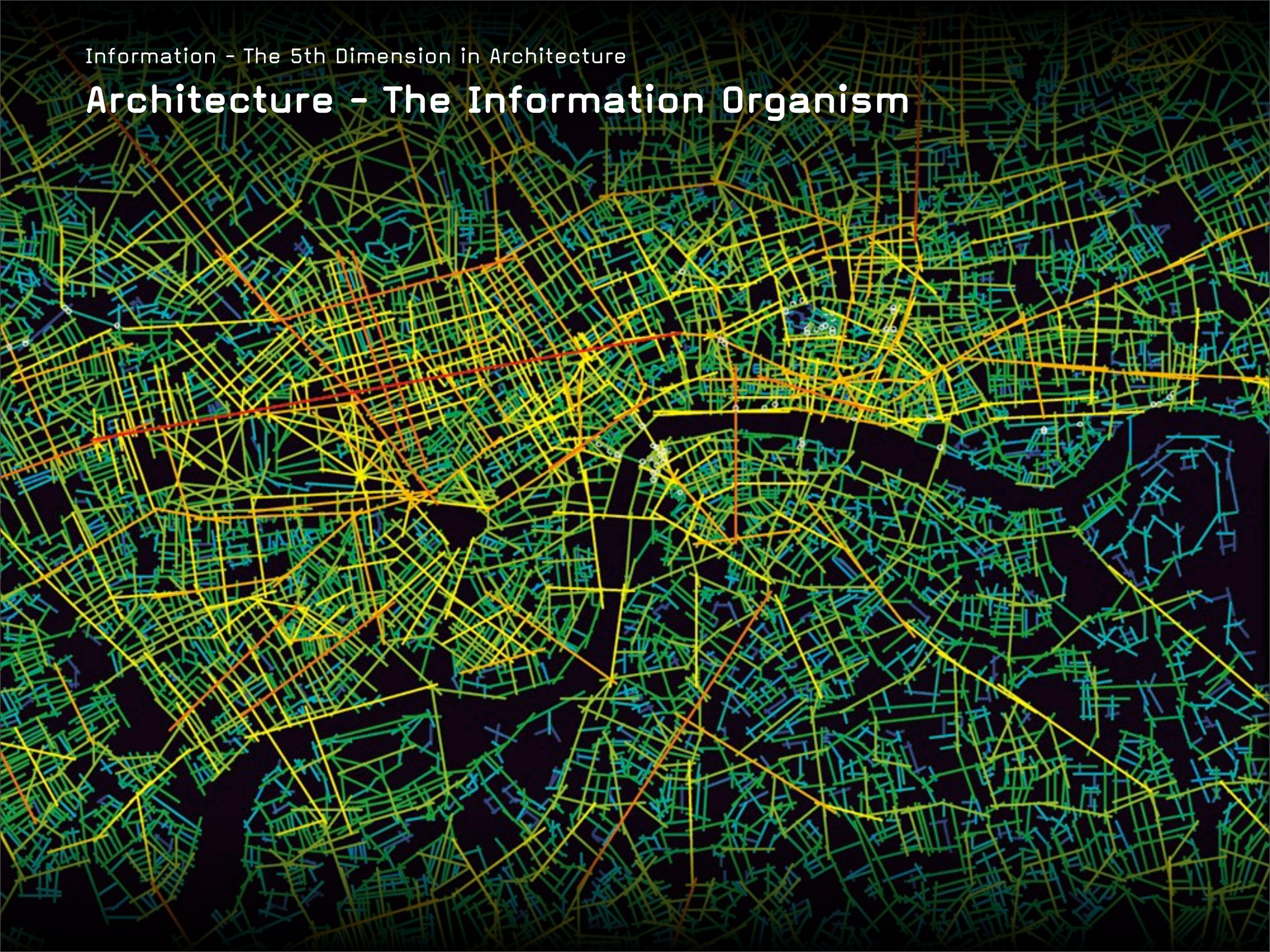
Architecture - The Information Organism



