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**There are two sides to every story:**  
**A study of how various interpretations and goals affect technology usage**

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**There are two sides to every story:**  
**A study of how various interpretations and goals affect technology usage**

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**Abstract**

New technologies are developing faster than ever before and are becoming increasingly significant in all business sectors. This article investigates how a workshop facilitation tool is used at the Swedish Tax Agency, within the setting of employee dialogue workshops, during an ongoing change process. A qualitative case study has been conducted in order to investigate the usage and corresponding immediate consequences for the Swedish Tax Agency. By the use of a sociomateriality perspective and a technology affordances and constraints lens, this study has identified a set of digital features affording; engagement, interactivity and management control for the STA within this particular setting. Furthermore, the study has identified affording and constraining actions and behaviour enabled by the technology, based on various interpretations and goals, which within the workshop setting resulted in immediate consequences for the STA. The result also shows that the unique closed character of the workshop facilitation tool afforded management control for the STA and the consultant. Since previous research primarily has studied ICTs characterised by openness our study contributes with new empirical insights. Further on, since ICTs is playing an increasingly important role in most business sectors, and since change processes is difficult to manage, it is also suggested that further studies focus on the usage of this type of ICTs. This in order to investigate how to steer discussions and interactions within organisations.

**Keywords**

Sociomateriality, Affordances, Constraints, Imbrication, Information and Communication Technology.

**Introduction**

Information technology (IT) has been a relevant research topic for several decades since it continuously develops and is becoming increasingly significant in all business sectors (Bijker & Law, 1992; Lai & Mahapatra, 1997). Development of technology is not only about new software improvements and innovations, but also about finding new application areas to already existing technology (Allen, 2003). New technologies are for example used to increase organisational productivity, enable better communication, improve quality and reduce costs (Lu, Xiang, Wang & Wang, 2011). During the last decades technology has developed faster and become more significant and powerful than ever before (Bijker & Law, 1992), which

pressure today's organisations to implement various technologies as part of their strategy (Child, 1987). Additionally, contemporary companies are highly influenced by the globalization and new technological innovations since the digitalisation rapidly transform the business landscape, which put pressure towards the organisations to continuously adapt (Dawson, 2003).

Today there are countless of studies within the information system (IS) research field and the variation among types of IS are numerous, however all IS aims to improve some aspect of the organisation, by integrating people, data and information technology (Aubert, Barki, Patry, & Roy, 2008). The use of information and communication technologies (ICTs) have interested the IS research field for a long period of time (Majchrzak, Markus & Wareham, 2016), and it is generally accepted as all technological devices that allows people and/or organisations to interact digitally. Prior organizational studies of technology use have mostly treated the phenomenon in cases of technology adoption, diffusion within and across organisations (e.g. Barley, 1988; Orlikowski, 1992; Ciborra, 2000). This stream of work discusses the use of various technologies from a techno-centric perspective, which sees technology as a solution to various organisational problems (Orlikowski, 2007). In this perspective ICTs are often assumed to have generic, predictable and universal properties designed by the creator, and its functionalities are often taken for granted (Kim, Lee & Lee, 2011; Simmons, Armstrong & Durkin, 2011). Implicit in such perspective is that it builds on a set of assumptions which sees ICTs as discrete entities separated from the organisation and the practices in which it is used and adapted. In this view ICTs are assumed to be complete, stable and homogenous, meaning that the technology can perform as intended in order to generate specific and predictable outcomes (Orlikowski & Scott, 2008).

However, these assumptions and corresponding perspective has been criticized by the most cited research field when studying ICTs and organisations; *sociomateriality* (Leonardi, 2013a), since it neglects to consider the recursive intertwining of the social and the material, which emerge in ongoing situated practices (Orlikowski, 2007). Sociomateriality argue for an inherent inseparability between the technical and the social and it is therefore vital to investigate how the material and the social interact in practice in order to explain technology usage (Orlikowski & Scott, 2008). Additionally, many previous studies have disregarded the social aspects when studying technology usage in organisations (Orlikowski, 2007; Orlikowski & Scott, 2008; Leonardi, 2011), consequently there is a lack of studies that acknowledge the material and the social interactions when studying its usage (Leonardi, 2011), indicating that more empirical studies are needed.

Previous IS research have tried to consider the unintended or negative consequences of the use of ICTs (Ash, Berg & Coiera, 2004; Harrison, Koppel & Bar-Lev, 2007; Majchrzak & Markus, 2013a; Sawyer & Rosenbaum, 2000; Sein & Harindranath, 2004). However, the published IS research fails to present and describe the unintended or negative consequences resulted by the ICT usage, which is important to consider since the use may not always result in intended outcomes (Majchrzak et al., 2016). The IS research field has grown extensively and Majchrzak et al. (2016) suggested that further studies interested in business- changes and improvements could include affordances and constraints provided by the technology when studying ICTs. A technology affordance refers to any potential action an individual or an organisation can do with a technology (Gibson, 1986; Hutchby, 2001; Leonardi, 2011;

Majchrzak & Markus, 2013b), while technology constraints refers to different ways in which the technology use can hinder you to accomplish a specific goal (Majchrzak & Markus, 2013b; Hutchby 2001; Faraj & Azad, 2012). Previous studies, using an affordance (and constraints) perspective, have in particular focused on affordances, action potential, enabled by the technology (e.g. Mesgari & Faraj, 2012; Abhari, Davidson & Xiao, 2017; Treem & Leonardi, 2013; Majchrzak, Faraj, Kane, & Azad, 2013). Consequently, few studies acknowledge both affordances and constraints enabled by the technology, which is vital in order to understand organisational practices and behaviour (Leonardi, 2011; Leonardi & Vaast, 2017). Therefore, this study aims to acknowledge both concepts and consider the unintended and negative consequences as well as the intended and positive ones. Further on, being alert to the possibility of negative or dual effects of the ICT use can provide practical insights on how to develop better ICTs, in order to achieve better outcomes (Majchrzak et al., 2016).

Following above mentioned arguments and suggestions of further studies, this article will present a study of the use of a workshop facilitation tool, a type of ICT, used during workshops within the setting of an ongoing change process, by using a sociomateriality approach and the *technology affordance and constraints theory* (TACT) lens in particular. More specifically, delimitations have been made and the study will exclusively focus on the use of a specific workshop facilitation tool used during employee dialogue workshops (EDWs), intended to anchor the change initiatives, which at the time of the study were proceeding at the Swedish Tax Agency (STA). Consequently, the research questions of this article are:

- *How is the workshop facilitation tool used within the workshop setting?*
- *What are the immediate consequences of the workshop facilitation tool usage for the STA?*

In order to answer these research questions a qualitative case study will be done at the STA and the TACT will be used as an analytical tool since it is an appropriate theoretical lens that provides a deeper understanding regarding how ICTs are used in practice (Faraj & Azad 2012; Gibson 1977; 1979; Leonardi, 2011, 2013b; Majchrzak & Markus, 2013b; Markus & Silver 2008; Treem & Leonardi 2013; Volkoff and Strong 2012; Zammuto, Griffith, Majchrzak, Dougherty & Faraj, 2007), and the corresponding consequences of using it (Majchrzak & Markus, 2013b).

## **Theoretical Framework**

### **An introduction to the field of sociomateriality**

The study of technology in organisations has interested researchers for a long period of time, however distinct theoretical viewpoints has been developed over time (Orlikowski, 1992). Some authors represent the so-called internalist view of technology (Gitelman, 1999; Punt, 2007), also referred to as the techno-centric (Orlikowski, 2007). This perspective sees technology as a solution to various organisational problems and focus on the outcomes and the technological effects (Orlikowski, 2007). However, the perspective has been criticized for neglecting the historical and cultural factors influencing technology (Barley, 1988; Kling,

1991; Suchman, 1994). Contradictory, the human-centred perspective focus on human-technology interactions and how individuals make sense of the technology. However, this perspective minimizes the role of the technology itself and primarily focus on the human side of the relationship (Orlikowski, 2007). Many conceptualizations have been emerging in sociology and science and technology studies the past decades which all in their own ways take the interwinning of human and technology in practice seriously, as for example; actor-networks, sociotechnical ensembles, mangle of practice, object-centred sociality, relational materiality and material sociology (Orlikowski, 2007). Drawing on these influences Orlikowski (2007) argue for a shift towards a perspective of constitutive entanglement in organisation studies, seeing practices in organisations as sociomaterial. The field of sociomateriality seeks to explain how the material and the social actually interacts in practice (Orlikowski & Scott, 2008), and argue that there is a recursive intertwining of the social and the material which emerge in ongoing situated practices (Orlikowski, 2007).

## **Technology Affordances and Constraints**

### *Introduction*

One framework, within the field of sociomateriality, that is increasingly used to study the use and consequences of IS or ICTs is the Technology Affordances and Constraints Theory (TACT). TACT argue for the importance of understanding the dynamic interactions between individuals, organisations and the technology (Majchrzak & Markus, 2013b). By looking at technologies as sets of affordances and constraints for particular actors, in any given context, researchers can explain why the same technology is used and/or has different outcomes in different settings (e.g. Majchrzak et al. 2016; Majchrzak & Markus, 2013b). Further on, as mentioned above TACT can be used to analyse the usage and corresponding consequences of the usage in terms of potential actions that the technology, with particular features, can afford or constrain for the employees and the organisation, with certain purposes and characteristics (Majchrzak & Markus, 2013b). Meaning that both intended, unintended, as well as positive and negative consequences can be studied within this particular setting (Majchrzak & Markus, 2013b; Majchrzak et al. 2016), which is important to consider in order to answer the study's research questions.

### *Relational perspective of affordance and constraints*

The theory of affordances originates from the psychologist James Gibson who argued that people do not interact with an object without perceiving what the object can do, seeing it in terms of affordances. For example, a door can have an affordance that goes beyond its material properties (Gibson, 1986). The door can afford the actions of entry and/or exit but only if the individual perceives its affordance, more specifically the features of the material and the information specifying its affordance needs to be clear and available for the actor, otherwise there will not be any interaction. However, if both the material properties and the necessary information specifies the artefact's affordance, (for example a visible door handle), the actor can perceive its affordance and interact with the artefact or the technology. More specifically, the material, physical properties of an artefact or a technology is separated from the people who interact or use the it, but they are infused with meaning (Gibson, 1986).

