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EFFECTIVE APPROACHES TO DEVELOP INFORMATION AND COMMUNICATION TECHNOLOGIES ATTRACTIVE AND USEFUL FOR ELDERLY PEOPLE

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ABSTRACT

In the past many attempts to develop product adapted to elderly needs failed, due to not proper approaches were used. Lack of user integration in the development process and lack of an overall perspective of the current and future scenario, are the main weaknesses.

Thus, **the objective of this paper consists of present an effective and innovative methodological approach to develop ICT adapted to elderly needs**, that is been used in an AAL Project named Social Interaction Screen (Si-screen), that aims to design and develop a new product that enhance communication and social interaction among elderly people. This system is called **elisa** and is based on an android application running on a Tablet PC.

The core approach used to make sure that an ICT development process will achieve a novel, effective and successful solution is the orientation at the methodology of **holistic innovation**. This methodology is especially suitable in radical innovation projects that are very complex with regard to objectives and structure, and are in first place aiming at realizing soft functionalities of high interest to end users, that is why the end user integration and end user needs are essential for the success of it.

Holistic innovation methodology consists of several well-linked steps that guide the whole innovation process, below the different phase and results achieved in Si-screen project are briefly described:

- (1) One of the first steps is focused in the **context system analysis**. In this phase we analyze and interpret several relevant issues such us: innovation potential, barriers, boundary conditions, and future scenarios.
- (2) Secondly, we need to understand and know better our target group. In Si-screen, taking into account that elderly people are a heterogeneous group, we developed a **typology** that consisted in 8 groups based in two variables (social interaction and technological affinity) to study and analyze the common and specific needs of the groups obtained.
- (3) Then, the **end user integration** starts. We use several **qualitative methods** that consist of interviews and focus groups. In Si-screen project, more than 60 elderly people in two countries were enrolled in this phase of the process. We gathered needs and preferences of elderlies, as well as, the core functions of the system, that are mainly focused in communications with friends and relative and gather information of interest.

- (4) Next, we introduce **quantitative methods** in order to validate the hypothesis and conclusions of the previous steps. In Si-screen, we developed an *ad hoc* application based on an international standard (ISO 9241-9, Ergonomic design of visual display terminals used for office work), in order to test and analyze how elderly people interact with tablet PC. Should be highlighted that does not exist a similar study in the literature, this unique study helped us to determine both, main usability aspects and technical features of the system.
- (5) The last part of this approach consists of an overall analysis of the results and a **decision making process**, carried out by a multidisciplinary group of experts; that is the input for the design and development phase of the system, as well as, for the testing and validation stage.

To conclude, we believe that this approach is suitable for a complex and multivariable scenario such as AAL, due to the main aspects that characterized this methodology: holistic, flexible and adaptable, multidisciplinary and end user integration and orientation.