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End-user Empowerment in the Digital Age

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End-user Empowerment in the Digital Age

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Abstract

End-user empowerment (or human empowerment) may be seen as an important aspect of a human-centric approach towards the digital economy. Despite the role of end-users has been recognized as a key element in information systems and end-user computing, empowering end-users may be seen as a next evolutionary step. This minitrack aims at advancing the understanding of what end-user empowerment really is, what the main challenges to develop end-user empowering systems are, and how end-user empowerment may be achieved in specific domains.

1   Introduction

From the early days of information technology (IT), supporting humans (users) in an organizational or private setting was important goal of information systems (IS). This is reflected in the comparison of many definitions of the term "information system" as summarized by [4]. Following the definition in this source an information system "is a system in which human participants and/or machines perform work (processes and activities) using information, technology, and other resources to produce informational products and/or services for internal or external customers" [4, p. 451]. An important leap towards involving end-users, i.e. users outside an organization's IT-department, occurred with the emergence of personal computers and client-server architectures [13]. These technologies led to the notion of end-user-computing, which may be defined as "an information processing activity in which the person has direct personal control over all stages of the activity" [8, p. 85]. Much research has been conducted in this and related areas, such as end-user development, end-programming or end-user software engineering [6].

Characteristic features of these end-user approaches are the transferring control on the respective activities and information resources to the user [9] as well as to provide the ability to personalize and customize the interactions with the system according to the user's preferences [14]. As mentioned by [14, p. 2406], end-user approaches, such as end-user development open a broad spectrum that ranges "from simply adjusting parameter values, to recording and packaging repetitive interactions in macros, to creating completely new content and system behaviors using scripts, models like spreadsheets, or even full blown programming languages". A growing degree of user control and personalization leads to concept of empowerment. Following [10, p. 5f] empowerment "enables employees in doing things that they would otherwise be unable to do". User are more autonomous in accomplishing their respective activities and more flexible in reacting to changes. They also possess more problem-solving capabilities and are supported by the information system in an easy-to-use fashion [10].

There are many examples of how recent digital technologies (e.g. smartphones, big data, social media, e-commerce) have contributed to empowering end-users. They have the potential to shift control and power to end-users. These may be users within companies as well as external users, such as customers, patients or citizens. For example, early research on electronic marketplaces has shown that these systems favor the buyers and reduce the market power of sellers [4]. Other examples are biometrics [11] and pervasive computing [7]. Some types of information technologies are known to shift the control on traditional organizational processes to the end-user. Among the examples are self-sovereign identities or personal data stores [12] that point in the direction of reverse customer relationship management (CRM) and allow end users (e.g. citizens, consumers, patients) to control their disclosed data. This is challenging by nature since end-users typically differ from organizational users, which are more experienced in the respective domains [2]. Therefore, digital solutions that empower end-users could combine offerings from various service providers along their usage processes (e.g. customer journeys) as

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suggested by [3]. Ultimately, end-user empowerment might lead to a paradigm shift where processes are not controlled by service providers, but by service customers. We already see digital services emerging in the market from innovative start-up businesses. At the same time, theories that contribute to understanding this changed perspective, e.g. the move from a service-dominant logic to a customer-dominant logic, call for more research.

2   Mintrack Objectives and Papers

This minitrack aimed to advance the understanding of end-user empowerment in the digital age and discuss the potential challenges that need to be tackled in specific domains. Possible topics of the minitrack were:

- Identity management systems and privacy management systems for end-user empowerment
- Novel technologies for managing identities and user attributes (e.g. Blockcerts)
- Decoupling applications from the data they produce
- Approaches for business applications, where users can retain ownership over their data
- Accountability of information systems
- Empirical evidence regarding the need for end-user empowerment
- Privacy as a value for customers
- Business value of user empowered solutions
- Network effects of identity management systems
- Cognitive and human-centric solutions for identity management, consent management, and end-user empowerment
- Human-centric personal data ecosystems
- Concepts for user empowerment, such as reverse CRM or customer-dominant logic

After a rigorous review process three papers were accepted for the end-user empowerment minitrack.

Rita Gsenger, Soheil Human, and Gustaf Neumann in "End-user Empowerment: An Interdisciplinary Perspective" have reflected on two main questions regarding the end-user empowerment: i.e. 1) what "end-user (human) empowerment" is, and 2) how it is possible to develop "end-user empowering systems". Based on an interdisciplinary literature review, they argue that end-user empowerment is an ever-dynamic concept (a process) that needs to be continuously co-created by different human and non-human actors involved in the user's interaction with the information system, i.e. the end-user, the information system, and the contextual and environmental actors.

Agnieszka Kitkowska, Erik Wästlund, and Leonardo A. Martucci, in "(In)escapable Affect? Exploring Factors Influencing Privacy-Related Behavioral Intentions", propose six design principles for development of community currencies, which not only can empower individual end-users but also a community of end-users.

Friedrich Chasin, Florian Schmolke, and Jörg Becker in "Design Principles for Digital Community Currencies", demonstrate that immediate emotions might influence information sharing decisions of the end-users. This is an important contribution towards development of privacy-by-design-and-architecture information systems that aim to empower their end-users regarding the control of their personal data.

3   Future Research

While we hope that this minitrack has initiated important topics regarding end-user empowerment, many different aspects of end-user empowerment need to be further studied and discussed. Among others, we can identify three important potential future research directions:

1. *Heterogeneity of end-users:* end-users have different cultural, societal, and individual backgrounds and specifications, and also have different needs, values, desires, expertise, knowledge, and cognitive and time limits. How can an inclusive, fair and pluralist perspective towards end-user empowerment be conceptualized and implemented?
2. *Collective aspects of end-user empowerment:* While end-user empowerment seems to be a very individual-centric perspective, research emphasizes on the collective aspects of human behaviors. How can the collective aspects of human nature be considered in the end-user empowering systems?
3. *Contextual aspects of end-user empowerment:* End-user empowerment can mean differently in different contexts. How can end-user empowerment be implemented in multi-contextual information systems?

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