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HUMAN WORK INTERACTION DESIGN FOR E-GOVERNMENT AND PUBLIC INFORMATION SYSTEMS

- EDITORIAL

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1. Background and Scope

In relation to designing the user experience for e-government systems, several paradoxical principles are faced which pull the design strategies in two opposing directions, for example, "control" versus "efficiency", "privacy" versus "transparency", "confidentiality" versus "right to know", "personalized" versus "designing for masses", "simple to understand" versus "informative", "feature richness" versus "ease of use" and "government centred" versus "citizen centred". None of these principles are actually contradictory, but an extra tilt towards any one of them can cause an undesirable user experience. Thus a fine balance is demanded with regards to strategy while designing the user experience for e-government systems and this can be achieved by means of suitable human work analysis and interaction design. Usability and user experience design is far more important for e-governance than for commercial websites, systems and products, as e-governance can impact upon the life of each and every citizen. Therefore, an attempt should be made to understand why human work interaction design is so critical to the development of e-government systems.

According to Gartner [2011], worldwide IT spending is currently estimated to total $3.6 trillion. However, in spite of this massive spending, in many e-government projects, operational systems have been developed, but, they then fail to win acceptance from stakeholders due to major usability problems. The success and failure rates of e-government projects in developing countries are estimated as being approximately 50% as failures, 35% being partially successful and only 15% being seen as being fully successful [Heeks, 2003]. Patel and Jacobson [2008] in their study on the factors influencing the adoption of e-government by the citizens have identified usability, design, trust and empathy as the important factors. Lanvin and Lewin [2006] in their chapter on the next frontiers of e-government in the Global Information Technology Report have considered usability and citizen participation as the key parameters in their instrument for evaluating the effectiveness of municipal websites.

Thus it is obvious that usability of e-government services is increasingly becoming an important consideration in the development lifecycle. Human work analysis and interaction design form the basis in order to achieve the usability of e-government systems. However, this has proved to be rather more easily said than done as the challenges in this process are multidimensional and are briefly summarized in the following section.

The variety of backgrounds of the users, heterogeneous delivery media and diverse socio-cultural and organizational contexts pose new challenges in relation to human work interaction design within the fields of e-government and public information systems. There are complex interplays and information exchanges between the models of Government to Government (G2G), Government to Business (G2B) and Government to Citizen (G2C). This involves an exhaustive study of user requirements, procedures, working styles and different organizational contexts. Interaction design of both an e-government system and public information systems must simultaneously address the user experience requirements of diverse users such as people from varied educational and professional backgrounds, senior citizens, physically disabled, those who are illiterate and people with different languages and cultural preferences. The combination of human work analysis and interaction design for e-government systems must also be sufficiently flexible in order to deal with diverse delivery media such as web, desktop, touch screen kiosks and mobile devices.

1.1. What is Human Work Interaction Design?

Technology is changing human life and work contexts in numerous ways. Interfaces between collaborating individuals in advanced ICT networks, small and large-scale distributed systems, multimedia and embedded technologies, mobile technologies, and advanced "intelligent" robots all now exist. These changes towards new ways of working have caused there to be an intense demand for techniques and technologies that address contemporary issues relating to communication, collaboration, learning, problem solving and information seeking in large and hugely variable information spaces. The User Centred Design (UCD) methodology is based on ISO 13407. The Human-Centred Design process has its emphasis on the study of user context, human factors and user requirements throughout the development life cycle in order to ensure the usability of products and systems. The question, however, remains as to how this can be achieved. The analysis of human work involves a study of cognitive, physical, organizational, social, cultural and environmental factors which influence the quality of interaction between users and systems. Therefore, in the paradigm of human work interaction design, we attempt to identify the methods and techniques for human work analysis which can then lead to the desired interaction design.

1.2. The IFIP Working Group 13.6 on HWID

To address this comprehensive problem, an IFIP Working Group 13.6 on Human Work Interaction Design (HWID) was established in 2005. Its expressed purpose is to reach a better understanding of the new challenges which are involved in the design of technological support for modern, dynamic and complex work environments through a discussion of the interrelation between Work Analysis and Interaction Design within the field of Human Computer Interaction. The main problem addressed is how it is possible to understand, conceptualize and design in relation to the complex and emergent contexts in which human life and work are now embroiled. This issue calls for cross disciplinary, empirical and theoretical approaches that focus on Human –

Work Interaction design [Orngreen, Pejtersen, and Clemmensen, 2009]. Therefore, the IFIP Working Group 13.6 on Human Work Interaction Design has organized many conferences and workshops which have focussed on different aspects of HWID such as describing users in context, synthesizing work analysis and design sketching, cultural usability and crisis management.

1.3. The INTERACT 2011 Workshop on HWID for e-Gov and Public Information Systems

In a continuation of our efforts, during the INTERACT 2011 Conference at Lisbon, Portugal, a workshop on Human Work Interaction Design for e-Government and Public Information Systems was organized. The workshop received position papers and participation from many countries: Austria, Denmark, India, Italy, Portugal, South Africa, Spain and United Kingdom.

2. Papers in this Special Issue

We have reviewed and selected the enhanced versions of 6 research papers from the abovementioned workshop in order to produce a special issue of the International Journal of Public Information Systems (IJPIS). These papers touch upon diverse topics relating to e-government and are briefly summarized below.

The first paper, authored by Torkil Clemmensen, outlines a revised version of the general HWID framework, with a focus on what connects empirical work analysis and interaction design. This paper presents a case study of the Danish government one-for-all authentication system NemID which has been briefly analysed using ethnomethodology, work domain/task analysis, and the HWID approach for comparison.

The second paper authored by Dinesh Katre and Mayankana Gupta presents the expert usability evaluation of 28 Indian state government web portals based on the evaluation of 79 parameters grouped under 7 broad categories such as accessibility, navigation, visual design, information content, interactivity, ownership and branding.

The third paper, authored by Valeria Righi, Sergio Sayago and Josep Blat, suggests that rapid ethnography is necessary in order to engage older people in e-Government and Public Information Systems.

The fourth paper, authored by Günther Schreder, Karin Siebenhandl, Eva Mayr, Michael Smuc, and Manuel Nagl, adopts the position that narrative interaction can be used as a design possibility for human-machine interfaces in more intuitive public information systems for low literacy users. This paper presents a case study of a train ticket purchase process with a story structure that demonstrates the concept of narrative interaction.

The fifth paper, authored by Pedro Campos, presents a design approach towards the development of a fully interactive tourism information office and highlights the unique design challenges arising from the need to support a diverse range of users, e.g. tourists, senior users, passers-by, children and teenagers.

The sixth paper, authored by Fraser Hamilton, Pete Pavan and Kevin McHale, has been selected as an “informative paper” as it represents the point of view of industry practitioners. This paper identifies that, in relation to User Centred Design (UCD) practitioners working in the United Kingdom Government domain, usability techniques are not being been sufficiently embedded in e-Government projects.

When all these aspects are taken together, this special issue provides a good basis for discussion in relation to approaches to Human Work Interaction Design for e-Government and Public Information Systems.

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