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DESIGNING FOR DIGITAL TRANSFORMATION IN A SOCIETY OF SMARTNESS: CONCEPTUAL CORNERSTONES, DESIGN IMPLICATIONS, AND THE ROAD AHEAD

BASED ON MANUSCRIPT CURRENTLY BEING DEVELOPED FOR
FOUNDATIONS AND TRENDS IN INFORMATION SYSTEMS

Stefan Hanke & Lauri Wessel
Keynote at “Work.Transform.Repeat” Conference 2024





AGENDA

- Introduction
- Moving beyond the 'Container View' in Research about Digital Transformation
- Smart Service Systems and the Quest for Effective Material Agency
- Practice Theory and the Quest for Effective Human Agency
- A Road Ahead: New Perspectives on IS Design





INTRODUCTION

- Design of IS can provide potential responses to many societal challenges (Majchrzak et al. 2016; Davidson et al. 2023; Seckler et al. 2021)
- However, many questions arise with regard to how to do that specifically
- We argue it is central to
 - Account for *material and social agencies* in IS design
 - Which demands us to lay out a few cornerstones
 - And reconsider IS design in some ways (the ‘road ahead’)



MOVING BEYOND THE ‘CONTAINER VIEW‘

- The value of designing IS in this day and age lies in overcoming certain limitations in research about DT:
 - DT clearly gains traction (Vial 2019; Wessel et al. 2021)
 - But: Most work in this space is organization-centric (see, e.g. Hanelt et al. 2021; Vial 2019)
 - This is what IS researchers call a ‘container view‘ (Winter et al. 2014)
 - So how to conceptualize DT outside of the ‘container‘?



DESIGNING SMART SERVICE SYSTEMS THROUGH DESIGNING MATERIAL AGENCIES

- Component one of our theorizing: Smart Service Systems
 - Individuals use all sorts of smart technologies in their everyday lives (Yoo 2010)
 - Data and learning algorithms enable adaptation of services (Beverungen et al. 2019a;2019b; Möhlmann et al. 2019)
 - Smart Service Systems: interactions among people and and smart IS (Lim & Maglio 2018)
- The value of this lens is that it accounts for all sorts of actors that relate to data and advanced technologies



DESIGNING SMART SERVICE SYSTEMS THROUGH DESIGNING MATERIAL AGENCIES

- So far, strong focus on designing learning algorithms:
 - How to effectively recombine existing resources (Beverungen et al. 2017; Klör et al. 2018; Lee et al. 2020)
 - Improvement of personal assistants (Knote et al. 2021)
 - Improvement of existing modelling languages (Huber et al. 2019)
- However, the implementation of smart service systems remains a challenge (Wessel et al. 2019; Wolf et al. 2020)



DESIGNING SMART SERVICE SYSTEMS THROUGH DESIGNING MATERIAL AGENCIES

- A sociological view suggests that, thus far, researchers in smart service systems were primarily concerned with how to design material agency (see also, Leonardi 2011)
- Unarticulated assumption: Material agency will directly improve societal outcomes (Demirkan et al. 2015)
- Next: We move toward an understanding of how material and social agency configure each other!



DESIGNING SMART SERVICE SYSTEMS THROUGH DESIGNING SOCIAL AGENCIES

- Component two of our theorizing: Practice Theory
 - Sociological school of thought concerned with what humans and technologies actually do (Barnes 2001, Feldman & Orlikowski 2002)
 - Very prominent and diverse in IS and management theory (Whittington 2006)
 - Key ideas: Humans have ‘social agency’ to use IT in all sorts of ways (Barrett & Walsham 1999; Orlikowski 2002)



DESIGNING SMART SERVICE SYSTEMS THROUGH DESIGNING SOCIAL AGENCIES

- The value of practice theory lies in the notion of ‘configuring’ (Barrett et al. 2012; Wessel et al. 2019)
- ‘Configuring’ foregrounds interactions between social and material agencies:
 - Such ‘configuring’ plays out on the level of the practice and is highly uncertain exactly because of the interplay between material and human agencies (Wessel et al. 2019)
 - Smart service systems emerge as configurations of possible interactions
- Next: We unpack what this means for design



ROAD AHEAD: NEW PERSPECTIVES ON IS DESIGN

- Designing for the emergence of practice rather than a learning algorithm
- Appreciating generativity of unintended consequences
- Evaluation as starting point rather than one step in the process
- Designers as participants in configuring
- From Design Principles to Designing principles



ROAD AHEAD: NEW PERSPECTIVES ON IS DESIGN

- Designing for the emergence of practice rather than a learning algorithm
 - Frameworks for IS design typically focus on designing an object (Peppers et al. 2007; Sein et al. 2011)
 - The lens of configuring calls for a shift:
 - Emergence of novel practices and not learning algorithms move to the center (Holeman & Barrett 2018)
 - This calls for, at least in part, a new take on process models for IS design (Seckler et al. 2021)
 - This shift occasions various questions (see next slides)



ROAD AHEAD: NEW PERSPECTIVES ON IS DESIGN

- Generativity of unintended consequences
 - IS design frameworks cast unintended consequences (such as resistance, avoidance, others) as something to be avoided
 - Practice theory casts these as normal and to be expected
 - They can, indeed, offer strong insights for improving designs (Holeman & Barrett 2018)
 - Unintended consequences, thus, are highly useful -> need to appreciate their occurrence and value!



ROAD AHEAD: NEW PERSPECTIVES ON IS DESIGN

- Evaluation as starting point rather than one step in the process
 - Appreciating practices and unintended consequences calls to develop an understanding of them in the first place
 - However, classically, IS design models suggest to evaluate after initial designs have been finalized (Peppers et al. 2007)
 - Evaluation, a key step in design, needs to shift into the beginning of the design process



ROAD AHEAD

- Designers as participants in configuring
 - Configuring practices vs. practices of configuring co-evolve
 - Practices of configuring:
 - Acknowledgement of pragmatic decision to decide configurations at start and end of design processes
 - Frameworks such as DSR (Peppers et al. 2007) and ADR (Sein et al. 2011) become knowledge that plays into configuring
 - Designers need to strongly reflect upon their impact on the practice and are *not* neutral observers (Schön 1983)
 - Overall, IS design is less seen as 'science' than as pragmatic practice
 - Configuring practices:
 - Humans enact 'their' situated practice and are going to do so mostly anyways while negative emotions may be induced through technology, so configuring practices seeks beneficial gravitation points (Wessel et al. 2019)



ROAD AHEAD: NEW PERSPECTIVES ON IS DESIGN

- From Design Principles to Designing principles
 - Overall, anticipating outcomes becomes tough
 - Thus, a focus on the process of designing becomes important
 - Moving from design principles to designing principles
- **Provocative: Is IS Design then still a 'science'?**



DISCUSSION

- C#1:
 - Designing for Digital Transformation important in society
 - We advance literature by suggesting ways to do so

- C#2:
 - Improvement of Smart Service Systems are significant
 - We organize the literature and give design recommendations from a sociological view

- #C3:
 - Design frameworks need to be adapted (Seckler et al. 2021)
 - We offer one way to reconsider designing



Contact

www.europeannewschool.eu

ens@europa-uni.de

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European New School of Digital Studies (ENS)

Collegium Polonicum

ul. Kościuszki 1

69-100 Słubice, Poland

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