Norman (1999) contradictory argue that affordances are designed-in properties of artefacts and do not vary depending on the context. According to his view, affordance aims to give the user a vision of what the technology can do and how it should be used, which is why designers of technology needs to construct easy understood affordances that enable the end user to understand the possible actions. In Norman's perspective the users do not give the artefact its affordance, but they identify it and is therefore vital in the design process. The user's perception of the affordances becomes essential when the designer construct the artefact or the technology, since its affordances and the user's perceptions of affordances needs to be coherent.

Drawing on Gibson's (1986) view of affordance as constituted in practice by social actions, and Norman's (1999) contradictory argument that affordances are inherent designed-in properties, Hutchby (2001) proposed a combination of the two approaches. He claimed that affordances, instead are constituted in the interaction between the human and the materiality, neglecting it neither as a property of human nor by artefacts or technologies. Hutchby (2001) argue that technologies are artefacts which can be shaped by the practices where human interacts with, around and through them, but technologies can also shape these practices of human-technology interactions. In this view, technology exists and can have certain qualities on it own, but what it can be used to, afford, is only provided in the interaction with people. In this relational perspective, materiality can also be perceived as constraints and an affordance and/or a constraint is a relation between; the technology, with a certain set features and functions, and the users' intent or purpose with the usage (Hutchby, 2001). Implying that it is significant to focus on the user's goals and capabilities in relation to the potential ICT artefact use (Majchrzak et al. 2016). Further on, this view argue that technologies have material properties, however the material properties give rise to or afford, different possible actions, which depends on the context in which they are used (Hutchby, 2001; Zammuto et al. 2007; Leonardi & Vaast, 2017). The material properties of a technology can remain stable but be perceived as an affordance in one context and not in another, it all depends on how humans perceived the technology (Leonardi, 2011; Hutchby 2001). Additionally, the different goals of actions and the individual's purpose with the technology use are the essential aspects in Hutchby's (2001) relational perspective of affordance and constraints which is recognized as important by many authors (e.g. Leonardi, 2011; Majchrzak et al. 2016; Majchrzak & Markus, 2013b) and also the theoretical standpoint of this article. This implies that the interpretation of the materiality's qualities will be based on what the individual wants to achieve with the technology usage and if the individual goal or agenda can not be achieved it will be perceived as constraining actions. Meaning that the same material qualities or technical function can afford actions for other individuals or organisations due to different goals and/or agendas (Hutchby, 2001). Hence, it is vital to include both affordances and constraints in order to understand organisational practices and behaviour (Leonardi, 2011; Leonardi & Vaast, 2017). The relational concepts of technology affordances and constraints is further on significant in order to explain two common empirical observations. To start with, people and organizations do not always understand the potential of technology usage and secondly, people and organizations sometimes, or often, use technology in innovative or new ways that was not intended by the designer (Majchrzak & Markus 2013b), leading to unintended consequences.

### **The imbrication of human and material agencies**

Leonardi (2011) discuss technology affordances and constraints and presented the concept of imbrication which authors as Taylor (2001), Ciborra (2006) and Sassen (2006) previously has explored. In order to theorize the imbrication of human and material agencies he uses the theory of affordances, which builds on Giddens' (1984) structuration theory, to explain the entanglement of the social and material in practice (Leonardi, 2011). The process of imbrication explains the interweaving of human and material agencies in practice, meaning that Leonardi (2011) recognize that humans often enact their human agency in response to the technology's material agency. To imbricate means to "arrange distinct elements in overlapping patterns so that they function interdependently" (Leonardi, 2011, p. 150). The capacity of nonhumans or material (technology) to act on their own, apart from human intervention is defined as material agency (Leonardi, 2011). Technologies exercise agency through their performativity (Barad, 2003; Pickering, 1995); by the things it does which the technology users can not control. Giddens (1984) further on defines agency as the capacity for action and argue that all actions involves motivation, rationalization and reflexive monitoring and by that limiting agency to humans. However, both human and material agencies are central aspects in the affordances and constraints perspective and Leonardi (2011) argue that technologies, routines and practices are made up of the same basic building blocks; human and material agencies, which further on function interdependently. Technologies, practices and routines are produced by the imbrication of material and human agencies and depending on how these agencies are weaved together it produce various empirical figurations. Further on, in order for human and material agency to become imbricated in practice, someone has to arrange them in particular sequences, meaning that technology developers and the users actively imbricate their human agency with the material agency of the technology (Leonardi, 2011). Concluding that the social and the material will be entangled differently depending on the various existing individual perceptions of the materiality and its affordances and constraints (Faraj & Azad, 2012).

### **Previous studies**

Numerous management studies have used an affordances perspective in order to study the use of technology and the affordances enabled by the usage. Previous studies using an affordances perspective to study social media use, have in particular relied upon a literature review of Treem and Leonardi (2013). Their review presented four affordances enabled by the social media use; visibility, persistence, editability and association which further on may result in consequences as increased socialization, knowledge sharing and power processes in organisations (Treem & Leonardi, 2013). Abhari's et al. (2017) study developed and validated a general instrument useful to measure platform affordances of specific co-innovation platforms, and further on presented a set of co-innovative platform affordances which had three distinctive components; collaboration, communication and ideation.

Further on, Mesgari and Faraj's (2012) study of Wikipedia presented that co-creation and direct contribution are main affordances offered by the use of social technologies. Their study empirically defined six affordances of Wikipedia which are; contribution, control, management, collaboration, self-representation and broadcasting affordances. Sutcliffe, Gonzalez, Binder, and Nevarez (2011) studied four social technologies; Facebook, Wikipedia,

Blacksburg Electronic Village and World of Warcraft in order to investigate their social affordances. Social affordances which in this case refer to support of communication and how the technology facilities to promote social relationships, groups and various communities. Another study presented by O’Riordan, Feller and Nagle (2012) discussed the construction of social media affordances and highlighted social connectivity, social interactivity and profile management as the vital dimension of social affordances.

Majchrzak et al. (2013) identified and examined four affordances of enterprise social media, which in turn affect the way people engage in knowledge sharing conversations outside of work; metavoicing, triggered attending, network-informed associating, and generative role-taking. However, the authors state that these affordances indicate that the knowledge conversations are difficult to bound to particular groups, functions or organisations. Leonardi (2011) further on used the case of a computer simulation technology for automotive design to illustrate how the social and the material becomes interwoven in practice and concluded that perceptions of constraints lead people to change their technologies. Additionally, his findings also showed that perceptions of affordances instead made people change their routines. Leonardi, Huysman and Steinfield (2013) study five papers of enterprise social medias and analysed its implementation in work organizations, and how it can enable and constrain the internal communicative activities in which work is accomplished. The authors identified both positive and negative outcomes of the use of social medias within organisations. The organisational processes of social capital, boundary work, attention allocation and social analytics were further analysed in relation to its corresponding advantages and disadvantages. In conclusion, above presented previous studies have in particular focused on affordances enabled by the technology use, even though some of them takes the constraining actions or unintended consequences into consideration (Leonardi et al., 2013; Leonardi, 2011). Furthermore, previous studies, using an affordance (and constraints perspective), have in particular focused on studying ICTs in forms of social medias and social technologies, which are characterised by its openness and peer-to-peer character, where the users can administer and control its content (e.g. Leonardi et al., 2013; Majchrzak et al., 2013; Treem & Leonardi, 2013). However, the specific research field have not yet considered to investigate the use of a closed ICT platform used to facilitate workshops within the organisation. By closed we refer to ICTs that is controlled by the provider or the organisation in which is used. In conclusion, it is therefore interesting to study the use and corresponding consequences of a distinctive ICT platform, namely a workshop facilitation tool, where the provider of the technology administrates and control it.

## **Methodology**

### **Introducing the case company**

The studied company is the STA which is one of Sweden’s largest agencies with 10 500 employees. The organisation reports to the ministry of finance and the single agency is responsible for taxation and the population register for the whole country together with some additional responsibilities (Stridh & Wittberg, 2015). The organisation is currently working with a substantial change process together with a Swedish consultancy firm specialized in

change processes. The change process will involve STA's whole organisation in Sweden and 4100 employees will be affected by the national change process in the long run. However, the particular part, which this study focus on, is the first step of the national change process involving the STA's Gothenburg office at Rosenlundsgatan. The studied phenomenon is the usage of a workshop facilitation tool during EDWs within the setting of this ongoing change process. Since the Gothenburg office's rental agreement contract were about to terminate the top management team at the STA decided to move the office to a new location and additionally saw the occurrence as an opportunity to simultaneously change and improve other aspects of the organisation. The change process will include many aspects which are summarized below;

- *Move to new office spaces in new buildings:* The new office will consist of a mixture of activity-based workplace with more flexibility and some traditional fixed office spaces.
- *Digitalisation of the organisation:* There will be a reduction of physical documentation and case files etc., and a transformation towards a digital and flexible way of work which requires new technologies.
- *New way of work:* The aim is to increase cooperation between departments and improve internal communication. In addition, the change process will also include changes in work routines, leadership and culture etc.

The change process main objectives are to digitalize the organisation, improve efficiency and adapt the office and its operations to the fast-changing external environment. Further on, the aim is to proactively find a workspace structure and office environment that fit the organisation and its future objectives and needs. The STA and the consultancy firm sees the first step of the change process as an opportunity to establish a methodology and a standardised way of conducting future office transformations within the STA's organisation in Sweden.

The consultancy firm is responsible for guiding the change process and they provided a workshop facilitation tool which they used as a supporting tool during the EDWs, intended to anchor the change initiatives throughout the STA organisation. The workshop facilitation tool's main objective is to support the process of anchoring the change initiatives within the organisation. The workshop facilitation tool and the EDWs will further on be presented in detail in the results chapter of this article. The EDWs, using the workshop facilitation tool, were proceeding at the STA at the time of the study which made it appropriate to choose the STA as a case company, since it enabled the researchers to study the particular phenomenon of interest.

## **Research design**

In order to answer the research questions of this study and to provide a deeper understanding of the specific studied phenomenon a qualitative case study were an appropriate design (Silverman, 2011). The research design provides advance and deep understanding for the specific phenomenon, at the same time as it can contribute to a broader perspective (Czarniawska, 2014; Silverman, 2011), using a TACT lens. A qualitative case study is preferable since it enable us to study everyday actions and behaviours in practice during the EDWs, and the human-technology interactions, at the same time as it allows for the use of various different data collecting methods within the same study (Silverman, 2011). The study

includes data collection in forms of interviews, observations in practice, observations online where we studied the workshop facilitation tool and lastly also document analysis in order to obtain a complete and accurate picture of the studied phenomenon.

