



## **IC - (20920) - USING DIGITAL TOOLS TO FACILITATE CO-DESIGN IN HOUSING PROJECTS**

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### **Background and objectives**

Community participation in architecture and urban planning is crucial for the satisfaction of end users. Housing that are not adjusted to inhabitants' needs lead to modification works that generate unnecessary waste. This could be avoided if the design of houses was defined from the beginning with the participation of inhabitants.

The use of digital technologies benefits design participatory processes by allowing non-design specialists to obtain a better understanding of space and design possibilities. There exist digital tools for housing customization, but these were not developed along with potential users.

The aim of the present work is to define the requirements for a digital design tool that facilitates the involvement of inhabitants in the definition of the design of their homes.

### **Process and methods (for empirical research)**

Interviews were conducted with professionals, representatives of housing cooperatives and inhabitants of these cooperatives. The aim was to identify how participatory processes occur and could occur, and how digital tools can help these processes. Descriptive statistics method was used to summarize the results and define requirements for a co-design tool.

### **Main results (or main arguments in the case of critical reviews)**

The results show that professionals consider these participatory processes complex but necessary. Currently, inhabitants are not usually involved in defining the projects, but rather in more advanced stages where only small choices or changes can be made. The inhabitants expressed an interest in participating more actively and exploring the design possibilities.

### **Implications for research and practice/policy | Importance and originality of the contribution**

A digital tool that facilitates housing co-design must consider the following main requirements: i) allow user to decide on the characteristics of spaces; ii) provide a simple interaction that does not require advanced skills; iii) enable a 3D visualization, and iv) enable the visualization on large screen devices such as a computer.

The originality of this contributions lies on the fact that the requirements were extracted from direct contact with potential users.