Building Smart Buildings - bSB Højteknologiplatform

Per Christiansson

SmartHouse Group
Aalborg University
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Declaration of Interest concerning Advanced Technology Platforms 2007. Advanced Technology Foundation.

Building Smart Buildings, bSB, platform.

The 'building Smart Buildings', bSB, platform will act as a vehicle for continuously generating and capturing creative ideas and inventions on new products and services, and new business models within the bSB domain, with support for subsequent design, development, evaluations and high-tech products and business promotion (demonstration, test installations, training, feed-back capture). The platform will provide a living environment and laboratory for end users, companies in particular SME´s, and university research groups with possible inclusion of real smart buildings and parts of smart cities.

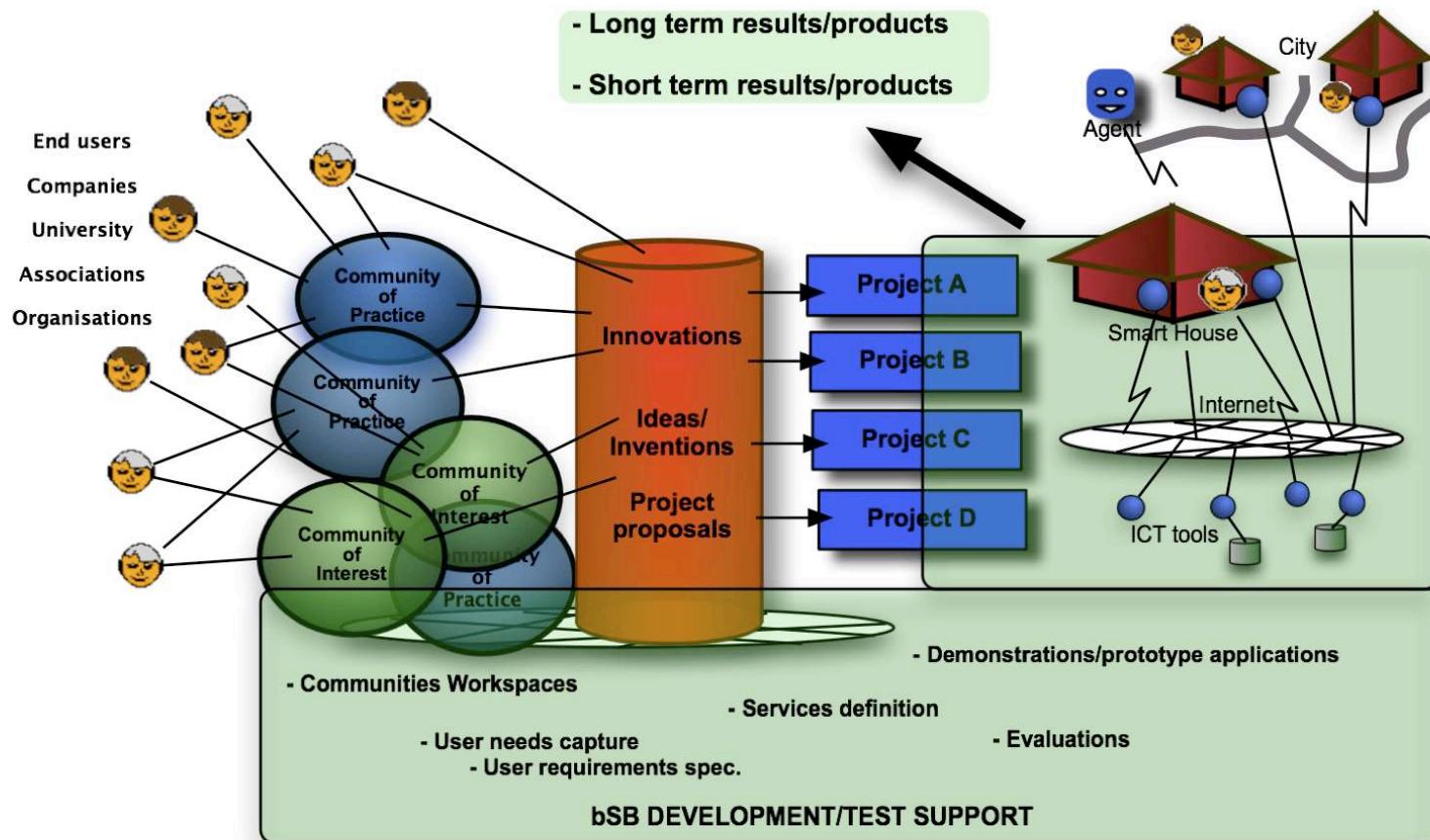Tuesday 20.2 Meeting ATF (Carsten Gaarn Larsen)
Tuesday 6.3. Meeting Byggeklungen
Thursday 8.3 14.00 Doi to INS AAU
Tuesday 13.3 Doi to ATF
Tuesday 26.6 applications in (19.4 notification)
Tuesday 25.9 acceptance/rejection