The data collection process lasted for five weeks and was divided into different phases. As a first phase we had an informative meeting with the consultancy firm, responsible for guiding the STA's change process. This in order to get useful and initial knowledge about the workshop facilitation tool and the change process in which it was used, as well as an orientation within the field of study. In an initial phase, our already established contact person at the consultant firm provided internal documents regarding the workshop facilitation tool and the STA's change process. The researchers of this article further on download the workshop facilitation tool software in order to gain deeper understanding of the digital tool and its functions. In addition, we conducted an interview with the consultant during this initial phase as well. During the whole process it was important to be aware of the risk that the consultancy firm, which introduced us to the STA, might want to influence the study's result or portray the setting in a favourable manner, due to their obvious business objectives. However, this risk has been mitigated since we focus on the STA as our case company and have included various data collection forms to get an accurate picture of the field of research. Therefore, we also decided not to present the digital tool or the consultancy firm by name in this article.

After interviewing the consultancy firm, we collected additional data in forms of observational work as a second phase. The researchers observed EDWs held by the consultancy firm where different employees participated and used the workshop facilitation tool digitally during each session. Ethnographies, observational work in the social settings of the case organisation, were used as an additional source of data (Silverman, 2013), in order to see the functionality of the technology and the usage in practice during the EDWs. Later on, the contact person guided and directed us in the search for appropriate employees, working at the STA, to interview. These additional interviews were conducted in phase three and the selection was done using a snowballing method (Kvale & Brinkmann, 2008; Bryman & Bell, 2011), where our contact person suggested potential participants to start with, which later on lead us to new employees to choose from. The employees of interest were individuals involved in the ongoing change process who also participated during the EDWs, meaning that they all had used the workshop facilitation tool and interacted with it. As a complement, the researchers also collected additional document material received from the consultant firm, which was additional data needed to get insights and a deeper understanding for the studied setting and phenomenon. The study continued to collect field material as long as new and relevant information could be collected, which is referred as saturation by Glaser and Strauss (1967). In total, 18 interviews were conducted, two days of observational work during EDWs, five hours of observational work online studying the workshop facilitation tool as well as studying some document material.

### **Data collection**

The primary source of data has been collected through semi-structured interviews which generated responses that was easy to compare, at the same time as it maintained an open and flexible interview environment where the interviewees shared more details and information with us as researchers (Knox & Burkard, 2009). The interviews were open-ended since it

allowed the interviewees to talk freely, at the same time as it enable us to collect describing answers (Silverman 2011; Kvale 1996), which was needed to understand the usage and the employees' interpretation of the technology. The interviewees were in charge of their own performance and the given impression (Czarniawska, 2014), and we as researchers were aware of power asymmetry when conducting the study since it is important in order to ascertain objectivity and ethically (Kvale, 2006), which is why the interviewees spoke freely and became less restricted by the researchers. The researchers of this paper informed the interviewees that they will remain anonymous when presenting their statements, this in order to attain reliable, honest answers, at the same time as it made the interviewees feel more comfortable participating. It was important to keep this moral and ethical standards throughout the study's entire process which is why we protected the anonymity of the interviewees when presenting the respondents selection in table 1, as well as in the results chapter. Consequently, we refer to the various interviewees as employee A, manager B etc. and corresponding department in order to ascertain credibility and transparency. Further on, we as researchers kept moral and ethical risks in mind when conducting the interviews, and we were aware of the fact that we were not aimed to investigate the interviews work or their attitude towards the STA's change process.

During the interviews, the researchers used a list of subjects and questions, adapted to the interviewees position, which functioned as an interview guide in order to ensure that all topics was covered (Bryman & Bell, 2011). In order to get a deeper understanding of how the workshop facilitation tool was used and the individuals' perceptions and interpretation of the technology interaction, as well as the immediate consequences for the STA, the interviewees consisted of a diverse group. Diverse in regard to department, position, experience, age, gender and from various organisational levels within the STA (see table 1). This enabled us to maximize the depth of the data and identify various perspectives (Dicicco-Bloom & Crabtree, 2006). All interviews were recorded and transcribed verbatim and the researchers made notes during the interviews to note some follow up questions, question marks or issues that needs to be further explained. This enabled us to concentrate and listen on the interviewees and ask associated questions rather than solely focusing on taking notes (Czarniawska, 2014). The interviews lasted for 30-60 minutes which enabled us to get an accurate and deep understanding of every interviewee's personal experience, views and thoughts which were needed to be able to understand the individuals' personal interpretation and perception of the technology usage. The first two interviews were conducted with the consultancy firm, and the upcoming seven were conducted with employees that participated during the observed EDWs one and members of the project group, who previously also participated during the EDWs. Later on, we used a snowballing method to schedule additional interviews that met our requirements (Bryman & Bell, 2011).

Interviewees	Department	# of interviews
Consultant	External	2
Manager (A)	The project steering committee	1
Manager (B)	The project steering committee	1
Project group member (A)	The project group	1
Project group member (B)	The project group	1
Project group member (C)	The project group	1
Project group member (D)	The project group	1
Employee (A)	Population registration	1
Employee (B)	Population registration	1
Employee (C)	Population registration	1
Employee (D)	Process unit	1
Employee (E)	Legal department	1
Employee (F)	Large companies department	1
Employee (G)	Large companies department	1
Employee (H)	Large companies department	1
Employee (I)	Large companies department	1
Employee (J)	Tax Unit	1
<b>TOTAL</b>		<b>18</b>

*Table 1. The chart presents the interviewees and corresponding departments.*

A general downside of interviews is that they can be subjective since the collected data only include the interviewees' own interpretations of the field of study. Additionally, the interviewees can have trouble to remember important aspects, significant to the study's aim (Czarniawska, 2013). Further on, there is a risk that the interviewees want to portray the organisation of study in a good manner, or they can be time constrained (Watson, 2011). Therefore, as suggested by Silverman (2013), this qualitative study also included several additional data collecting methods in order to get a deeper and a more complete picture of the studied phenomenon. Ethnographies, which are based on observational work in social settings were done as an additional source of data (Silverman, 2013). Observations was done in forms of participation during the EDWs where the workshop facilitation tool was used by all the participants, and this enabled us as researchers to encounter the everyday work life of the employees and further on to study the interaction with the workshop facilitation tool platform in practice (Watson, 2011). In this way we did not limit our understanding to the interviewees' own interpretation (Czarniawska, 2014), and the researchers were able to situate the interviewees' statements, since we prioritised to conduct interviews with the workshop participators (Watson, 2011). The ethnographic work was an appropriate way to study how the technology actually worked and was used in practice within this ongoing change process (Van Maanen, 2011). During the observations substantial field notes was made in an observation sheet in order to remember vital actions, occasions, comments, discussions, behaviour etc. as

well as our own comments and reflections regarding the setting (Martin & Turner, 1986). Notes was also made during observational work online, when studying the workshop facilitation tool. The researchers focused on taking notes of the digital tool's; layout, functions, exercises, characteristics, digital features etc. which we later on compared to the functions, exercises and digital features observed during the EDWs. This online observation was vital in order to gain deeper understanding of the digital tool and how it was used in practice during the EDWs. Internal documents in forms of PowerPoint presentations, used during the EDWs, together with additional documents, were also studied since it is important to have documentation study and analysis as a complement to interviews and observational work (Bowen, 2009). These documents were requested from the consultancy firm ongoing throughout this study.

### **Data analysis**

The collected material of this study has been analysed by using a grounded theory approach, since it is appropriate when data is collected in different phases (Turner, 1981; Glaser & Strauss, 1967). In line with grounded theory approach, we have conducted a constant comparative analysis when analysing the collected data (Glaser & Strauss, 1967), and since it is an inductive theory discovery methodology it allowed us to develop theoretical account in the specific field of study, at the same time as we took the empirical observations and data into account (Glaser & Strauss, 1967). The data analysis process has been divided into different stages where we started to transcribe the recorded interviews. Later, the process of coding took place and we started with the interviews and examples of codes used are; *interest, comments, anonymity* and *digital feature*. Later, we gathered the collected data and divide it into abstract categories based on keywords, citations and content (Glaser, 1978; Glaser & Strauss, 1967), and this approached enabled us to focus on the most relevant ones for our research question (Martin & Turner, 1986). Later on, all observations together with the documents were analysed, coded and categorized as a second stage. The documentation analysis was used as means of triangulation, where we combined methodologies in the study of the same phenomenon (Denzin, 1970), which provided “a confluence of evidence that breeds credibility” (Eisner, 1991, p. 110). Examples of categories used in an initial phase are; *exercise, employee perception, management view* and *interest*. The interview material was later on compared with the collected document material and the observations, and by continuously comparing the various forms of data we discovered relevant categories useful to focus on. The identified categories were also compared with each other in order to identify connections (Czarniawska, 2014). To start with the data was analysed without theoretical considerations and later on the process of organising and connecting the data met a higher level of abstraction, seeing theoretical connections (Martin & Turner, 1986) and focus was then placed on the theoretical meaning of the categories. During the process of analysing the collected data, we recategorized our data three times and adapted the interview questions, our focus and the covered interview topics in order to obtain in-depth and relevant information useful to answer our research questions. This was done after the first three interviews, again after the sixth and lastly after the fourteenth interview. The observation sheet, used during the observed EDWs, was also adjusted after the first observation day. Based on our final categories we structured our results chapter according a set of themes; *the digital tool, involvement, interactivity, and multifunctional & adaptable tool*. In a final stage we also gathered our data into categories of

theoretical meaning, in terms of three identified major affordances; *engagement, interactivity and management control* and corresponding *digital features* as well as identified *afforded and constraining actions and behaviour* which is presented in table 2.