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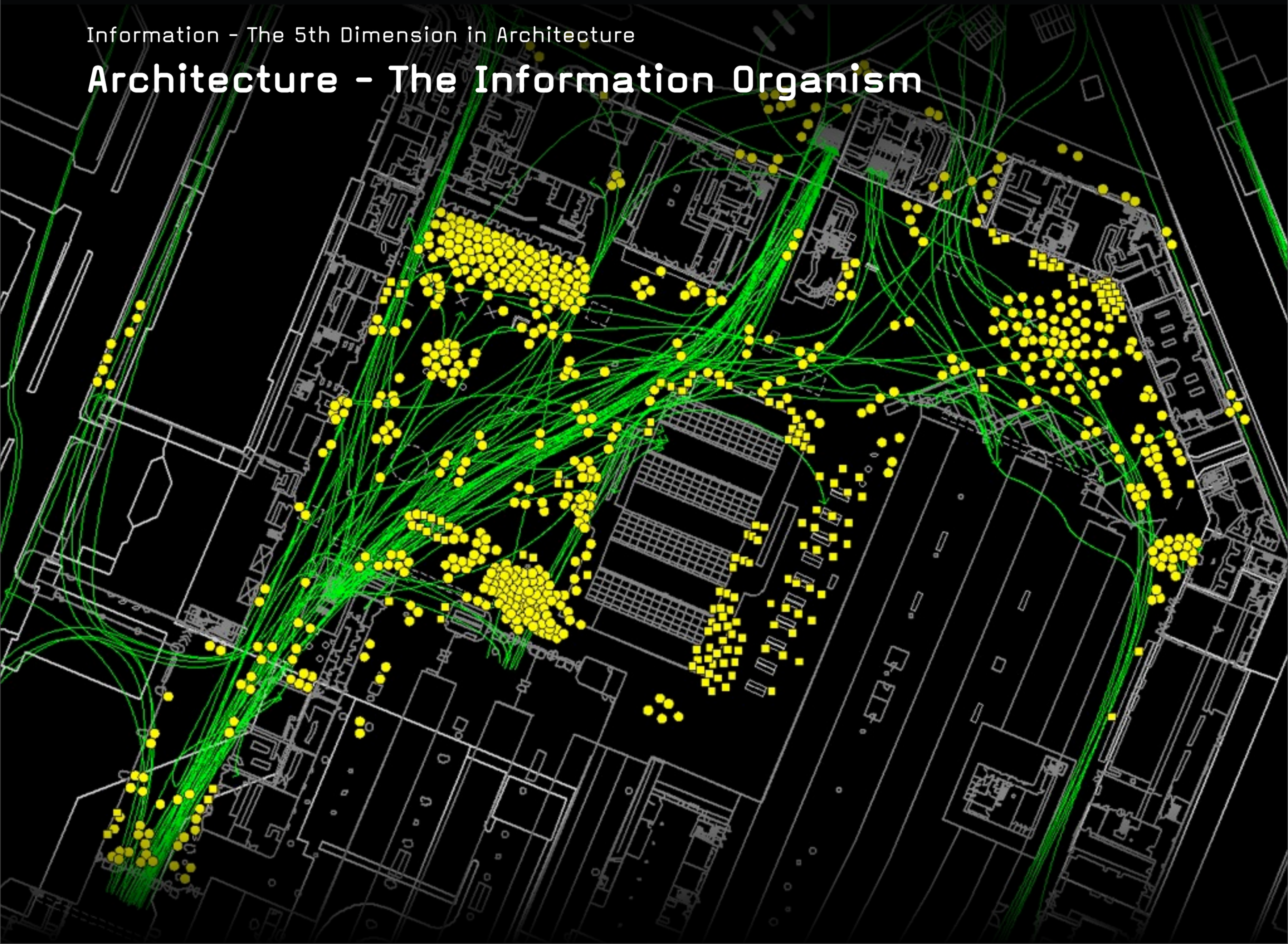
Architecture - The Information Organism



