Agile, eXtensible, fast I/O Module for the cyber-physical era

CHI2015 Workshop on Ecological Approach

Seul, 19th April 2015

Università di Siena: **UNISI**
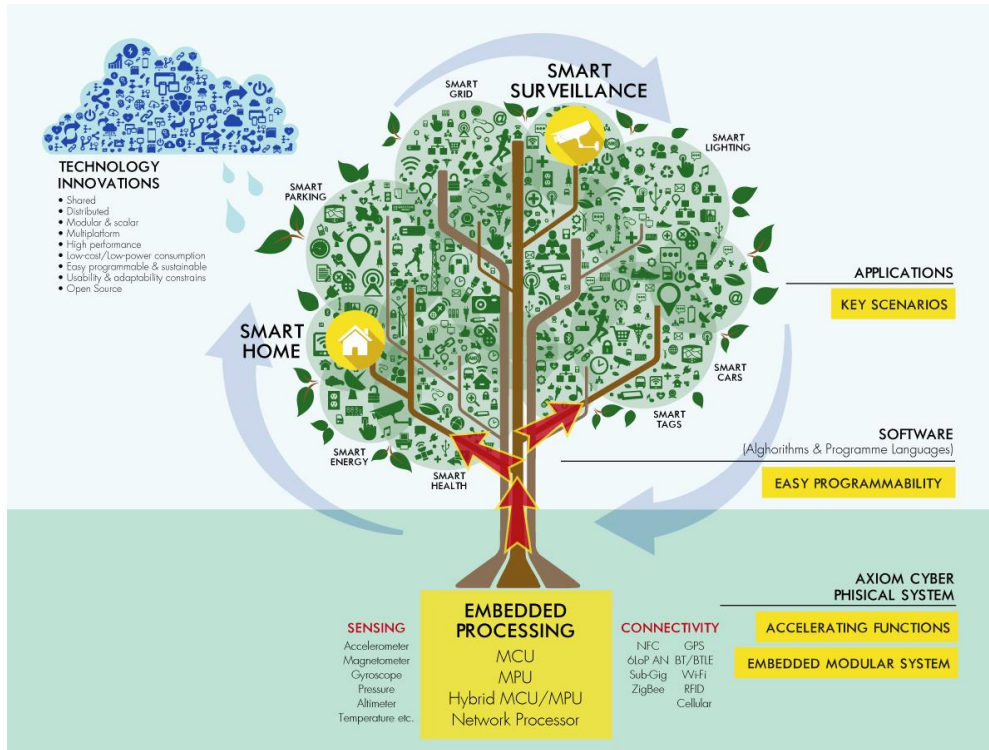
VISION

- Cyber-physical systems, embedded systems, or for simplicity the IoT do point in the direction of a complete integration of computing into our built environment

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A very interesting design space to be explored related to how we can reimagine and repurpose spatial dimensions of our built environment at the intersection of architecture and interaction design.
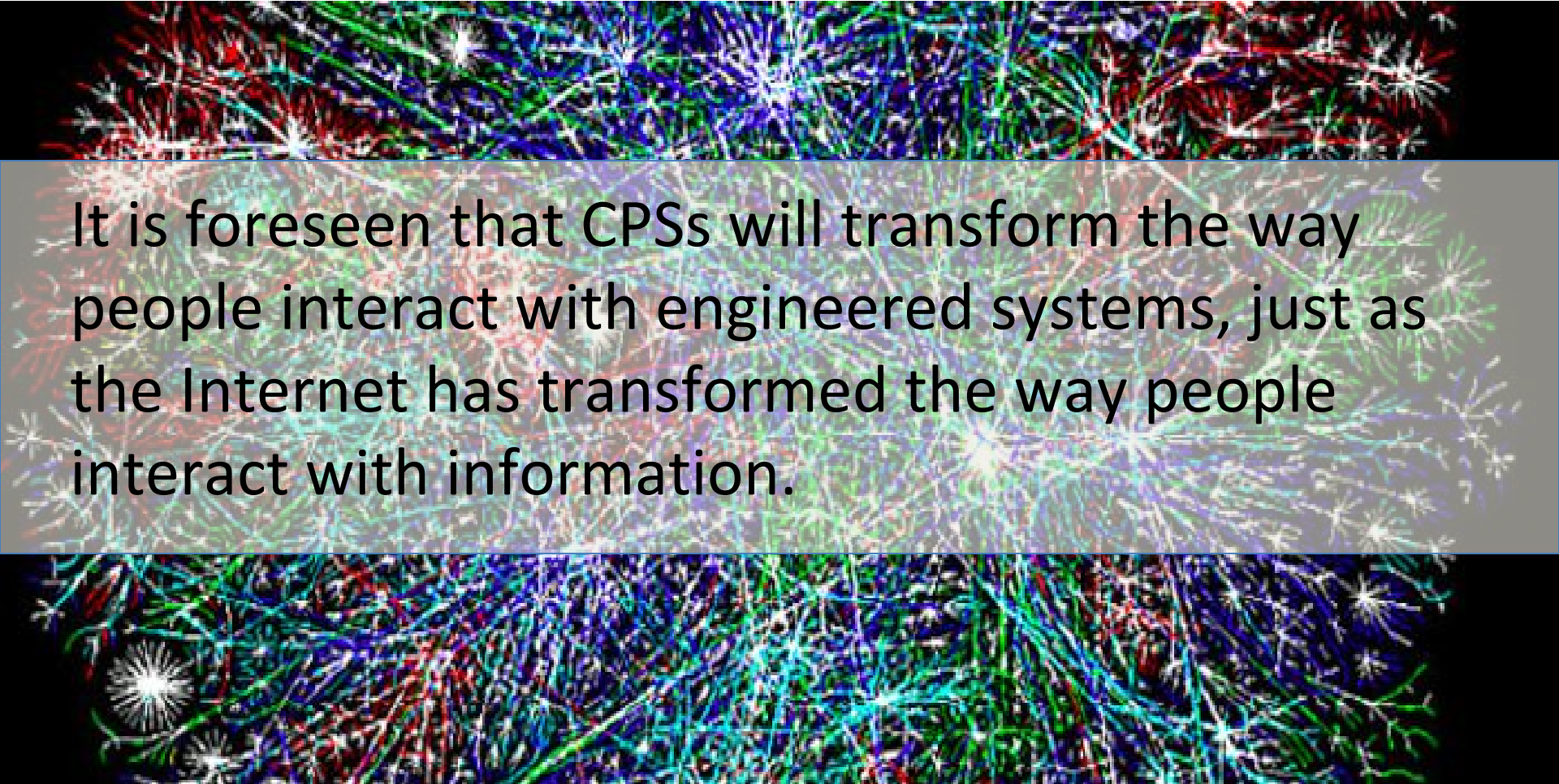
- "Imagine a world without architects, where only engineers construct buildings. With a keen eye toward functionality, these engineers would make sure the buildings were sound, but something would be lacking. People would miss the richness of architecture—the designed connection to their lives, history, and culture. The designed experience of these buildings would be irrelevant to their social and personal concept of buildings. Yet this is the world researchers are inadvertently creating with ubiquitous computing" Sengers et al 2004