## **Results**

### **The workshop facilitation tool and the EDWs**

The workshop facilitation tool is an online workshop solution, which offers a complete set of tools for facilitating workshops online. The tool was introduced to the employees that intended to participate during the EDWs through a web link before the workshop. Through this web link the employees got to comment and write individual thoughts about three questions in a questionnaire; (1) *What possibilities do you see concerning the change process?*, (2) *What risks do you see concerning the change process?* and (3) *Do you have other concerns, feelings or questions about the change process?* The consultant compiled the answers of these questions (see appendix 1) and used them as a foundation for the exercises conducted during the workshop. All participants had their own laptops in front of them during the workshop and all the exercises conducted were done online through the workshop facilitation tool. In front of all the participants there was a screen placed on the wall where the consultant who guided the workshop could decide what to present in front of the audience, and all exercises appeared on the screen while he presented them. The first workshop exercise was to click on one of the listed possibilities (see appendix 2), that the consultant had compiled, and write a comment that states the consequences of that particular possibility. When conducting the exercise, the participants could see the other participants' comments in a live stream above their own typing section. The participants could leave as many comments as they preferred on every one of the possibilities listed and they could clearly see how many comments each possibility had at the moment. The second exercise was to rank the five most important strengths, that the organisation had and should continue working with. The workshop facilitation tool showed a list of strengths, based on the collected data from the questionnaire, and every participant had five red dots or markers that they aimed to position in connection to the five most valuable strengths (see appendix 3). The consultant could then sort out the strengths according to the highest ranking ones. The next exercise was to conduct a risk assessment and to score different risk based on the possibility that it would occur and the degree of consequence or impact it potentially would result in (see appendix 4). The six risks that got the highest risk value were in the next exercise evaluated and the participants next task was to write suggestions on how to mitigate the risks. The risks with the highest risk value were now presented in boxes on the screen (see appendix 5) and the participants could click on preferred ones and write suggestions on how to mitigation them. When clicking on one of the boxes a new digital view was presented (see appendix 6), with a comment field and blank page where the various comments, made by the participant, were uploaded in a live stream view of comments. The last three exercises used the same function in the digital tool, which consisted of a blank page and a comment field at the bottom of the screen (similar to the comment view in appendix 6). The employees wrote comments to the different questions, and the first one was to brainstorm about the perfect end state of this change process. Later on, they got the task to comment on how they as individuals

could contribute towards the change process' success. Lastly the employees got the chance to summarize their most important impressions and more importantly write the most significant aspects that they believed needed further consideration in this change process. More specifically, what the STA and all the employees needed to do (activities) and how they were supposed to do it in practice in order to succeed. They all wrote their comments on a blank page in the digital tool and the various comments appeared continuously on the screen. After the EDWs the consultant could easily save all the employees' comments and the conducted exercises, and document it through an adaptable report solution.

### **Involvement of many employees**

The workshop facilitation tool's purpose is to involve the employees in the change process, by providing them with the possibility to contribute with opinions and be heard by the organisation. Respondents from the management team at the STA expressed the importance of providing the employees with the possibility to contribute with opinions and comments regarding the change process in an early stage, since they are part of the process and will contribute towards the outcome of it. Manager A explained that the change process is all about the employees; *"in order to succeed with the change process, the employees needs to be on board and actually change"*. Additionally, the consultant providing the digital tool stated; *"The tool increases the availability to influence and engage the employees"*.

However, there were different opinions expressed by the employees towards the notion about their participation and the possibility to contribute to the change process during the EDWs. Some employees stated that they saw the EDWs as something positive and felt included in the process. Conversely, there were also employees that expressed more sceptical views concerning this aspect and several employees implied that the EDWs were all for show. These individuals were commonly influenced by negative perceptions from prior experience of change process at the STA. More specifically, this group of individuals stated that the STA only arranged the dialogue and the EDWs to make the members feel involved, but that their opinions would not be taken into consideration. *"Of course, they want everyone on board, but my feeling is that it is all for show. 98 percent of the change initiative is already decided, and we are invited to contribute in the remaining two percent. It is a bit late..."*, Employee I expressed, as some others. A few implied that whether or not they have been engaged and involved is still to see, and these employees expressed that they wanted to see actual results further ahead in the change process.

Both the employees with optimists and sceptics views regarding the possibility to contribute, expressed that the workshop and the workshop facilitation tool provided them with more information about the change initiatives, which was appreciated. This is something that all employees expressed were an important reason for attending the workshop. In addition, the workshop facilitation tool presented a clear picture of all the employees' perceptions of the change process in total; as risks, possibilities and strengths. Employee C expressed the summarized information in the digital tool; *"you could clearly see the major risks that the employees at the STA identify, as well as opportunities, strengths..."*. Even if the employees distrust the organisation's intention with the dialogue or not, the workshops and the digital tool, engaged the member in one way or another. This since the participants attended the workshop and typed their opinions and comments in the digital tool. Consequently, they started to think

about the changes and became more involved in the process; both in terms of contribution with comments, but also since they obtained more information regarding the change process.

Further on, all contribution in the digital tool was made anonymously and almost all respondents expressed the benefit of this digital feature, since more people will contribute compared to a situation where a topic is discussed in a large group of individuals. A viewpoint commonly expressed by the respondent was that in traditional workshop groups, it is often only a few opinions from one or two people that actually gets discussed. Some people are not comfortable expressing thoughts and feelings in larger groups, with people they don't know that well. By using the digital tool more people could express their opinions and felt that they could contribute to the dialogue. Project group member C expressed the following about the advantages of using a digital tool during workshop:

*“Everyone can make their voice heard, even if you are introvert and not fully comfortable speaking in a group of people. There may be opinions that you do not want to discuss in a large group but still want to express...and sometimes you might believe you are the only one having a specific thought. During a traditional workshop it is often the person who screams the loudest that will be listen to, however when using this digital tool, it becomes more equal contribution among the members. Everyone had the possibility to contribute”.*

The workshop facilitation tool also makes the dialogue more equal, since different status and prior perceptions are removed, further on it is favourable for the group dynamics according to some of the managers. Moreover, there is always social and hierarchical structures in an organisation and some people might be more respected than others. *“There are commonly various people holding different status in a workshop, and you might listen more to certain individuals...”*, Manager A explained and further argued for the benefit of being anonymous when typing opinions in the digital tool. This view was shared among all the participants, and another manager expressed that in the context of a workshop, the person who has a higher position or has been in the organisation for a long period of time might be the one who steers the conversation, and it could be difficult for a younger, inexperienced person to express contradictory opinions. Thus, the workshop facilitation tool engaged and activated more people and involved more employees in the discussion, compared to a workshop where you discuss subjects in minor groups or conduct them in large groups where you are not anonymous. Manager B expressed a consequence of the digital tool usage; *“The result is that we have been able to gather more opinions from various organizational members”*, which is something that the STA aimed to do. Project group member A expressed that *“all workshops participants have contributed with their opinions, which they would not have done otherwise, and that is great”*.

The results of this study indicate that even if the tool's functions, by its own, created engagement of the organisational members, the consultant leading the EDWs acted as a support to this engagement process. The workshop had not fulfilled its purpose of engagement without the consultant leading the way and guiding them through all the exercises. There were many comments similar to *“It is difficult to separate the tool from the consultant”* (Employee B). Additionally, Manager A expressed; *“the employee engagement and involvement are very much dependent on the consultant”*. During the workshops, instructions were given, and the

consultant created the feeling that it was obligatory to write comments and participate in the dialogue. The employees could have ignored the exercises and left blank answers without anyone noticing, but almost all respondents stated that they contributed in every exercise. Another aspect raised is that even though the activity and participation in the tool was anonymous, the consultant and the rest could still see the activity progress and in some cases the number of contributions on every exercise, which in turn pressured the employees to contribute with comments.

The consultant's guidance also led to some negative feelings for the participants. Some employees expressed that the exercises pressured all participants to contribute with opinions or comments, even if they did not have much to say, or did not have strong opinions regarding certain aspects. Employee I expressed the pressure to be involved and contribute with comments and argued for the corresponding issue it might result in; *"But think about it, if all employees are forced to write down a comment or opinion, even individuals that does not have any opinion or standpoint at all, it will result in a bunch of opinions, meaning that the important ones will get less attention."* Additionally, Project group member B expressed a similar aspect; *"I think that the digital tool pressured participants to be engaged to a larger extent, compared to a traditional workshop"*. This can be seen as negative for all actors that actually had important aspect which they aimed to share, and some expressed that this aspect might influence the quality of the final EDW's results.

### **Interactivity in a digital environment**

During the observations it became clear that the STA were able to have an online communication and real time interactivity through the use of the workshop facilitation tool. Most of the respondents expressed that it was an easy tool to use, and they appreciated that it enabled an effective workshop which made it possible to conduct many different exercises during the same workshop. Most employees also expressed that it was beneficial to have the possibility to comment and give their opinion on numerous aspects concerning the change process. According to the consultant, the digital tool aimed to facilitate a time-effective workshop and the technology usage made it possible to have a dialogue with a large group, at the same time as it covered many different aspects during one single EDW. Project group member D expressed; *"it is a very useful digital tool when you want to ask quick questions and get quick answers, and it is good that all participants gets the possibility to be involved in the employee dialogue"*, and further on explained that this is consistent with the aim of the workshops.

Employee G explained that since they could see other participants comments during most of the exercises, *"it boosted our creativity and way of thinking"*, and *"you did not get stuck, you continuously took the other's comments into account, without seeing the posters names"*, meaning that you got inspired by other participators and in some exercises the group brainstormed together. Many employees also expressed that they got influenced by the live stream of comments on the screen and it was easy to duplicate a comment if you felt the same way. However, the fact that you could see other's comments caused a group thinking phenomenon, according to some employees, *"if you see that everyone else is thinking in the same type of terms, you also type the same comment"* Project group member B explained. He further explained that *"on the other hand, the fact that everyone is being anonymous can*

*actually minimize the risk of group thinking”, “...the purpose with the digital tool is to get rid of group thinking phenomenon and deliberate on your own opinions”. However, many employees actually expressed that they got influenced by other participants and the live stream of comments when writing their own comments. Furthermore, it seemed as if they got even more influenced by the flow of comments if they did not have a clear opinion of their own, “I wrote something similar as the other comments, since I did not have anything else to say” Employee B expressed, as a few others. Another participant explained that “I tried to write my own opinions, but in some cases I got influenced by others’ comments. I got caught in the same type of ideas” (Employee F).*

Several, attending the workshop, expressed the value of typing your opinions in the digital tool, since it provided a clearer link between contribution of opinions and the final documentation of the employees’ views, comments and opinion. A responded explained it as; *“It is much easier to write it down directly instead of having a discussion or writing on a white board first... It will also be saved directly in the system, so you know that nothing will get lost in the process.”* (Employee A) and another expressed; *“It was nice to write instead of talking. It gives the impression that everything will be saved, and that there will be an accurate documentation”* (Employee F). The typing function also makes the participants feel confident that everything will be communicated to the managers at the STA and that nothing will get lost in the process of gathering the information from the EDWs. Additionally, several respondents expressed that the use of this digital tool can limit the risk of aspects or comments getting lost or change meaning during the process of documentation. The respondents indicated that orally discussed comments, during traditional workshops, can be misinterpreted by the person who takes notes and summarise it, which can result in exclusion of certain subjects or aspects, which the digital tool limits within this setting.