Overview

- Information as Raw Material
- Architecture - The Information Organism
  - Why does Urban Form Matter
  - Integrating Geography and Geometry
  - Functional Analysis
  - Integrating Urban Form with Socio-Economic Data
- Case Study: YOUCITY

Architecture - The Information Organism

Challenge

- Amazing range of new data
- Need for methods to integrate fine scale data, and aggregate at multiple scales respecting urban form
- New geographical approaches emerging

Relevance of Built Environment Analysis

Relevance of urban physical structure measures to research and planning

- **Economic activity**
  structural economic change, urban development
- **Residental patterns**
  gentrification, access to services, housing markets
- **Urban sustainability**
  energy use in buildings, transportation patterns linked to land use
- **Urban policy and planning**
  enhance evidence base on land use and built environment

Integrating Geography and Geometry

Methods in mapping urban form and function at multiple scales

- Urban Geography Uses Aggregate Methods

Many advantages in summarising large amounts of data for large areas.
Quickly identify large scale patterns.

- Approaches to Measuring Urban Form

Geometrical methods in architecture, planning and real estate.

- New Possibilities

Increasingly data and computing power available for geometrical analysis of whole city. Challenges in integrating with socio-economic data and enabling analysis at multiple scales.

Functional Analysis

Visualizing the structure of urban form
Datasets for Fine Scale Urban Analysis

- **Detailed topographic data**
  Building footprints and features at fine scale

- **Remotely sensed data**
  Building heights, terrain

- **Real estate data**
  Floorspace, commercial function, housing type and size
  Property sales and rent data

Integrating Urban Form with Socio-Economic Data

Cities can be viewed as information architecture systems.

‚Architecture‘ refers not only to the design of buildings, but to how the components of a complex system interact.

e.g. movement of people and goods, personal contact and interactions, telecommunications.

Integrating Urban Form with Socio-Economic Data

Example 1

Pulse - What are the patterns of use?

Where are people converging over the course of a day?

Visualizing the intensity of mobile phone calls at the present moment and comparing it to yesterday's data.

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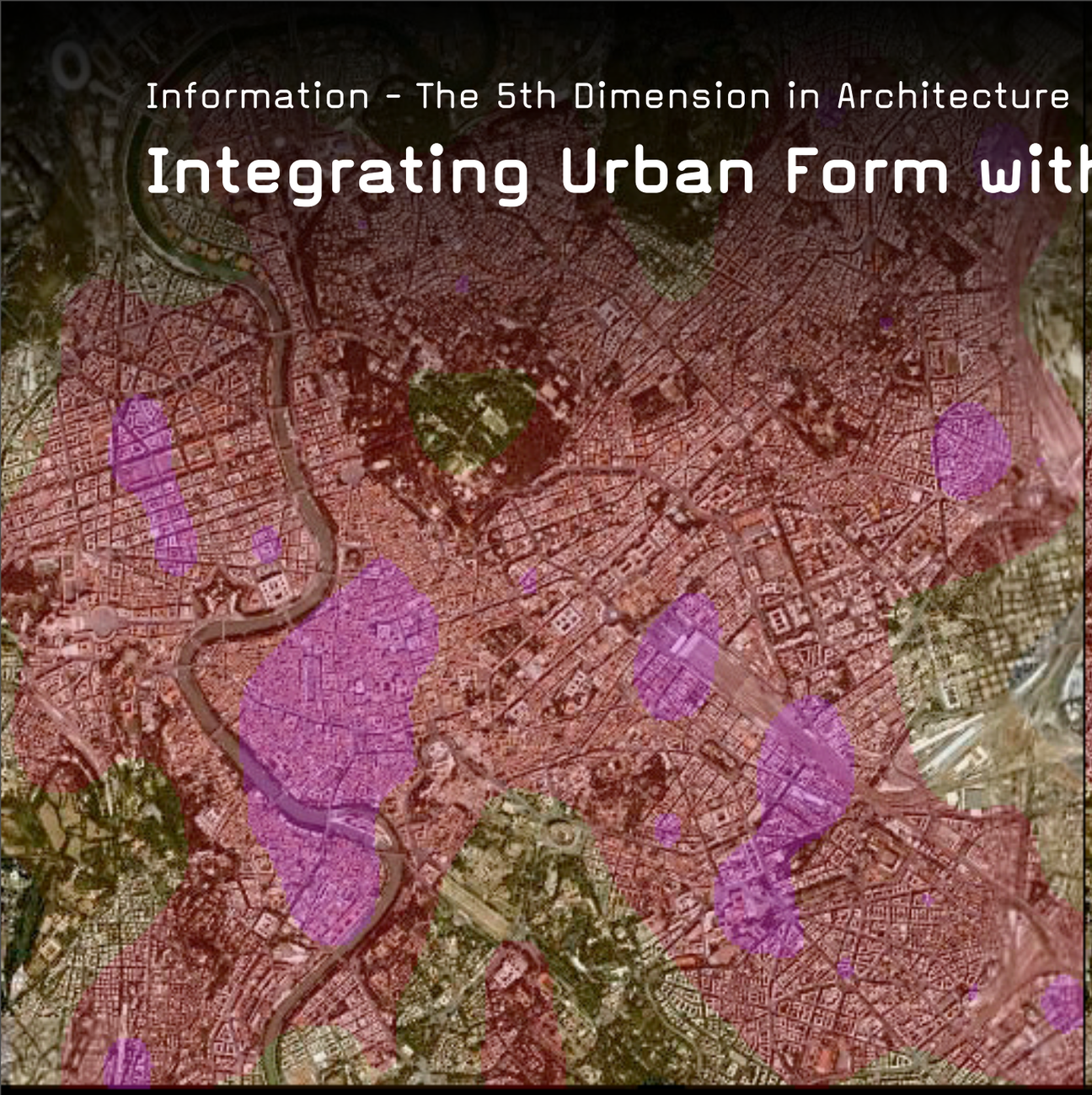
Integrating Urban Form with Socio-Economic Data



