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A Call for Interdisciplinary Research on Applied Human-centricity in a Sustainable Digital Economy

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Abstract

Human-centricity is a fundamental aspect of a sustainable digital transformation. While the importance of human-centricity has been widely discussed, the field still lacks commonly accepted interdisciplinary definitions, concepts, evaluation methodologies, and realization approaches. We call for more interdisciplinary research and collaboration towards the co-creation of "applied human-centricity" in real-world sustainable digital environments.

1. Introduction

Actors, artefacts, relations, processes, and environments constructing our economic systems and societies are being increasingly influenced by the ongoing *digitization* of the world. In many cases, the process of *digital transformation* starts with enhancing the customer experience by different technical means, but its socioeconomic consequences are much wider: e.g., becoming *digital* has already a business imperative. In most industries, companies today must become *digital* to compete in a world in which both end consumers and business partners expect products and services to meet their needs and values on-demand across digital channels [1]. Therefore, from a human perspective, the *digital transformation* has to focus increasingly more on humans' needs, values and experiences, i.e., on *human-centricity*. However, achieving "applied human-centricity" can be very challenging since *human-centricity* is not a static construct and can be (and should be) embodied and realized in different ways for different humans in different contexts and environments because, among others, 1) individuals (users) are diverse in many different aspects, such as their cognitive capacities, needs, values, or expertise, 2) different *contexts* can influence how individuals experience digital technologies and interact with them, 3) *collective* dimensions (from

friends and families to social categories and beyond) can influence individuals in digital environments [2]. In increasingly complex digital environments, understanding humans' cognitive–contextual–collective *enactions* with (and within) the vast interconnected web of digital technologies and addressing them in *applied, sustainable, and human-centric* manners to ensure end-user empowerment [3] requires joint efforts from interdisciplinary perspectives, by scientific communities, industries and the society.

2. Human-centricity in a Sustainable Digital Economy at HICCSS-55

This years' minitrack is the third series of HICSS minitracks (see [4, 5]), in which we try to provide an enabling space for presenting and discussing papers related to human-centricity, sustainability, and end-user empowerment in digital environments. Among the relevant topics are:

- Characteristics and design of sustainable human-centric information systems
- Evaluation of existing information systems from a human-centric perspective
- Co-creation and co-production of human-centric sustainable information systems
- Analysis and design of technologies (e.g. AI, Blockchain) that empower end-users
- Design of human-centric end-user agents, AI and machine learning
- Fairness, transparency, accountability and controllability of information systems
- Legal or economic aspects of human-centricity in information systems
- Identity, privacy and consent management systems
- Business value of human-centric and/or user empowered solutions
- Sociotechnical studies of human-centricity in information systems
- Opportunities and challenges of digital behavior change, habit formation, and digital addiction
- Digital nudging for increasing social or ecological responsibilities

- Ethical concerns regarding human-centricity and/or sustainability
- COVID-19's impact on human-centricity or sustainability of information systems

After a rigorous review process four papers were accepted for the minitrack. The accepted papers seem to be more matured in their conceptual bases in comparison to the last years' papers, which can be interpreted as a successful impact of our previous minitracks (and other synergic efforts):

In "Barriers to a Well-Functioning Digital Market: Exploring Dark Patterns and How to Overcome Them" [6], Kitkowska, Högberg, and Wästlund classify *dark patterns* based on a qualitative study and reflect on potential means for preventing such design approaches.

In "Empowering Consumers to Make Environmentally Sustainable Online Shopping Decisions: A Digital Nudging Approach" [7], Michels, Ochmann, Günther, Laumer, and Tiefenbeck study the effectiveness of three different nudging interventions on end-users' behavior to empower them making environmentally sustainable decisions in online shops.

In "Human-centric Personal Data Protection and Consenting Assistant Systems: Towards a Sustainable Digital Economy" [8], Human, Alt, Habibnia, and Neumann, based on an interdisciplinary research, propose *Personal Data Protection and Consenting Assistant Systems* (PDPCAS) as personalized and human-centric sociotechnical solutions which can empower humans to exercise their rights to online privacy, consenting and agency.

In "Empower the Workforce, Empower the Company? Citizen Development Adoption" [9], Hoogsteen and Borgman, through six case studies, discuss factors that influence organizational citizen development adoption decisions, i.e., decisions regarding participation of end-users in the software development processes.

3. A Call for Applied Sustainable Human-centricity

While discussing human actions in the context of online privacy, Human and Cech define a *human-centric* information system as a system in which "individual (cognitive) and social (collective & contextual) dimensions of every single end-user and all end-users combined are taken into account when [the] information system [...] is designed, implemented, evaluated, and released" [2]. Considering that individual end-users (with diverse cognitive capacities, limits, needs, values, and expertise) as well as environments (including other actors, socioeconomic contexts, etc.) and technologies

they interact with [3] continuously co-produce our digital societies, development of means and approaches that can ensure the realization of sustainable and applied human-centric digital solutions in such complex and multidimensional environments requires joint interdisciplinary efforts, in particular, when behind cognitive and individual aspects, collective, contextual (and even intersectional–see e.g. [10]) aspects of digital sociotechnical systems are concerned. Therefore, we call for interdisciplinary collaborations towards the realization of "applied human-centricity" in sustainable digital economies.

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