In addition to the positive aspect of typing your opinions, there were some concerns regarding the use of a workshop facilitation tool in a workshop context. Several respondent expressed their concern about the tool limiting a discussion during the workshops. They felt that some questions needed more elaboration and that the digital tool only made it possible to address some topics on a superficial level as many employees expressed it. One respondent expressed a view, shared by many participants; *“I would have appreciated the possibility to discuss some relevant topics during the workshops, even though I know that the purpose was to gather our first responses in typing, I missed a profound discussion”* (Employee E). The majority of the employees and project group members shared this view and felt that some topics were passed too fast, and that there was no time for further elaborations. The workshop facilitation tool therefore hindered a desired discussion for several participants and project group member A expressed:

*“One downside with the digital tool is that there is no discussion regarding important aspects. Sometimes it is good to talk about topics, discuss and also write about it. You miss the important oral discussion, however it is possible to do that outside the setting of the digital tool as well... but you will not get the same type of profound discussion as you could have reached when working in a traditional manner”.*

The consultant explained that the workshops are a compromise of reaching out to many employees within the organisation and to have a dialogue with them in an effective manner, which explains the setup.

Another aspect, shared by some participants, is that the written communication constrains some people since it hindered their ability to express themselves. One respondent stated; *“Using a written method excludes some people”* and *“... “you need to feel comfortable to write in text”*, meaning that not everyone feels comfortable expressing themselves in writing and if doing so requires more time to formulate the answers, project group member B explained. Further on, he expressed that especially since there was a fast speed during the workshop, some employees felt pressured to write and further on expressed the desire to have more time to think and formulate their answers. Employee C expressed; *“...and it is not always easy to come up with good written answers under time pressure. It would have been nice to see the questions in advance, in order to reflect and prepare your answers”*. However, many participants expressed that it was an easy tool to use and that the question and exercises were very straight forward.

Another aspect related to the digital features of typing comments, is the effect it can have on the quality of the employees’ contribution, since the emphasis when typing comments compared to an oral conversation can be misinterpreted. This view was shared by some employees who explained that it is also possible that the written comments or opinions will be misinterpreted, depending on how it is formulated. However, when discussing orally during workshops, counter questions can be asked to make sure of the original meaning of the comments. This is something that can be a disadvantage with using a workshop facilitation tool, which was shared by many participants.

### **Multifunctional and adaptable technology**

There are numerous of different exercises and functions available in the workshop facilitation tool, and many of them are used to facilitate workshops like the observed EDWs. The toolkit is broad and it is possible to adapt the digital tool and the scope to the corresponding setting, meaning that it is flexible. However, the consultant designed, adapted and choose the different exercises conducted during the EDWs. The consultant explained that the conducted workshops are consistent with the consultancy firm’s methodology when guiding the process of anchoring change initiatives throughout organisations.

Many employees expressed the very controlled nature of the workshop facilitation tool and the specific setting. Employee E, like several others, explained that; *“the raised subjects are so directed that there is a risk of the scope becoming too narrow. Already from the beginning different topics or subjects were decided and then we were supposed to develop and work with them further.”* The same employee further on explained the associated risk:

*“...there is a risk of missing something important, because it was not included from the beginning...there will be great results on the subjects that were discussed during the workshops, and the aspects we worked with, but the rest will be excluded due to the usage of the digital tool...”*

The employee further explained that this is due to the predetermined exercises and the selection of subjects or aspects, made by the consultant and/or the STA. This could for example be seen when they were conducting the risk assessment exercise and ranked the five most important risks out of a list of twenty. The list of twenty risks were the result of a process of compiling or grouping made by the consultant based on a questionnaire that the members filled in before the workshop. Meaning that the consultant made some sort of interpretation and reformulated in order to reduce all the risks down to twenty representative risks and he also gathered some opinions and comments that were similar in the same groups.

It also became clear that many employees thought that this way of conducting workshop, using a workshop facilitation tool, as a supportive digital tool, made the workshop more controlled in its nature. One respondent expressed; *“We could not control what we were supposed to form an opinion about. The exercises were already decided... There were several topics that we discussed during the break that was not included on the workshop.”* (Employee E). In line with this quote, many employees expressed that the predetermined sequence of exercises during the workshop were limiting their flexibility to speak freely and to raise issues according to their own preferences, which they desired to do. Another respondent argued that; *“since the consultant decided what to comment on or discuss further, the workshop got very controlled”* (Employee H).

Another aspect observed during the EDWs is that the consultant steered the dialogue during these workshops and tried to follow the manuscript and the workshop facilitation tool’s methodology in terms of planned exercises and topics to discuss. The use of the workshop facilitation tool and the consultant’s steering of the workshop hindered the possibility to raise spontaneous opinions and comments. For example, one respondent noticed that the consultant decided not to discuss the issue of bad quality air, one of the highest ranking concerns that the group had by saying *“this isn't something we can control”* Employee I explained and instead he started discussing other matters that were more easily to address.

As mentioned earlier, many workshop participants expressed the value of easy documentation when typing comments directly in the digital tool and most of the respondent felt confident that the material produced during the workshop would be communicated to the management team that actually takes decisions regarding the change process. However, even if several employees were sceptical if it would have any effect on the outcome of the change process they expressed that the process was more transparent than ever before at the STA, which they experienced as a positive consequence of the technology usage. Further on, one participants expressed that; *“the workshops and our contribution rely on the final summarized report, the comments and its accuracy...I hope that it will present an objective picture of our comments”* employee G expressed. Furthermore, a view expressed by most participants is that they believed that the final report will present great results on the topics they actually raised and worked with during the workshops. However, this fact might limit the broader scope of representing the whole organization's view and opinions regarding the change process, this since it was not possible to raise important aspects according to their own preferences as a consequence of the technology usage.

This method of gathering data limited the possibility of aspects getting lost and the typed comments made it time effective to document and report the participants’ comments and opinions. Furthermore, the consultant could easy compile the information into reports and

statistics in both Word and PDF format, which later on can be used in decision making processes concerning the specific change process. For example, the information can be used to increase some sort of stakeholder engagement, according to its functions. Another aspect observed is that it is easy to configure the final report and it is also possible to download a report for every workshop session. The digital tool also has a function where the administrator can configure the report and decide the level of detail in the final presentation. Additionally, it is also possible to adapt the final report depending on the receiver and desired; layout, content and format.

Finally, the digital tool has many administrative functions and since it is possible to control the structure of the workshop and its assignment, it means that the consultant and the organisation in question could guide the participants while using it. This became clear during the EDWs and the consultant had direct control over how the participants were supposed to use the digital tool and its function. Several of the respondent believed that the digital tool was helpful to use during a workshop, and they further on explained that the setting of the workshop was very much dependent on the consultant's support and guidance on how to use it. According to the employees, the digital tool itself would not have functioned without the consultant's instructions and guidance throughout the workshop and its exercises, one respondent stated that *"If he hadn't knew the tool so well, it might have been some confusion"* (Employee D).

## **Discussion**

### **Affordances enabled by the workshop facilitation tool**

The result of this study has within the setting of using the workshop facilitation tool during the EDWs, identified a set of digital features affording; engagement, interactivity and management control for the STA. These inherent digital features have in turn resulted in afforded and/or constraining actions and behaviour for both the STA and the employees that interacted with the workshop facilitation tool during the workshops, due to various interpretations and goals (Leonardi, 2011; Hutchby, 2001; Majchrzak & Markus, 2013b). The identified digital features together with identified afforded and/or constrained action and behaviours are presented in table 2, however it is not a comprehensive list of all of all possible outcomes, but rather a summary of the study's major findings and a first analysis being made. The result concluded that one digital feature could afford several different actions and/or behaviours, or in some cases afford some and constrain others. Further on, an afforded or constraining action or behaviour could also be the consequence of several allocated digital features or the entire character of the workshop facilitation tool according to the study's results. The three affordances, conceptualised by the researchers of this article, are enabled by the technology usage within this setting, and are further on consistent with the STA's and the consultant's goals with the technology usage (e.g. Hutchby, 2001; Majchrzak & Markus, 2013b). However, the study show that the same technology and its digital features can be interpreted in various ways, which is based on what the individual wants to achieve with the technology (e.g. Majchrzak et al., 2016; Hutchby, 2001; Leonardi, 2011). This relational perspective will further on be discussed in the upcoming section.

Previous research on affordances (and constraints), studying various ICTs, have presented affordances which is relatively similar to some of the affordances identified in this study, more specifically the engagement and interactivity affordances. Abhari et al. (2017) present that collaboration is the cornerstone of all collaborative environments, and other authors previously discussed present co-creation, communication, contribution, social connectivity, interactivity etc. as major affordances (see previous research heading), which are similar to the engagement and interactivity affordances identified in our study. However, the management control affordances identified in this study is less frequently discussed in previous ICTs studies using an affordances perspective. The first analysis of the study's collected data is presented below in table 2 and further on discussed throughout this chapter. The discussion will further on focus on the results' major contributions in three headings. Firstly, we discuss that digital features can constrain actions and/or behaviours for some individuals even if it aimed to afford others for the STA, secondly the closed character of the ICT platform will be discussed and its implications for managerial control and lastly the consultant's role within the imbrication process of the workshop.