Newly established notions such as smart cities, smart buildings, interactive architecture, and the deployment of public displays and digital signage are all examples of an interest in thinking architecturally about interaction design and vice versa.

It is foreseen that CPSs will transform the way people interact with engineered systems, just as the Internet has transformed the way people interact with information.

- The social impact in our everyday life is predicted to be even more impressive than that of the Web

- What methodologies do we have for incorporating and representing socio-cultural and behavioral aspects in computing systems?

Co-evolutionary Design

The design process is co-evolutionary since

Hardware design (e.g.modularity, scalability)

Software design (e.g.programmability, real-time computing) and Interaction design (e.g.products and services) are carried out in parallel (divergence phase) and then integrated (convergence phase) in form of outputs described in the respective WPs

Software Driven
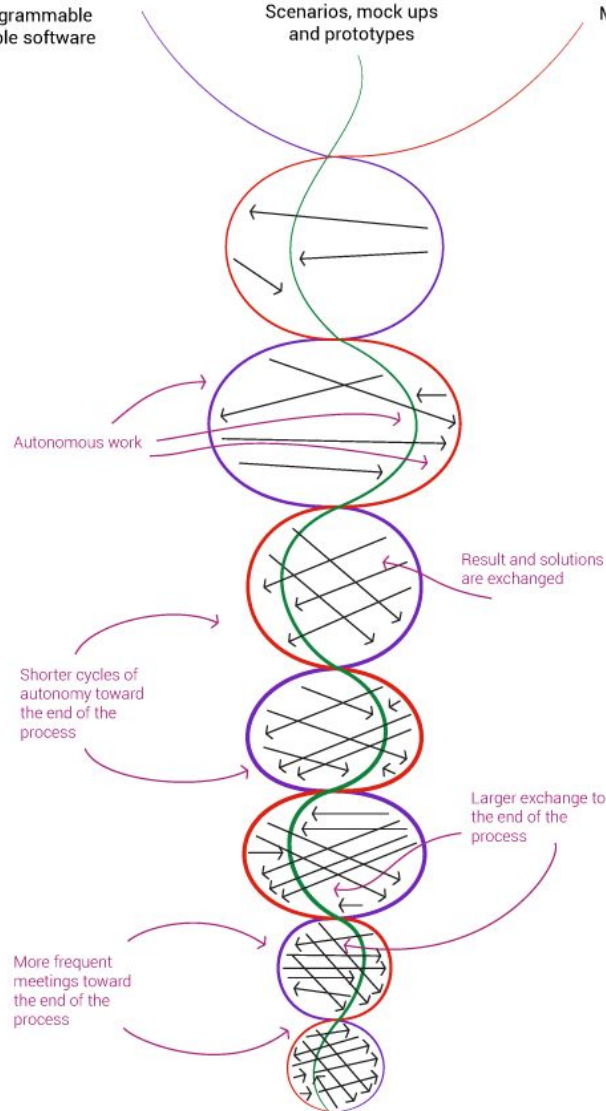Easy programmable and flexible software

Interaction Driven
Scenarios, mock ups and prototypes

Hardware Driven
Modular and scalable system

Autonomous work

Result and solutions are exchanged

Shorter cycles of autonomy toward the end of the process

Larger exchange to the end of the process

More frequent meetings toward the end of the process

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University of Siena
(Coordinator Partner)