Project Realtime Rome, 2006

REAL-TIME

YESTERDAY 2006-08-30

min max

Integrating Urban Form with Socio-Economic Data

Example 2

Connectivity - Is public transportation where the people are?

How do the movement patterns of buses and pedestrians overlap? Showing the changing positions of buses, indicated by yellow points, and the relative densities of mobile phone users, represented by the red areas.

If a tail on a yellow point is long, a bus is moving fast. Areas colored by a deeper red, have a higher density of pedestrians.

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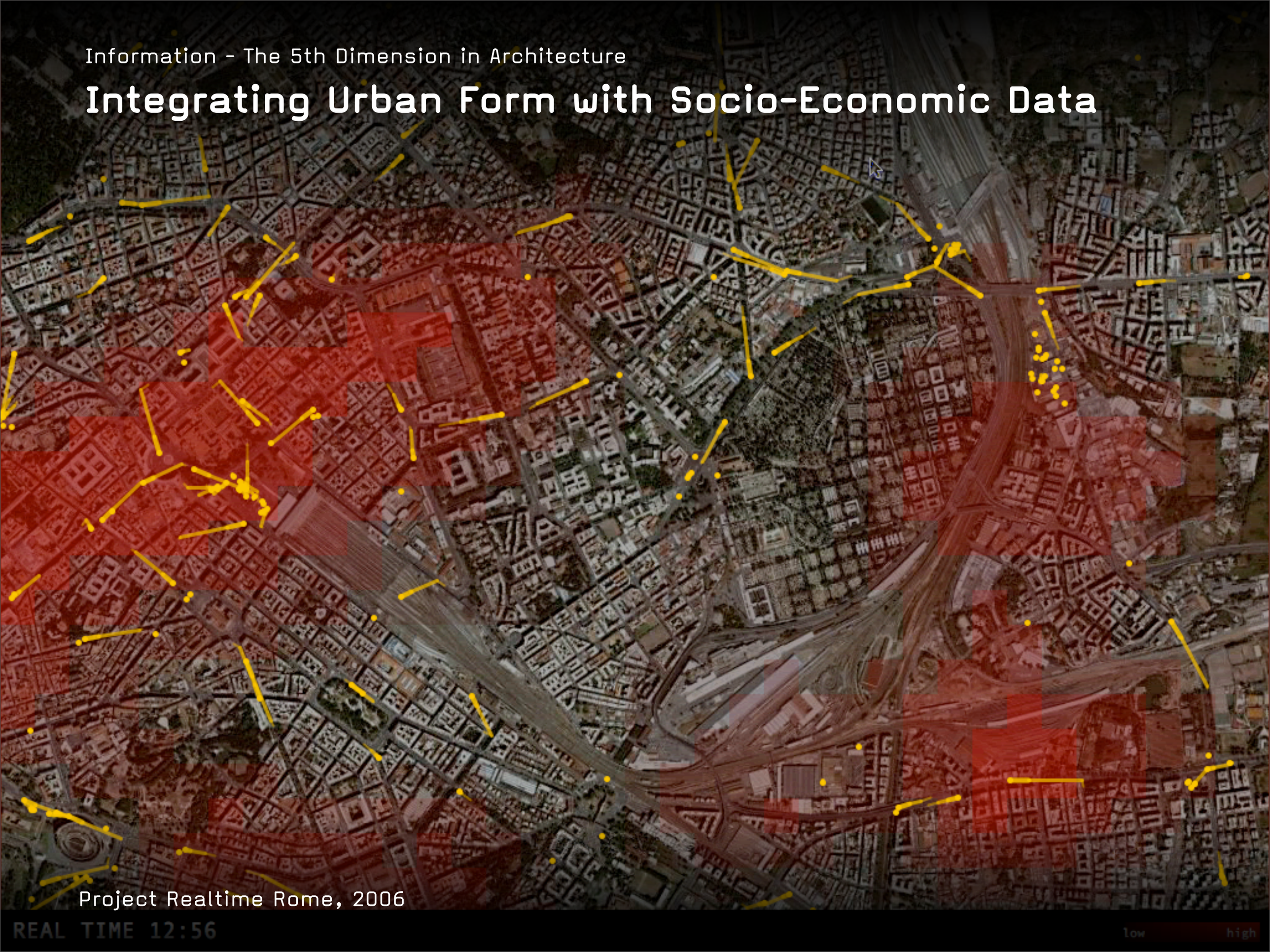
Integrating Urban Form with Socio-Economic Data



Project Realtime Rome, 2006

Integrating Urban Form with Socio-Economic Data

Example 3

Flow - Where is traffic moving?

Visualizing the movement of mobile phone callers traveling in vehicles.

Red indicates areas where traffic is moving slowly, green shows areas where vehicles are moving quickly, and the arrows represent the dominant direction of travel.