Content of the platform

- Long term results/products
- Short term results/products

End users
Companies
University
Associations
Organisations

Community of Practice
Community of Practice
Community of Interest
Community of Interest
Community of Practice

Innovations
Ideas/Inventions
Project proposals

Project A
Project B
Project C
Project D

City
Agent
Smart House
Internet
ICT tools

- Communities Workspaces
- User needs capture
- User requirements spec.
- Services definition
- Demonstrations/prototype applications
- Evaluations

bSB DEVELOPMENT/TEST SUPPORT

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The bSB platform will actively contribute to the building of smart buildings by providing mechanisms for idea generation and product/services development beyond inventions in isolation.

Services area support

The sSB platform focuses on the following societal domains namely, *healthcare*, *living environment*, and *energy* supported by Information and Communication Technologies, *ICT*. The following services area will be supported by the platform

- Services for Comfort
- Services for safety and security
- Services for sustainable performance
- Services for human/building interaction
- Services for health and well-being
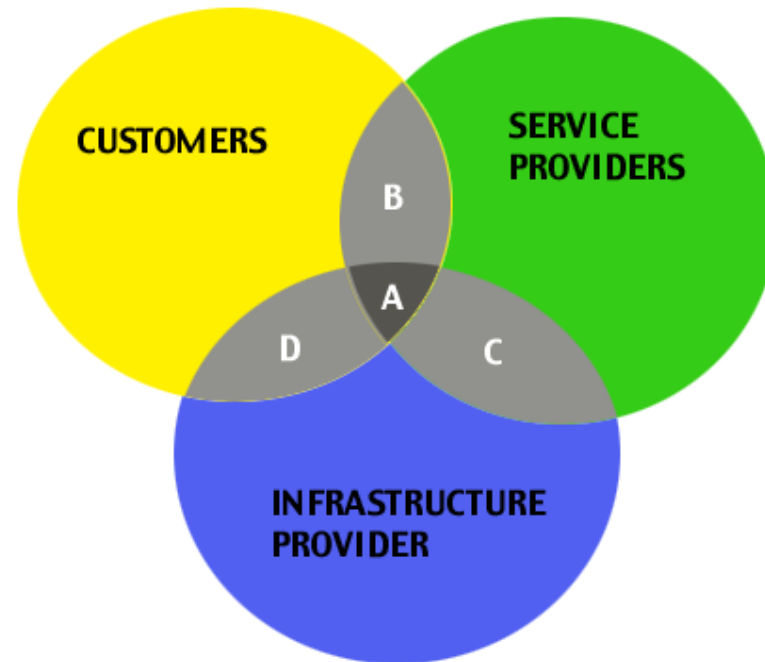
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Relations between main actors - customers, service providers and infrastructure providers - in the digital city.

Services area support

In order to develop the services mentioned above development the platform will support development of a number of **technologies** that are important. This especially relates to:

- Development of cheap and reliable *multiparameter sensors*
- Development of new strategies for *technical systems* in buildings
- Development of a personal self-learning *database* covering indoor climate, communication etc. needs and preferences as well as specification and usage descriptions of supporting ICT systems.
- *Model based control* of technical building services and energy systems
- New *context sensitive* communication systems and user environments for human/building interaction
- *Ontologies* management and access to support use, design and implementation of new services. Development of Smart Buildings metrics and standards contribution.
- Smart Building *requirements specification system* to be used by end-users, clients, service and building component providers, etc.

Services area support

In order to develop the services mentioned above development of a number of new **global business models** are important. This especially relates to:

