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Dropping a bomb or providing a gentle loving touch? Towards a relation artefact theory of pilot implementation

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Abstract. This position paper is about socio-technical interventions in pilot implementation contexts. It argues that human work interaction design provides massive push towards such interventions. It does so through theorizing the continuous relation-building between empirical work analysis and interaction design activities that creates new local solutions for the stakeholders involved. The question is how hard of soft that this push should be.

Keywords: Sociotechnical user experiences, digital work legacy, interaction design interoperability, human work interaction design

1 Introduction

This paper is about pilot implementation understood as socio-technical interventions in organizational and wider contexts. Pilot implementation is a notion that stems from IT health research [2] and thus allude to medical science epistemology of ‘effect’-driven intervention [9]. Today it is however a broader concept that captures the moment in design when the wider organizational and beyond context is involved in the design [7,8,16,20] and has recently been established as (part of) ‘organizational implementation’ that aims at organizational change [6].

This paper argues that human work interaction design (HWID) approach provides massive push towards such interventions, through the continuous relations-building between empirical work analysis and interaction design activities that creates new local solutions for the stakeholders involved. How hard should this push be: should pilot implementation be as dropping a bomb or providing a gentle loving touch?

2 Pilot implementation as a movement from the technical towards the social

Socio-technical HCI design approaches can be used for different directions of socio-technical interventions. Sometimes technology is assumed to lead to social changes, (e.g., [12]), sometimes social changes are assumed to change technology, (e.g., [19]).

For example, the practice based computing approach [22] is mostly interested in the empirical effects of new technology such as ongoing work interaction design for learning and development, while the experience design approach [5] build on theoretical knowledge about human psychology to come up with novel interaction designs. The HWID platform (e.g., this workshop) support any of the directions for socio-technical interventions. However, the HWID platform is very focused on the socio-technical relations themselves.

A socio-technical approach to human-automation collaboration would take participatory and co-design approaches seriously across HCI, CSCW, IS, UI engineering, and technical psychology, and all the way through the lifecycle of an artefact. A requirement to begin doing that is to have an open mind about how to link the social and the technical also when it comes to pilot implementation.

3 HWID Relation Artefacts

HWID relation artefacts are simply IT artefacts that relates empirical work analysis and interaction design (Clemmensen, in preparation). They are different from ‘relational artefacts’, that is, social robots [21] and other anthropomorphic interfaces, which are things that people relate to. HWID relation artefacts relate the work analysis with the interaction design. Furthermore, HWID relation artefacts may impose a certain order in time and space of the design. In this paper, the relation artefacts are: interaction interoperability checkups, digital legacy interventions, and organizational strategy alignments, **Fig. 1**. They present a move from the technical to the social.



Fig. 1. Relation artefacts for socio-technical interventions

The following proposed relation artefacts for interventions begins with the technical interaction designs and moving towards organizational and social interventions in workplaces.

Interaction interoperability checkups. Interaction interoperability checkups are relation artefacts that aim to increase the UX related to interoperability of interaction designs. The interoperability of interaction designs has been studied as continuity in

multi-device interactions where interactions move, or transition, from one device to another. A first checkup on the interoperability of novel interaction designs may focus on UX of sequential multi-device use. [18]. Second, interoperability has been studied as socio-technical interoperability of HCI in work domains with multiple workers and multiple devices collaborating. Kwon et al. [14] suggested that socio-technical interoperability of HCI in work domains concerns (1) sharedness, (2) readiness, (3) awareness, (4) adaptiveness, and (5) coupledness of the multiple workers and multiple devices collaborating. To assess these dimensions would be a second checkup. Third, cross-validations of the proposed solution's interoperability could be done by evaluating it in the lab, the field, and the gallery [13], which all may contribute to increases in novel knowledge and confidence in the interoperability checks of the novel interaction designs. When doing interaction interoperability checks and other design interventions not any single of the three evaluation approaches are the correct one, all should probably be used in a triangulation manner.