Affordances	Digital features	Afforded action & behaviour	Constraining action & behaviour
<b>1. Engagement</b>	Presentation tool	Informed about the change process	
	Transparent environment	Overview of employees' perception	Hinders free choice to contribute
	Participator activity		Hinders attention on major important issues
	Simple & quick assignments	Spontaneous response	Hinders an accurate picture of result / reflection
	Anonymous participation	Contribution of opinion	
	Design and adapt according to the user	Involving many employees	
		Democratic contribution	
<b>2. Interactivity</b>	Real time online communication	Effective group dialogue	Hinders the possibility to ask counter questions
	Time affective	Facilitate effective workshops	
	Easy to use	Participants being active	
	Monitoring of activity stream	Creative thinking / Brainstorming	Hinders independent thinking & quality
		Broad knowledge	Hinders to attain deep knowledge
	Review and commenting tools	Exchange opinions / Contribute with comments	Hinders discussion
	Typing comments & opinions in writing	Feeling of contribution	Hinders the ability to contribute
		Spontaneous response	Hinders the ability to express
			Hinders an accurate interpretation
	Saving comments	Feeling of accurate documentation	
		Confident in scope being communicated	
Easy layout / Easy formulated tasks	Understanding		
<b>3. Management control</b>	Categorizing / grouping of comments	Control over scope	Hinders a broad scope of comments and views
	Gathering comments and opinions	Effective documentation	
		Transparent process	
	Configuration of report	Stakeholder engagement	
		Decision making	
	Print, download and send	Easy reporting	
	Adaptable report setting / report inclusion	Control over inclusion	Hinders accurate result
			Hinders diverse result on various topics
	Flexibility tool kit / Adaptable exercises	Great narrow result	Hinders inclusion of all subjects
		Control over workshop	Hinders spontaneous workshop
	Administration function	Adapt to its setting	
	Strategic actions	Guidance of usage	
		Control over dialogue	
		Influence employees' perception of change initiative	
Function of gathering data from survey	Adapt workshops according to inputs / Control	Hinders the possibility to have spontaneous discussions	

*Table 2. The workshop facilitation tool's digital features affording; engagement, interactivity and management control for the STA. The studied digital features afforded and/or constrained actions and behaviours for the STA and for the employees.*

### **Digital features aimed to afford can constrain actions & behaviour**

In this paper, the sociomateriality perspective, and more specifically the TACT, is used as a lens to study how the workshop facilitation tool has been used within the specific setting. The second aim is to answer the last research question; *What are the immediate consequences of the workshop facilitation tool usage for the STA?* which is why a relational perspective of affordances and constraints is appropriate, since digital features of a technology can remain stable but be perceived differently by various individuals within an organisation (e.g. Zammuto et al, 2007; Leonardi, 2011; Hutchby, 2001), which is the case within the studied setting. The digital features of the workshop facilitation tool aim to afford; engagement, interactivity and management control within the context of the EDWs but the results show that various digital features leads to both afforded and constraining actions and/or behaviour for some workshop participants, which depends on the individual's interpretation of it. The study show that the same digital features can be perceived as constraining actions for some individuals, but as affording for others, due to different goals or agendas expressed during the interviews (e.g. Hutchby, 2001; Majchrzak et al. 2016; Leonardi, 2011). Previous studies of ICTs, using the affordance perspective, have in particular focused on affordances, enabled by the technology, which is why it is interesting to discuss our findings of constraining actions and behaviour since it might have immediate consequences for the STA and the change process.

The findings show that digital features aimed to afford engagement of many employees afforded the possibility to involve many employees in the EDWs, where they had the possibility to contribute with comments online. However, it constrained some individuals since they were not able to achieve their agendas with the workshop and the technology use. The digital features that afforded engagement for the STA; for example, the transparent environment, the participatory activity online, and the idea to ask quick questions and gather quick and spontaneous responses, which was based on a predetermined sequence of exercises, constrained some individuals to fulfil their purposes (Hutchby, 2001; Majchrzak et al. 2016; Leonardi, 2011). These digital features constrained the possibility to pay attention towards individuals' perceptions of major important aspects, sometimes shared by many participants. This resulted in some people feeling disappointed since they were not able to raise certain questions or aspects during the workshops, which were their initial intention with the technology usage (e.g. Hutchby, 2001; Leonardi, 2011), meaning that the employees interacted with the technology with the aim to get the ability to express certain aspects (Gibson, 1986). Furthermore, these constraining actions, due to the technology's certain set of features and the users' purpose (Hutchby, 2001), can have consequences for the EDWs since the STA aimed to engage the employees in the change process. The results show that there is a conflict with some individuals' goals with the technology usage and what the digital tool enables. More specifically, since the employees did not get the chance to raise certain aspects they felt disappointed.

The majority of the managers at the STA expressed that the employees are vital to have on board within this process, which indicates that it is necessary to make sure that individuals gets a positive view and feeling regarding the process and their involvement and engagement during the EDWs. It is important to have fully engaged employees in the process, employees whose goals and interests are in line with the STA's objectives, according to the STA. A discussion that potentially will take place within the STA's organisation, is whether or not the

employees views and engagement have been taken seriously later on in this change process. Many employees expressed that they want to see the outcome of these workshops and their contribution, and if they actually have been able to influence the change process' outcomes. This manifestation is a consequence of previous experiences of change processes within the STA's organisation, expressed by some of the employees, where their opinions have been neglected in past change processes. This implies that some employees mistrusted that their contribution will have an effect on the final outcome, which is something the STA needs to consider.

The transparent environment and the participatory activity function, where all workshop participants were encouraged to contribute pressured some individuals, even though they had no important comments and opinions to add. A few employees expressed that they wrote something, just to be active during the workshop which might constrain an accurate result of the employees' views as a result of the EDWs. Further on, some of the digital features constrained focus on major important issues according to the employees' perceptions, since the important comments will be underestimated by all the unimportant ones conducted under pressure. Further on, the digital tool did not allow for the participants to reflect further on the question and what to answer, afforded spontaneous responses but constrained reflection and deliberated comments and opinions which some of the employees desired to do (Hutchby, 2001; Leonardi, 2011). By affording the action of spontaneous response the STA could receive even more contribution in forms of quick comments and opinions and thereby engage and involve more people democratically in the change process through anonymous participation online, which were a clearly stated aim with these workshops according to the STA (Majchrzak & Markus, 2016; Hutchby, 2001). However, at the same time as the digital features afforded these actions, it constrained the possibility to reflect on an individual level, since there were not room or time for further elaborations within the setting of this technology usage which were seen as constraining for some individuals participating (Hutchby, 2001). Further on, these digital features also constrained accurate objective results of the employees' contribution, at the same time as it enabled the STA to keep the dialogue on a superficial level (e.g. Hutchby, 2001; Zammuto et al., 2007; Leonardi, 2011).

The workshop facilitation tool also aimed to enable interactivity through time effective, online communication which afforded facilitation of effective workshops. This since it involved many participants in an effective group dialogue and provided the possibility to work on various exercises and to talk about many topics and aspects. However, the various digital features, aimed to afford interactivity, as for example the live stream of comments constrained independent thinking for some individuals that aimed to contribute with their own comments and reflection (e.g. Leonardi, 2011; Majchrzak, et al., 2016) which might affect the quality of the contribution and the comments, since it in some cases resulted in a group thinking phenomenon, where people got influenced by other comments. These constraints might result in a subjective picture of their contribution and the overall result of the employee dialogue, but for the STA the same digital features lead to affording actions, since the employees' views and the EDW's result becomes easier to take into account further ahead in the change process. The fact is that similar kind of views, and opinions that actually can be handled and considered are easier for the STA to deal with within this change process.

Further on, some participants expressed that the function of typing comments and opinions afforded a feeling of contribution, since they saw an obvious link between contribution in typing and the final documentation of its result. However, the same typing function constrained some people, in the process of contribution and expression since they were not comfortable expressing and formulate themselves in writing (e.g. Hutchby, 2001; Leonardi, 2011). However, the function of saving participants' typed comments through easy documentation afforded the possibility of solid documentation and a feeling of confident that everything written will be saved afterwards, expressed by the employees. The employees interacted with and perceived the technology with the purpose to influence the process and give their opinion (Leonardi, 2011; Hutchby, 2001), and these digital features enabled this. Furthermore, these functions afforded the feeling of being involved in the process, since the comments and opinions will not be excluded or get lost further on in the process. These afforded possible actions and behaviour were highly dependent on the context of the EDWs (e.g. Hutchby, 2001; Zammuto et al. 2007), which also may be influenced by previous experiences of change process within the STA. This time the employees appreciated that they were invited to the specific dialogue and became involved in the change process.

The majority of participators expressed that the digital tool, by its many digital features, afforded exchange of opinions and contribution of comments online, but however it constrained a profound discussion according to the majority of the participants. Many participants argued that the digital tool instructed you to perform many different exercises and the digital tool afforded you to conduct a broad dialogue on various different topics, however a major downside was that it constrained the possibility to elaborate and discuss more important aspects related to the change process. Some individuals actually wanted to reach a profound discussion during these workshops, which the digital features and the character of the technology constrained (e.g. Hutchby, 2001; Majchrzak & Markus, 2013b). Some employees stated that they attended the workshop, and by that used the technology, with the aim to discuss certain predetermined significant aspect of their choice (e.g. Leonardi, 2011; Majchrzak et al., 2016; Majchrzak & Markus, 2013b), however the digital tool and its characteristics constrained this possibility, which were seen as a major downside according to many of the respondents. This indicates that the tool afforded the employees to get broad knowledge and information about the change process and conduct a superficial dialogue regarding many aspects related to the change process, however the same material qualities of the tool constrained deeper knowledge and a profound discussion for those whose agenda were to achieve this (e.g. Hutchby, 2001; Majchrzak & Markus, 2013b; Leonardi, 2011). A discussion regarding the implications of the management control affordance will be presented in the upcoming section, and what consequences this have on the imbrication process of the workshop. This since it might have immediate consequences for the STA.

### **A closed ICT platform for managerial control**

The findings of this study show that the workshop facilitation tool, by its features, controlled the workshop practice and the engagement of employees, meaning that the imbrication process was highly influenced by the technology and in turn affected how people interacted with it (Leonardi, 2011). The designed in properties, its character and how it is controlled by the consultant within this setting, clearly demonstrate that the platform has a more closed character

than previous studies of ICTs show. Previous studies, using an affordance and constraints perspective have in particular focused on studying ICTs in forms of social medias and social technologies with an open character, where the users can administer and control its content and structure (e.g. Treem & Leonardi, 2013; Majchrzak et al., 2013; Leonardi et al., 2013), characterised by a peer-to-peer nature. The way in which the technology is constructed, and used within this workshop setting, resulted in a very controlled way of conducting workshops within the change process. However, consequently it constrained the employees to conduct a flexible and spontaneous discussion, often seen in traditional workshops, which many employees actually desired. In this case, the workshop facilitation tool, and its properties were perceived as an affordance for the STA within this context (e.g. Leonardi & Vaast, 2017; Zammuto et al., 2007), but as direct constraints for all the employees that for example aimed to raise certain preferred issues or topics (e.g. Leonardi, 2011; Hutchby 2001). The result clearly indicates that many participants expressed the very controlled nature of the technology and the same digital features that enabled management control, constrained the employees to discuss various topics of their interests (Leonardi, 2011; Hutchby 2001). Consequently, it also narrowed down the discussion to predetermined issues decided by the consultant and/or the STA since they both had direct control over the mix of exercises conducted during the workshop. Indicating that they could clearly influence what aspects the employees needed to consider, reflect on and work on during the workshops. The result also showed that the management control affordance has a significant role within this setting, and could be seen as beneficial for the STA. More importantly, the workshop facilitation tool, by its technological agency, directed the participants by its design and character, meaning that it limited the employees' human agency to some extent (Leonardi, 2011). More specifically, the STA and/or the consultant could control the scope of the workshop by the flexible toolkit and direct control over the conducted exercises, which afforded great narrow results on selected aspects and issues. However, the same digital features narrowed down the dialogue and by that constrained the employees' possibility to express themselves freely and to raise desired aspects (e.g. Hutchby, 2001; Leonardi, 2011; Majchrzak & Markus, 2013b). However, these digital features are only constraining for the employees that desired to use the technology in order to achieve other goals, but for the STA the technology afforded management control, since the STA's aim was not to have a comprehensive dialogue on various individual topics, rather to engage as many employees as possible in the change process (e.g. Hutchby, 2001; Leonardi, 2011; Majchrzak & Markus, 2013b). These set of digital features, aimed to afford management control, could all be seen as strategic functions from a management point of view since they had full control over the EDWs.