- Development of *cheap* and *reliable* smart houses
- Development of new *global business model strategies* for smart buildings
- Development of a *business innovation* selflearning *database* covering needs and preferences, values and cost as well as specification and usage descriptions of different global business models systems applied at smart buildings.
- *Business model based control* of smart building products, services and intelligent utility systems
- *Ontologies* management and access to support use, design and implementation of new global business models applied at smart buildings and in Danish building industry.
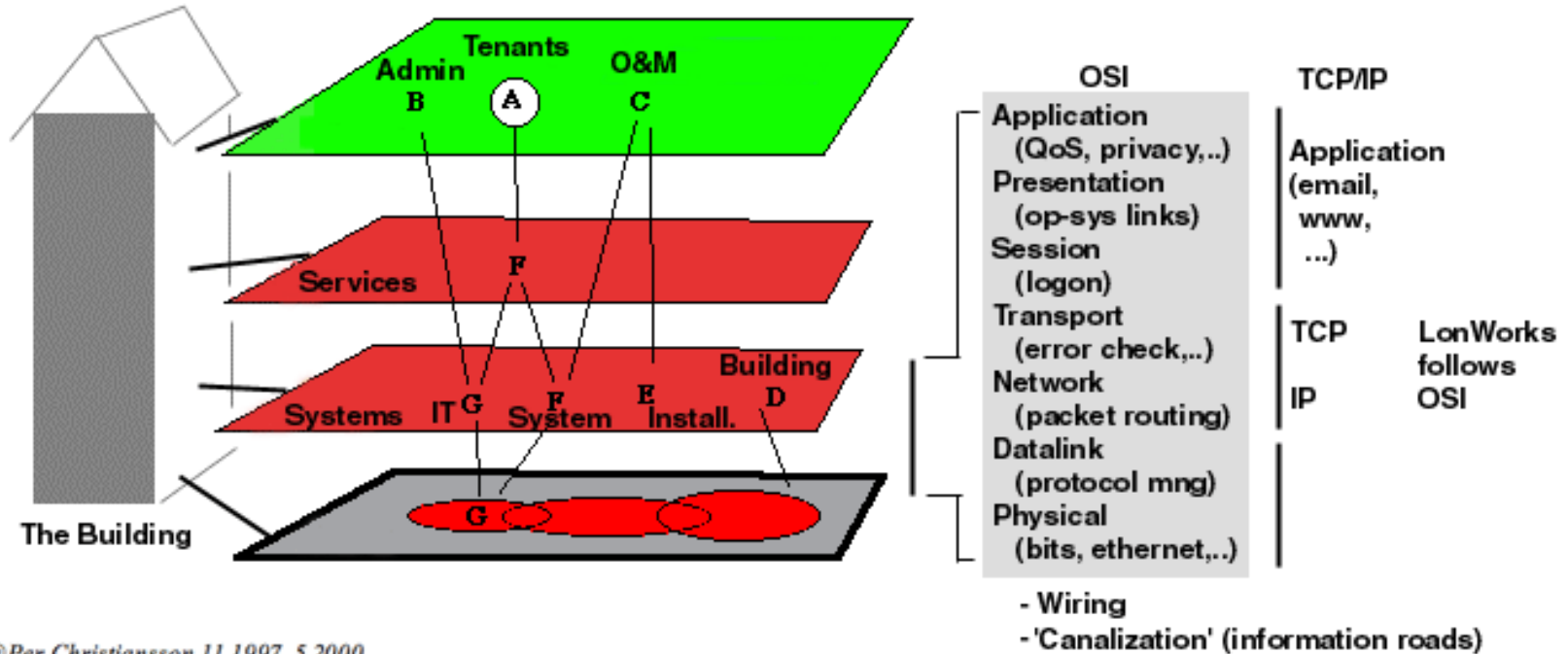
Intelligent Building Layers