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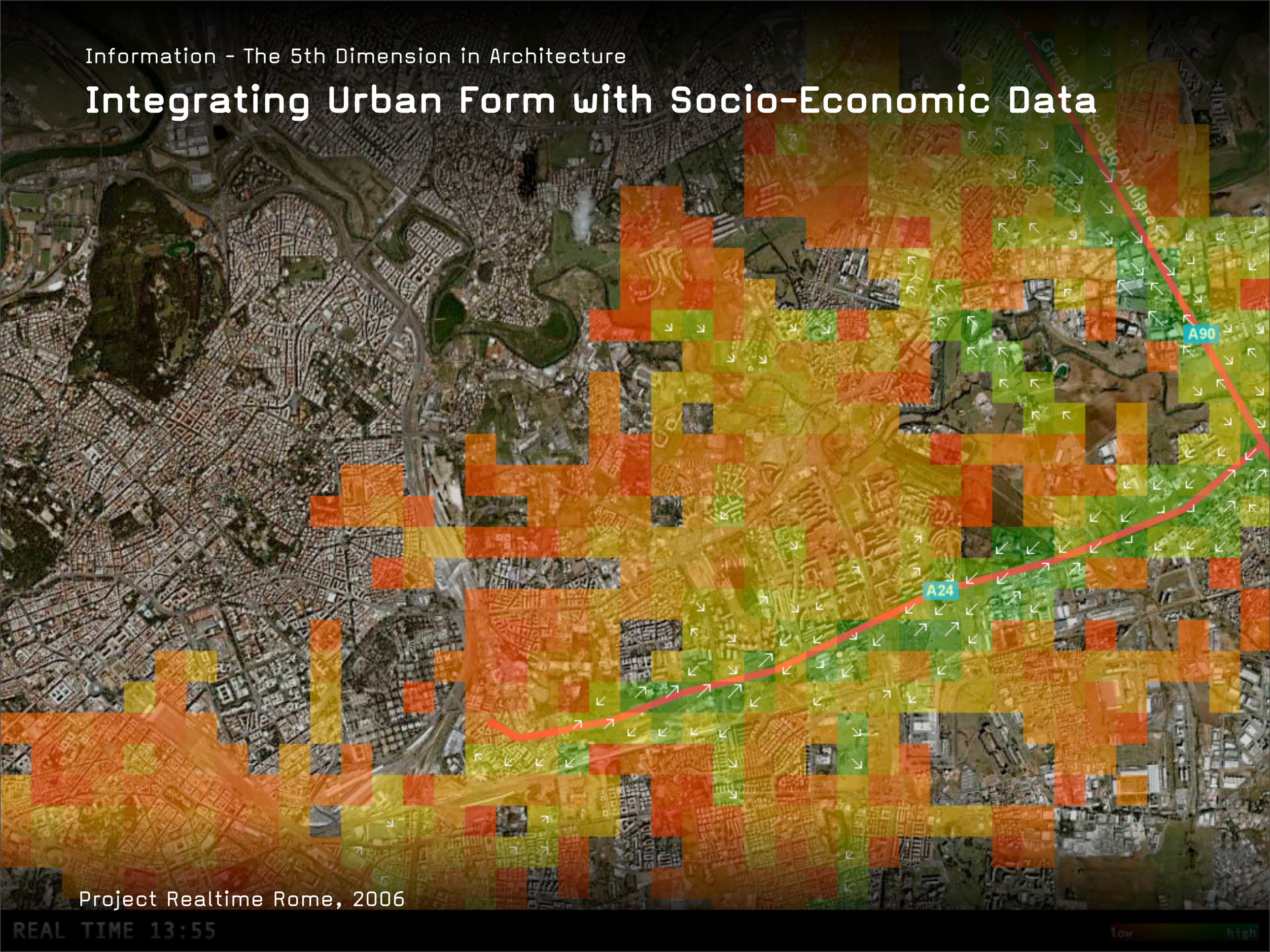
Integrating Urban Form with Socio-Economic Data



Project Realtime Rome, 2006

Integrating Urban Form with Socio-Economic Data

Example 4

Visitors: Where are tourists congregating?

Where are the concentrations of foreigners?

Highlighting the locations where tourists are speaking on mobile phones.

