

Design and application of socially- aware IT – Low Code, Decisional Deskillling and Aging Mobile Users

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Abstract— As information technology continues to evolve, so too must our understanding and implementation of ethical practices when it comes to software development. Awareness of the perceptions of and needs towards the software artifacts by different groups are now increasingly part of the discussions and research studies. This special track will present research results and discuss three aspects of socially- aware software: diversity in the development of user interfaces, business user-centered application development and decisional deskillling as the effect of using recommender systems in business processes. While providing empirical insights, the presented papers offer grounds for further discussions and research. Hence, the special track promotes the interdisciplinary research as an important asset for socially aware and therefore sustainable information system design.

Keywords- *Digitization; decisional deskillling; low coade development platforms; system design, user interface; socially aware informaiton technology.*

I. INTRODUCTION

Since technology is developing towards the increasing support of the business processes as well as individual needs, its impact on these environments needs a closer attention from the research and public discussion.

Socially-aware software refers to software that is designed to take into account the social context in which it operates [1]. This can include software engineering processes that provide a framework for developing socially-aware systems [2]. The goal of socially-aware software is to create systems that are more responsive to the needs of society and can better serve societal needs.

The special track “Design and application of socially-aware IT” (DSAIT) is focusing on the research questions about how an information system should be designed to take the requirements of an indirect user, i.e., the affected user, into account. Furthermore, the impact of the usage of such a system on the process it is deployed in as well as on the direct and extended environment.

DSAIT aims to encourage research on these topics as well as to offer insights into the described issues based on quantitative and qualitative research results, thus providing

a possibility to trace the developments in this area throughout the years.

Being rooted in the information systems research, DSAIT gathers researchers from business administration as well as cross- topic disciplines such as user experience design and psychology providing interdisciplinary research designs and methods, resulting in usable insights for technology builders, users and managers.

The current track offers submissions in the fields of software engineering with low-code platforms [3], user interface design of mobile communication applications for aged users [4], as well as the exploration of the decisional deskillling in processes that include decision support systems [5].

II. SUBMISSIONS

Frosch and Levina [3] use an experimental setting to explore the question of whether software development with low code platforms leads to satisfactory results when implemented by Business Unit Developers (BUD) without any previous knowledge of software development. While providing encouraging results, the authors also identify potential success factors for a low code development platform (LCDP) in business context. The research presents indicators to measure LCDP performance within the software development process providing a common ground for managers and practitioners for successful and effective support of LCDP implementation. Experiment as an applied research method can be further expanded by human resources and information systems researchers to further support their conceptual artifacts in a low-code development context with data. The suggested indicators can be used to assess the process performance of the software development with LCDP and by differentiating between the “experts” and BUDs, the authors open a novel way to discuss software development and implementation in business context.

Decisional deskillling, i.e., the loss of individual decision-making skills and knowledge, constitutes a significant threat to knowledge workers in the interactions with intelligent decision-support systems (iDSS). Wessel [5] used an online survey to test six hypotheses for examining

the relationship between the extent use of intelligent decision-support systems and the impact on financial professionals' knowledge. Her findings indicate that extensive iDSS use decreases declarative and procedural knowledge. However, there was no significant association with the variable of time spent with iDSS. The study also revealed varied experiences and opinions on iDSS such as access to training and support programs, with some professionals appreciating technology's assistance, while others feeling the pressure to make quick decisions and struggling with the limitations of the systems in place. Furthermore, the study highlights the potential drawbacks of over-relying on technology for decision-making and the importance of mitigating potential negative impacts on workforce knowledge and skills. Hence, balancing technology use with preserving employee skills and knowledge is vital. As potential mitigation strategies training and support programs, monitoring reliance on iDSS, and reevaluating system effectiveness are suggested.

While Instant Messaging (IM) is globally increasingly popular form of communication, requirements of different user groups are not extensively covered by software designers. However, as a result of aging, users have different needs and requirements towards the design of the communication application. Paper by Levina [4] examines some of the user preferences from different ages towards the User Interface (UI) design of Mobile Instant Message (MIM) applications. The study uses online survey data about users' preferences towards the UI of this application type, limited to Indonesian users. The results indicate that for some UI elements, both age groups showed the same preferences, while other requirements were significantly different. Given the frequent presence of mobile communication applications, a longitudinal study of the demographic preference in these applications might provide interesting results into the change in interface expectations, usability proficiency as well as user behavior with MIM over time.

The research presented in this track exhibits the benefits of the interdisciplinary multi-level approach towards the design of information technology. Incorporating the research findings into the digital products will provide benefits for its users as well as for the society.

III. CHALLENGES

The challenges presented in the paper by Levina [4] on the design of user interfaces of mobile devices for different demographic groups will evolve in the years to come. While users will probably be more accustomed to specific interface design and experience in mobile communication applications, physical characteristics of each group will need to be taken specifically into account facing the aging population.

The paper by Frosch and Levina [3] that discusses low code software development by business users, provides empirical

evidence on how usable the low code development platforms are in business context users. The platforms nevertheless present a challenge that lies in the teachability of the business users on one hand, since the learning is different for each platform. On the other hand, including multiple separate software applications in the business context without the accordant responsibility and maintenance roles, could lead to inefficient resource use and redundant applications over time [6]. Also, the unstructured deployment and design might potentially endanger the existing software architecture by opening several unmaintained programming interfaces.

The challenges of decisional deskilling require a good understanding of the types and contents of the knowledge work that is performed in a business process so that the loss of skills in one area is supported by the gain of expertise or quality in the non-supported part of the process. Hence, to advance this topic knowledge and process management techniques need to be combined with psychological approaches to provide a successful transition between the supported and unsupported tasks as well as to identify the need to support the affected employees.

IV. CONCLUSION

The research presented at the special track provides the outline of some of the topics and research methods that become increasingly relevant for the development and selection of socially aware information systems. Multidisciplinary

In addition to the further empirical insights, frameworks and methods for requirements elicitation, testing, evaluation and feedback implementation will be the focus of the future SAIS research.

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