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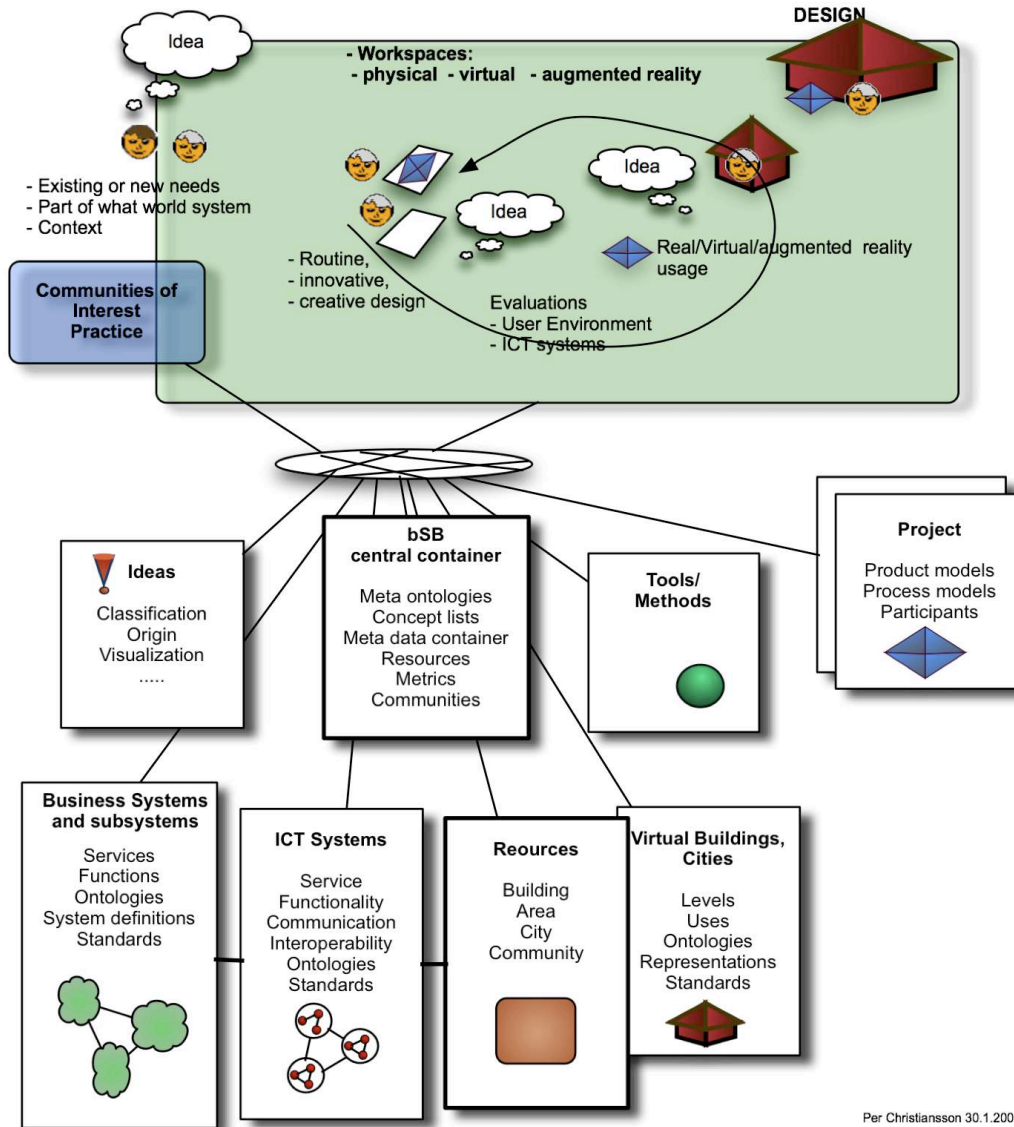
The bSB platform supports end-user driven innovation, invention and product development and evaluation

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Project focus domains

Smart Building concept focus domains (platform- project balance)

- End-user driven configuration of smart building
- Industrial production
- Visualisation and simulation of building system solutions
- Smart building components and technical systems
- Smart adaptable and context sensitive spaces

The platform will support the both the *building smart* process (customer design, general component design etc.), including the smart global business model (the whole chain of customers and their value and cost attributes) as well as the *smart buildings* (the smart end products).

Results

Important results of the platform project are:

- Efficient platform tools and methodologies
- Generic smart building and smart city ontologies
- Raised competences among partners. General public competence lift.
- Improvement of holistic design of Smart Buildings.
- Establish foundation for development of new and improved end-user services and products based on Smart House concept beyond invention isolation
- Motivation for forming of companies providing new end-user and infrastructure services
- Better end products fulfilling end-user needs and requirements
- New global business models

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Participants (not complete)

Aalborg University
- Architectural Engineering
- SBI
- Center for Industrial Production
- Health Science and Technologies, HST
- Center for TeleInfraStructure
- Center for Indlejrede Software Systemer, CISS
- ….
…

Companies
- Dolle A/S
- Ålborg Portland
- HP 3 gruppen
- Mariendahl
- Aikon
- Nordjysk Vækstforum
- Rambøll
- ….

References

Smart City Nordjylland/Smart House Nordjylland. Smart House byggeklyngen Vækstforum (3 pp.)

Heiselberg P, Christiansson P, Reinhold C (2007) Intelligent Buildings / Smart Homes. Architectural Engineeering and SBI, Aalborg University. January 2007. (6 pp.)

Christiansson P, 2000, "Knowledge Representations and information Flow in the Intelligent Building". Proceedings of he Eighth International Conference on Computing in Civil and Building Engineering. ICCCBE-VIII 2000 (eds: Fruchter R, Pena-Mora F, Roddis K), ISBN 0-7844-0513-1. American Society of Civil Engineers, Reston, Virginia, USA. (Stanford University, USA. August 14-17, 2000). (pp. 604-611). http://it.civil.aau.dk/it/reports/r_stanford_8_2000.pdf

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