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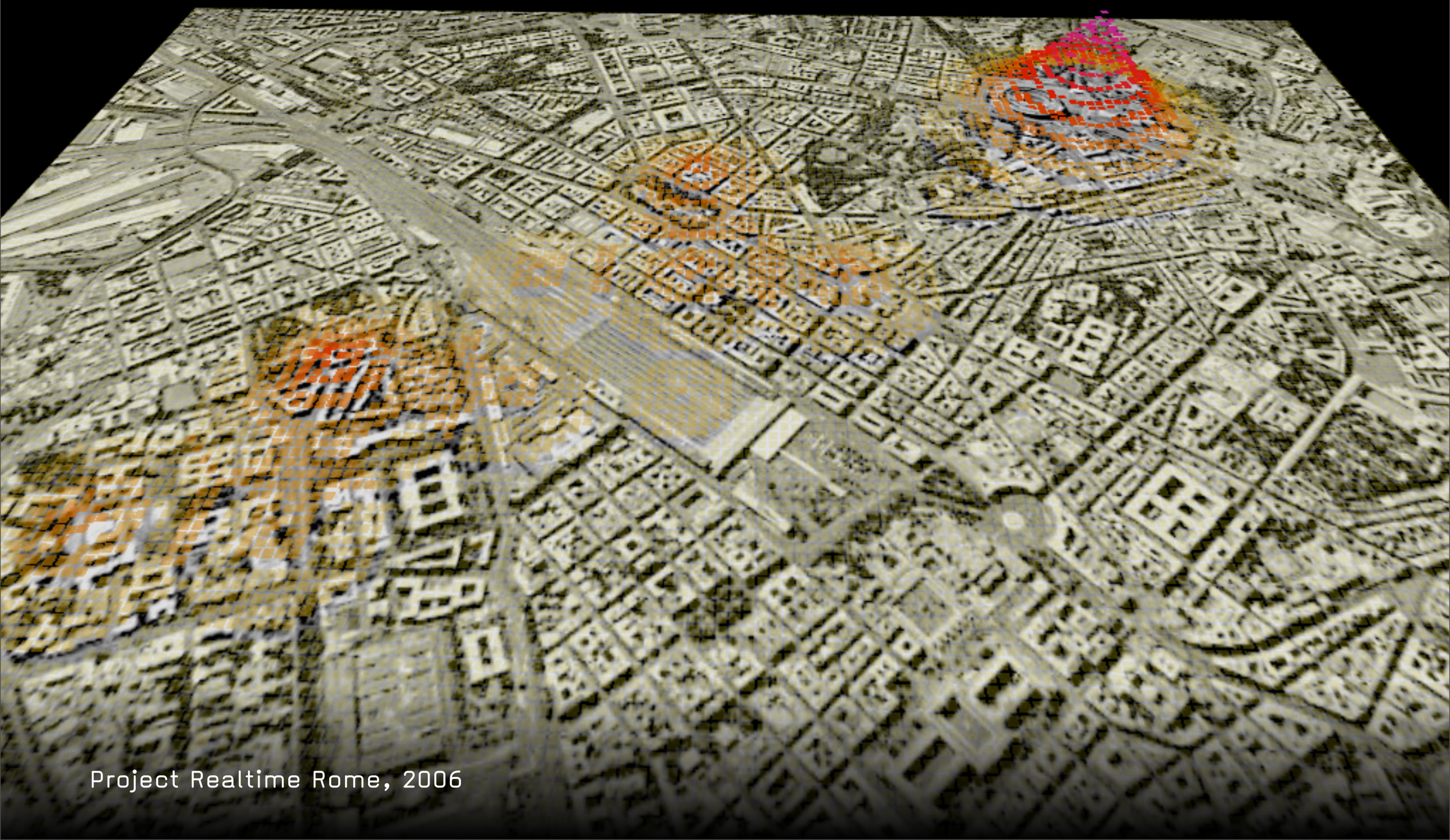
Integrating Urban Form with Socio-Economic Data



Project Realtime Rome, 2006

Integrating Urban Form with Socio-Economic Data

Example 5

Gatherings - What does a city look like during special events?

How do people occupy and move through certain areas of the city during special events? Showing the pre-recorded movements of mobile phone users during important events.

+ World Cup final match between Italy and France on July 9, 2006 and celebrations at the arrival in Rome of the winning Italy national team on July 10.

+ Madonna's concert in Rome on August 6, 2006

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Integrating Urban Form with Socio-Economic Data

Project Realtime Rome, 2006

Conclusion

Cities can be viewed as information architecture systems

Understanding the city as a system

Different types of complexity

A city works like a brain, not a computer

Overview

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Podcast Information Architecture

http://www.ia.arch.ethz.ch/teaching-fs2009/

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Sources

04: Carrara, http://www.flickr.com/photos/edmi/160781583/
09: http://www.spacesyntax.com/en/downloads/gallery/desktop-backgrounds.aspx
10: http://www.met-7.com/index.php?act=projects_info&pid=138cc66&pos=6
18, 20, 22, 24, 26: http://senseable.mit.edu/realtimerome/