The various digital features affording management control further on afforded easy reporting, a transparent process, stakeholder engagement and it could enable decision making further on in the change process. These are beneficial affordances for the STA since it is in their interest to conduct an efficient and controlled workshop that can support their change process. The function of gathering data received from the questionnaire made it possible to adapt the workshop according to employees' inputs. However, it also means some additional control over the setting and the workshops structure, which clearly constrained employees to discuss spontaneously during these workshops (e.g. Hutchby, 2001; Leonardi, 2011; Majchrzak & Markus, 2013b).

The study shows that the digital features, affording management control, shaped the imbrication process and thus how the practice of the workshop unfolded (Leonardi, 2011). An analysis being made is that without the controlled character of the workshop, the participants might have used the technology in another way, due to individual goals and interpretations, when interacting with the technology (e.g. Hutchby, 2001; Majchrzak et al. 2016), meaning that the practice would have unfolded differently. In previous research on ICTs, where the technology does not afford this type of management control, the individuals are free to interact with the technology according to own their interest, in a peer-to-peer platform. In these cases, they are still affected by the material agency, but they have the possibility to act according to their human agency in response to the technology, according to their own individual preferences (Leonardi, 2011). The result of this study show that the workshop facilitation tool constrained the employee's human agency since they became limited due to a set of digital features that afforded management control for the STA and the consultant. Some individuals perceive certain set of digital features as constraining within this setting, since they were not able to achieve their purposes (e.g. Hutchby, 2001; Leonardi, 2011; Majchrzak & Markus, 2013b), implying that it also affected their capacity for human agency (Leonardi, 2011).

Previous studies have mostly focused on affordances enabled by the technology usage, and research of ICTs pay less attention towards the technological constraints. The results of this study show that the closed nature of the workshop facilitation platform directly resulted in several constraining actions for the employees (table 2) since it constrained the user's agency in some cases, and also their ability to achieve individual goals. This can also explain why previous studies, investigating the use of ICTs, mostly in forms of social medias and social technologies, have focused on affordances enabled by the technology and undermined the importance of studying constraints as well. If the digital features that afforded management control would have been excluded from the studied technology's construction, the constraining actions on an individual level would have been reduced, or maybe replaced by afforded action or behaviours for the employees, depending on individual aims (e.g. Hutchby 2001; Leonardi, 2011). The studied technology's closed character indicates that technology can be used for managerial control, which previous research studying ICTs have not focused on. The technology studied in this setting sets the frame for how the employees can enact their human agency (Leonardi, 2011), and what goals to achieve, which in this setting is mostly seen as something positive for the STA. The result of this study further on showed that the workshop practice was produced in an imbrication process, where the arrangement of the digital workshops structure and its controlled nature of; predetermined sequence of exercises and all its digital features, directed how the entanglement of the social and the material unfolded within this setting (Leonardi, 2011). Another aspect, which the result shows, is that the consultant plays a vital role in the workshop's imbrication process, this will be discussed in the upcoming section.

### **An imbrication process influenced by the consultant**

The results of this study indicate that the human being presenting the technology, adapting it to its particular setting and gives the instructions and guidance towards the users, play a significant role within this setting. The theoretical field argue for the importance of the technological designers who arrange the material properties in a specific order to guide the

users' behaviour, thus affecting the imbrication process (Leonardi, 2011). However, even though the theoretical field acknowledge the importance of the technology's inherent qualities and its construction, which afford and/or constrain actions depending to various individual goals (e.g. Leonardi, 2011; Majchrzak et al., 2016; Majchrzak & Markus 2013b), it has not yet considered the importance of the external human being presenting the technology, thus affecting their perception of it. The result of this study shows that human beings, present during the imbrication process, can influence and affect the human-technology interaction.

Leonardi (2011) argue that in order for human and material agency to become imbricated in practice, someone has to arrange them, meaning that technology developers and the participant during workshops actively imbricate their human agency in response to the workshop facilitation tool's material agency (Leonardi, 2011). However, the consultant leading the workshop influenced the participant perceptions of the material properties, and the perceived affordances and constraints, and consequently also affected how they interacted with the ICT within this particular setting (Hutchby, 2001; Leonardi, 2011). This means that the actions afforded by the technology are highly dependent on the context in which it is used and without the consultant guidance and instructions, the imbrication process would have unfolded differently (Leonardi, 2011). The fact is that the technology interactions that took place within the setting of the workshop might not have been the case without the consultant's guidance and instructions. Leonardi (2011) argue that the material and the social will be entangled differently, depending on the various individual perceptions of the materiality, and its affordances and constraints. However, this study shows that the consultant, by his superior role within this context, and by the use of the technology, affected how the imbrication process unfolded within this setting, by his guidance and instruction, he contributed towards the affordances of engagement, interactivity and management control for the STA. Gibson (1986) argue that information and instructions like; signs and necessary user information is significant in order to be able to perceive the technology's affordances. For example, there can be a sign next to the door handle, since it helps to specify the door's affordances in terms of entry and exit. Significant with this study is the notion that a human being can function as a guide by giving instructions on how to use the technology, in order to afford management control. This indicates that the consultant could act on behalf of the employer (the STA) and guide the users according to their interests. In this case the consultant directed the workshop participants and instructed them on how to use its functions in all the exercises. At the same time as he could enable the STA to keep the dialogue narrow and focused and conduct a controlled EDW with many employees, by using the technology.

More specifically, since the workshop facilitation tool have a flexible and adaptable, multifunctional character the consultant could affect how the workshop should be conducted and what topics that should be discussed. Meaning that if a subject was raised during the workshop, that was not included in the predetermined scope, he could redirect the dialogue and steer the use of the digital tool as the participants are supposed to use it. For example, he did not include the risk of bad quality air in the dialogue even if it was ranked as one of the highest scored risk. Since the process of imbrication, resulting in practices and routines, consists of both human and material agency (Leonardi, 2011), these digital features limited the employees to conduct a profound discussion, which some of them desired. The participants within this setting had agency but could only exercise it within the frames of the material properties of the

technology and the consultants' guidance and control over its usage. As a result, the setting constrained a flexible and spontaneous discussion of various topics and since some subjects were excluded the result will be narrowed and focused as a consequence of the very controlled nature of the EDW setting. The consultant together with the closed character of the workshop facilitation tool gave raise to even more constraining actions for the employees within this setting, since both the technology and the consultant constrained the ability to achieve their purposes with the technology use within this setting (e.g. Hutchby, 2001; Leonardi, 2011). However, for the STA and the consultant the narrow result can be perceived as desirable since it is easier to handle a few topics and views compared to several ones. The selection and control over subjects during the EDW can therefore be interpreted as strategic actions made by the STA and/or the consultant in order to have a controlled dialogue with the employees and by that somehow control its outcomes.

## **Conclusion**

With regards to the first research question of this article; *How is the workshop facilitation tool used within the workshop setting?* it has been concluded that the technology was used as a supportive online workshop solution. During the EDW all participants conducted a set of predetermined exercises and were guided and instructed by a consultant during the workshops. The study also showed that the consultant had a superior role within this setting since he had direct control over the online workshop and its scope. All contribution in forms of employees' comments was done anonymously online by typing on computers, and their contribution was later on saved into a report automatically. The result of this study also demonstrate that the workshop facilitation tool has been used with the aim to anchor the STA's change initiatives through engagement and interactivity of employees.

This study has identified a set of affording and/or constraining actions and behaviour, which within the workshop setting, can be seen as direct consequences of the workshop facilitation tool usage (see table 2). The relational perspective of affordances and constraints has been useful in order to analyse these direct consequences, since the different participants perceived various affording and/or constraining actions which in the end has immediate consequences for the STA. With regard to the second research question; *What are the immediate consequences of the workshop facilitation tool usage for the STA?*, it can be concluded that the digital features of the workshop facilitation tool, within this setting, has afforded engagement, interactivity and management control, which can be seen as the major immediate consequences for the STA within this setting.

More specifically, the technology enabled the STA to involve, inform and activate many employees through various predetermined exercises. The technology enabled participants to contribute with comments and opinions in a democratic way and the workshop facilitation tool further on enabled the STA to reach out too many employees and effectively gather their opinions, views and comments. The result also shows that the unique closed character of the workshop facilitation tool afforded management control for the STA and the consultant, and it can further be concluded that this affordance had a significant role within this setting. Consequently, the STA and the consultant had the possibility to establish controlled engagement of the employees where they had full control over the workshop's scope and the

conducted dialogue's and its direction. More specifically, the workshop facilitation tool, with its closed character, together with the consultant's guidance set the frame for how the employees' engagement could unfold in practice. Consequently, this enabled the STA to keep the dialogue on a superficial level and to have full control over the workshop. Further on, the result of this study revealed that some digital features lead to constraining actions and/or behaviour perceived by some participants, which can be explained by the controlled nature of the technology and its characteristics affording management control. As the result of this study reveal, the external human being presenting the technology and guiding the usage, affected the individuals' perception and their interaction with the technology. Consequently, the consultant also contributed towards the three affordances; engagement, interactivity and management control, which can be seen as beneficial for the STA. Thus, it can be concluded that the consultant influenced the imbrication process, which provides insights to the relational perspective of affordances and constraints since it highlights the external human being's role within the social setting of the technology use.

As a final practical conclusion, the same digital features that afforded engagement, interactivity and management control for the STA resulted in some immediate negative perceptions and feelings for the employees since they were not able to achieve their goals with the technology interaction. The negative perceptions and feelings might in turn affect the process of anchoring the change initiatives negatively, since it is vital to have the employees support in a change process. This provides managerial insights, by showing that it is significant to take the users perception and needs into account when developing and implementing this type of ICT. In this case, and potentially in many others, the technical construction and the setting in which it is used affects the user's perceptions and feelings, which in turn might affect their overall perception of the employer or the specific change process. Thus, it is important to understand the employees' needs and goals with the technology use since it can generate positive feelings, and if mastered thoroughly, the development of better ICTs can generate positive outcomes for the organisation.

