Virtual Innovation in Construction

During recent years there has been an increasing focus on changing the building process *to raise quality* on the final buildings. The VIC Method focuses on the changes user involvement can bring by users developing and articulating real needs concerning for example different functionalities of a building and its components. The artefacts supporting the actual needs capture and requirements formulation during building design are also affected. The VIC Method focuses on the new opportunities evolving due to advanced Information and Communication Technology (ICT). The VIC Method is a general methodological framework with a meta ontology for Virtual Innovation in Construction. Project participants are the two main engineering and architecture companies in Denmark, Arkitema and Rambøll, together with Aalborg University

Introduction

The modern end-user is participative, creative, self organizing and community oriented. These facts motivate us to involve end-users in the innovative and creative building design process.

Buildings are often produced as one of a kind by organisations existing only during the building project. There are great opportunities for innovation in this open environment but also challenges caused by the intra-organisational settings, entailing that much knowledge on how innovation is carried through within companies are not directly applicable.

Recent development within ICT give us possibilities to create new services to assist in the user driven innovation process but also to introduce new adapted services in buildings. These new services must be designed to be effective, efficient and provide user satisfaction during use.

Methods

We describe user driven innovation as a 'systematic approach to developing new products and services, building on investigation or adoption of users' life, identity, praxis, and needs including unrevealed needs'. The following methods to support user driven innovation are taken into consideration

- Interviews and Questionnaires and Contextual Inquiry
- Focus groups and Lead User support
- Self observation through photo and video shots
- Collaborative Story Telling
- Scenario writing methods
- Virtual Building model walkthroughs
- Behavioural mapping
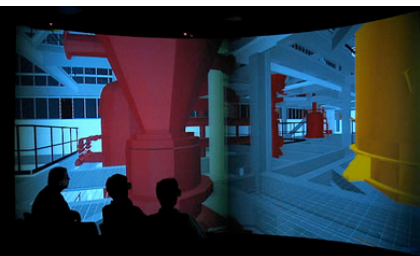
Results

The project goal of VIC is to create an ICT supported methodology (VICMET) to involve building end users in a creative innovation process together with building designers, to capture and formulate end-user needs and requirements on buildings and their functionality.
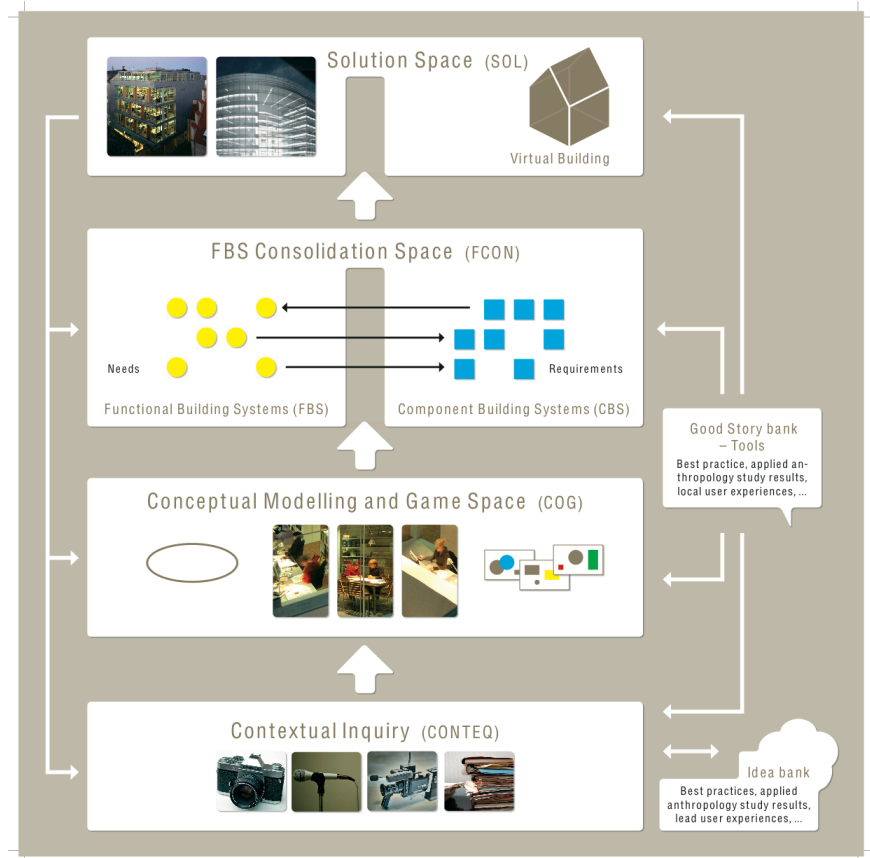
A web based dynamic innovation space VICSPACE is created to support involvement of end users in a creative innovation process together with building designers.

Findings from Arkitema and Rambøll performed innovative designs of their new offices, have already given input to the VICMET model: The Contextual Inquiry container is easily overfilled with unstructured information. Relations between building functionalities (Functional Building Systems - FBS) and component building systems (CBS) must be better articulated. Mechanisms to select and weigh needs and formulate requirements on building solutions must be improved. Virtual digital prototypes (not only the physical end result) must be supplied to the users for designing and evaluation. Different persons are active throughout the design process. There is a great risk to lock into early solutions. The functionality of available ICT tools are limited.

A community of interest and practice that can support a wider co-evaluation, co-creation process supported by continuous ontology development must be provided.

VICMET must be open to support different business models and settings.

Conclusions

There is a great need for support of end-user involvement and co-creation in innovative and creative building design process, which also to some extent will be changed by the introduction of the VICMET under development.

For further information: http://www.vicspace.org

References

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