Digital legacy interventions. Digital legacy interventions are socio-technical interventions that in some way change (improve, hopefully) the proposed interaction designs relation to the organization's legacy systems, for example by increasing their UX. To do this requires reconceptualizing what we mean by organizational legacy systems and what are interaction designs for digital legacy. It raises questions such as how employees' experience their organization's business-critical but obsolete systems, and what can employees do about their own digital legacy in their organization. The socio-technical view of UX of legacy systems is then that they are socio-technical systems that are technically and/or socially obsolete, old, and need lots of maintenance, but solve problems for organizations and meet individual employees' needs [11]. Creating new relations between work/organization analysis and interaction design is what solves legacy issues, not simply software modernization. Furthermore, employee's digital legacy is from a HWID perspective central for digital legacy interventions. Users' digital legacy can be defined as "the meaningful and complex way in which information, values, and possessions are passed on to others" [4]. Employees could benefit from organizational owned add-ons, plugins, and data scrapers that could support doing legitimate extracting from organizational storage and other places where employees generate and collect personal digital data and support them in transferring their digital legacy to private storage or to their next employers' storages.

Organizational strategy alignments. A factor for successful organizations is the close linkage of the IT strategy and business strategy [1]. Strategy as practice [10] tells that it is important how management practices are used to put strategy into practice. Pilot implementation thus should entail relation artefacts that are about morphing interaction design for human work morphed into organizational strategies, for example by aligning the organizational UX culture with the business and organizational goals. The activities that IT managers engage in to ensure they are in the room when important business decisions about product direction and business strategy are made have been identified by UX leaders from industry and by researchers [3,15]. The ac-

tivities include broader questions of developing and managing a UX culture in the organization. UX leaders see UX strategy at the corporate level as being about that the UX team are aligned with the overall goals and objectives of the business. They aim to shape the strategic plans, operational needs, and interdependencies between their own organization and the rest of the company, to and to increase UX team's effectiveness and synergies with other business functions. They see UX strategy at the level of a business unit as being about plans for delivering products, systems, or services that offers a high value to customers, and differentiates the company's brand. However, this requires multiple parts of the organizations to be involved [15]. Thus, UX strategy alignment has to be done within a UX organizational culture that can support the strategy and make it realistic and ensure it has an impact on company outcomes [3].

4 Dropping a bomb or providing a gentle loving touch?

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First-stage intervention = {relation artefact type intervention a}
IF evaluation = {nonresponse}
THEN second-stage intervention = {intensify relation artefact type interven-
tion a}
ELSE IF evaluation = {response}
THEN at second stage = {continue with relation artefact type intervention b}

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Fig. 2. Decision rules in adaptive interventions in socio-technical design. The sequence is continued with relation artefacts type intervention c, and repeated as long as it takes to reach closure with type intervention c. Adapted from [17].

In HWID, like in most HCI design, evaluations are most of the time formative evaluation with the purpose of improving the design. This implies that there is a systematic and sequential overlap between construction and evaluation/ intervention activities. In HWID pilot implementation the sequence of artefact designs/actions and evaluations thereof can perhaps be conceptualized as an 'adaptive intervention'. Adaptive intervention is a method proposed in psychology to allow greater individualization and adaptation of intervention options (i.e., intervention type and/or strength) over time [17]. Adaptive interventions in socio-technical design are thus a string of different relation artefacts that are evaluated to adapt to workers' and organizations' characteristics and changing needs over time, with the general aim to optimize the long-term effectiveness of the overall socio-technical intervention. **Fig. 2** shows how decision rules can be used to operationalize adaptive interventions with relation artefacts.

In conclusion, this paper's answer to the title question is to do pilot implementation with adaptive interventions, which is perhaps closer to the gentle loving touch than to dropping a bomb. Secondly, the paper proposes the following: (1) HWID relation artefacts, (2) a movement from the technical to the social, and (3) the notion of adaptive interventions, as possible elements towards a theory of pilot implementation as relation artefacts used for adaptive sociotechnical HCI design interventions.

5 References

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