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Human-centricity of Digital Economies: From Concepts to Assessment Methodologies, Case-based Studies, Solutions and Beyond

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Abstract

Despite the discussion about fully autonomous systems that might reach consciousness and substitute, simulate or even dominate human actors, it has also become an accepted fact that information technologies should serve the purpose of humans. They should, therefore, be designed human-centric. Yet a set of questions need further investigation, discussion, and development: 1) What is human-centricity in different contexts? 2) How can it be assessed? 3) How can it be realized and achieved? 4) What is its relation to other values?

1. Introduction

Digital transformation represents one of the most fundamental transformations between the relationship of humans and technologies. It reminds us of Lewis Carroll's *Red Queen* that has to run faster to maintain its position. In the present case, regulators and businesses are competing with technological progress. However, they might focus more on technical and economic (business) aspects, and not carefully consider one of the most critical involved actors in their designs and decisions: we, humans, might overlook ourselves. As a result, in the last years, many experts called for paying specific attention to the human-centricity of digital sociotechnical systems (see, e.g., [1, 2, 3, 4, 5, 6]). Due to these attempts, it seems that the importance of *human-centricity* has become an accepted matter of fact in different communities, which is reflected in various publications and funding programs that attribute a prominent role to human-centricity. While this is a significant development, there are fundamental questions to be further investigated, discussed, and developed: 1) what would human-centricity mean in different contexts, domains, and cases? 2) How can we assess the human-centricity of specific sociotechnical systems or solutions? 3) how can we ensure that our developed sociotechnical systems and solutions fulfill human-centric expectations? and 4) what is the relationship between human-centricity and other val-

ues such as sustainability, accountability, lawfulness, and ethicality? In the following, we argue why these questions should be well investigated if we aim to co-construct digital economies that are, among others, human-centric.

2. Human-centricity in Digital Economies: What are the next steps?

Sociotechnical digital systems, from simple apps and websites to advanced systems that are used in governments or corporates, might deal with many different users with various needs, preferences, expectations, cognitive abilities, limits, motivations, and expertise. Human-centric approaches emphasize the importance of every human interacting with the system or being affected by it. Convincing the community to accept the importance of human-centricity (along with other values) is not the most challenging task: realizing such an ambitious sociotechnical imaginary is much more difficult. In the following, we reflect on the next steps that we think should be taken toward the realization of human-centricity in digital sociotechnical systems.

Advanced and context-based concepts There have been different attempts to define the human-centricity of information systems, e.g., according to [6] an approach can be called *human-centric* “wherein individual (cognitive) and social (collective & contextual) dimensions of every single end-user and all end-users combined are taken into account when an information system [...] is designed, implemented, evaluated, and released.” While such definitions and conceptualizations exist, *human-centricity* might be defined and conceptualized differently in different contexts, domains, and application areas. Moreover, these basic conceptualizations need to be compared critically, and more advanced conceptualizations and conceptual models should be proposed.

Assessment methodologies and case-based studies As mentioned above, human-centricity is still an emerging aspect of information systems. Therefore, many existing sociotechnical digital systems have

not been originally (or explicitly) developed based on *human-centric* approaches. The good news is that contrary to many other human constructs that are hard to change when made, digital systems – even if they are not currently human-centric – can be reworked and *become human-centric*, if needed. This shows the importance of developing assessment methods that can provide insights about the *state of human-centricity* of specific systems. To be helpful, such assessment methods should be able to assess different dimensions of human-centricity and inform further system improvements. One approach for the development of assessment methods and methodologies is to start with case-based studies (see, e.g., [6]). Over time, such studies can serve as foundations for more general assessment approaches that can be applied to other cases.

Realization Guidelines Accepting the importance of human-centricity, having well-defined and detailed concepts regarding it, and being able to assess it in different systems does not necessarily mean that people involved in the realization of information systems know how to develop *human-centric* systems. This matter becomes even more apparent if we consider that many different experts with diverse backgrounds and expertise are involved in realizing information systems. Most of these people are not trained to develop human-centric digital systems. Therefore, the involved experts need to be provided with easy-to-understand-and-follow practical guidelines for developing human-centric digital sociotechnical systems. Such guidelines are lacking and require attention in the near future.

Higher level conceptual and applied frameworks Human-centricity is a significant value, but it is not the only value that should be considered in developing digital sociotechnical systems. In other words, human-centricity is not equal to anthropocentrism. Considering this, it is essential to consider other values such as sustainability, accountability, ethicality, or lawfulness together with human-centricity. What are the relationships, overlaps, or contradictions of human-centricity and other values? How can they be achieved together? We need to discuss such matters and develop more sophisticated conceptual and applied frameworks that consider both human-centricity and other values.

3. What to expect in HICSS-56?

Similar to the previous years (see [7, 2, 3]), we received various high-quality papers dealing with aspects of human-centricity in digital economies. All submitted works underwent an interdisciplinary peer-reviewing process, and we are indebted to up to five scholars from different relevant fields who carefully reviewed the sub-

mitted manuscripts. The following papers were chosen to be presented at HICSS-56:

In “Information Systems Research for the Next Generation: Child-Centricity in a Digital World” Graichen and Staake outline the importance of Information Systems (IS) research with children and try to help IS researchers to plan and perform their research with children by providing an initial guideline.

In “The 2021 German Federal Election on Social Media: Analyzing Electoral Risks Created by Twitter and Facebook”, based on the 2020 proposal by the European Commission for the new Digital Services Act (DSA) in the context of the 2021 German federal elections, Kübler et al. provide an analysis of the ‘systemic electoral risks’ created by two widely used social media (i.e., Twitter and Facebook) and the mitigation strategies employed by the platforms.

In “Enterprise Business Models Leveraging Self-Sovereign Identity: Towards a User-Empowering Me2X Economy”, Kölbl et al. propose a new taxonomy of business enabled by Self-Sovereign Identity (SSI) which can contribute to the ongoing efforts towards protecting users online privacy.

In “Do People Recover from Algorithm Aversion? An Experimental Study of Algorithm Aversion over Time”, Leffrang et al. extend the current knowledge on algorithm aversion with insights into how weight on advice is adjusted over consecutive tasks.

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