ICTs play a key role in contemporary organisations and other types of technologies are frequently used by organisations in order to continuously develop their business and to keep up with the rapidly transforming business landscapes. "Change or die" is a common expression which refers to the importance of change towards organisational survival and this study contributes with practical insights on how to use ICTs to support difficult ongoing change processes. However, since previous research primarily has studied open ICTs, characterised by a peer-to-peer platform, we suggest that further studies focus on the usage of controlled ICTs in organisations. More specifically, it is interesting to conduct even more empirical studies in order to investigate how these platforms can steer discussions and interactions within organisations. This since these studies can contribute with further managerial implications.

A limitation with the study is that it did not include a comparative study, this since the sociomateriality perspective and the TACT lens seeks to explain why the same type of technologies are used and has different outcomes in different context. This article solely study the use of the workshop facilitation tool within one organisational context and since it is interesting to investigate how the imbrication process could unfold within another setting we therefore suggest that further studies conduct a comparative study, where the same type the ICT is studied in two distinct organisational settings. Another limitation with the study is that

we did not study the STA's entire change process and it could be interesting in order to evaluate whether or not the technology enabled anchoring of the change initiatives, as well as investigate the long-term consequences of the technology usage. It could therefore be interesting to study the same technology use within an entire change process, in order to investigate the final consequences.

## References

- Abhari, K., Davidson, E., & Xiao, B. (2017). Co-innovation platform affordances. *Industrial Management & Data Systems*, 117(5), 873-895.
- Allen, J. A. (2003). The evolution of new mobile applications: A sociotechnical perspective. *International Journal of Electronic Commerce*, 8(1), 23-36.
- Ash, J., Berg, M., & Coiera, E. (2004). Some Unintended Consequences of Information Technology in Health Care: The Nature of Patient Care Information System-related Errors. *Journal of the American Medical Informatics Association*, 11(2), 104-112.
- Aubert, B. A., Barki, H., Patry, M., & Roy, V. (2008). A multi-level, multi-theory perspective of information technology implementation. *Information System Journal*, 18(1), 45-72.
- Barad, K. (2003). Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter. *Signs*, 28(3), 801-831.
- Barley, S. (1988). Technology, Power, and the Social Organization of Work: Towards a Pragmatic Theory of Skilling and Deskilling. *Research in the Sociology of Organizations*, 6, 33-80.
- Bijker, W., & Law, J. (1992) *Shaping Technology/Building Society: Studies in Sociotechnical Change (Inside technology)*. Cambridge, Mass: MIT Press.
- Bowen, G.A. (2009). Document Analysis as a Qualitative Research Method. *Qualitative Research Journal*, 9(2), 27-40.
- Bryman, A., & Bell, E. (2011). *Business Research Methods*. Oxford: Oxford University Press.
- Child, J. (1987). Information Technology, Organization, and Response to Strategic Challenges. *California Management Review*, 30(1), 33.
- Ciborra, C. (2000) *From control to drift: The dynamics of corporate information infrastructures*. Oxford: Oxford University Press
- Ciborra, C. (2006). Imbrication of Representations: Risk and Digital Technologies. *Journal of Management Studies*, 43(6), 1339-1356.
- Czarniawska, B. (2013) *Social Science Research from Field to Desk*. London: Sage Publications. Czarniawska, B. (2014). *Social science research: from field to desk*, (1. Ed.). Lund: Studentlitteratur.
- Dawson, P. (2003). *Understanding organizational change the contemporary experience of people at work*. London: Sage Publications.
- Denzin, N. K. (1970). *The research act: A theoretical introduction to sociological methods*. New York: Aldine.
- DiCicco-Bloom, B., & Crabtree, B. (2006). The Qualitative Research Interview. *Medical Education*, 40(4), 314-321.
- Eisner, E. W. (1991). *The enlightened eye: Qualitative inquiry and the enhancement of educational practice*. Toronto: Collier Macmillan Canada
- Faraj, S., & Azad, B. (2012). The Materiality of Technology: An Affordance Perspective. In P. M. Leonardi, B. A. Nardi, & J. Kallinikos (Ed.), *Materiality and Organizing: Social Interaction in a Technological World*. (pp. 237-258). Oxford: University Press.
- Gibson, J. J. (1977). A Theory of Affordances, in R. Shaw and J. Bransford (Eds.), *Perceiving, Acting and Knowing: Toward an Ecological Psychology*. (pp. 67-82). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Gibson, J. J. (1986). *The ecological approach to visual perception*. Hillsdale, N.J.: Lawrence Erlbaum Associates.
- Giddens, A. (1984). *The Constitution of Society, Berkeley*. CA: University of California Press
- Gitelman, L. (1999). *Scripts, grooves, and writing machines. Representing technology in the Edison era*. Stanford, CA: Stanford University Press.
- Glaser, B.G. (1978). *Theoretical sensitivity: Advances in the methodology of grounded theory*. Mill Valley, CA: Sociology Press.

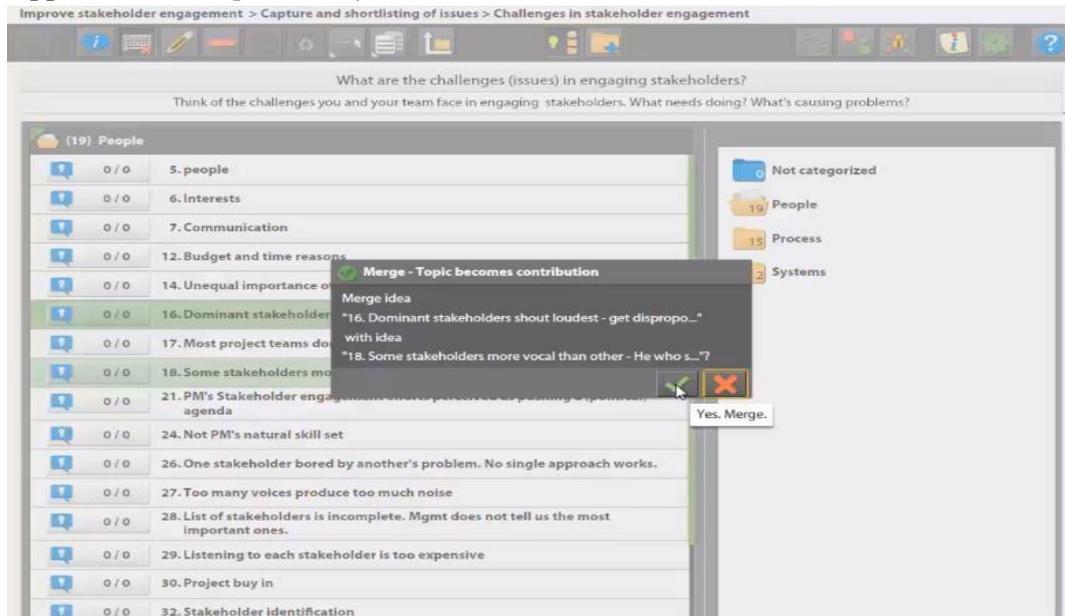
- Glaser, B.G., & Strauss, A.L. (1967). *The discovery of grounded theory*. Chicago: Aldine.
- Harrison, M. I., Koppel, R., & Bar-Lev, S. (2007). Unintended Consequences of Information Technologies in Health Care—An Interactive Sociotechnical Analysis. *Journal of the American Medical Informatics Association*, 14(5), 542-549.
- Hutchby, I. (2001). Technologies, Texts and Affordances. *Sociology*, 35(2), 441-456.
- Kim, H. D., Lee, I., & Lee, C. K. (2011). Building Web 2.0 enterprises: A study of small and medium enterprises in the United States. *International Small Business Journal* 31(2), 156–174.
- Kling, R. (1991). Computerization and Social Transformations. *Science, Technology & Human Values*, 16(3), 342-367.
- Knox, S., & Burkard, A. (2009). Qualitative Research Interviews, *Psychotherapy Research*, 19(4-5), 566-575.
- Kvale, S. (1996). *Interviews: An Introduction to qualitative research interviewing*. Thousand Oaks: SAGE.
- Kvale, S., & Brinkmann, S. (2008). *Interviews: Learning the craft of qualitative research interviewing*, (2nd ed.). Newbury Park, CA: SAGE.
- Lai, V., & Mahapatra, R. (1997). Exploring the research in information technology implementation. *Information & Management*, 32(4), 187-201.
- Leonardi, P. M. (2011). When flexible routines meet flexible technologies affordance, constraint, and the imbrication of human and material agencies. *Management Information Systems : Mis Quarterly*, 35(1), 147-167.
- Leonardi, P. M. (2013a). Theoretical foundations for the study of sociomateriality. *Information and Organization*, 23(2), 59.
- Leonardi, P. M. (2013b). When does technology use enable network change in organizations? A comparative study of feature use and shared affordances.(Report). *MIS Quarterly*, 37(3), 749-775.
- Leonardi, P. M., Huysman, M., & Steinfield, C. (2013). Enterprise Social Media: Definition, History, and Prospects for the Study of Social Technologies in Organizations. *Journal of Computer-Mediated Communication*. 19(1), 1–19.
- Leonardi, P. M., & Vaast, E. (2017). Social Media and Their Affordances for Organizing: A Review and Agenda for Research. *Academy of Management Annals*, 11(7), 150-188.
- Lu, Y., Xiang, C., Wang, B., & Wang, X. (2011). What affects information systems development team performance? An exploratory study from the perspective of combined socio-technical theory and coordination theory. *Computers in Human Behaviour*, 27(2), 811-822.
- Majchrzak, A., Faraj, S., Kane, G., & Azad, B. (2013). The Contradictory Influence of Social Media Affordances on Online Communal Knowledge Sharing. *Journal of Computer-Mediated Communication*, 19(1), 38-55.
- Majchrzak, A., & Markus, M. L. (2013a). *Methods for Policy Research: Taking Socially Responsible Action*, (2nd ed). Thousand Oaks, CA: SAGE.
- Majchrzak, A., & Markus, M. L. (2013b). Technology Affordances and Constraints Theory (of MIS). 2, 832-835.
- Majchrzak, A., Markus, M. L., & Wareham, J. (2016). Designing for digital transformation lessons for information systems research from the study of ICT and societal challenges. *Management Information Systems : Mis Quarterly*, 40(2), 267-277.
- Markus, M., & Silver, M. (2008). A Foundation for the Study of IT Effects: A New Look at DeSanctis and Poole's Concepts of Structural Features and Spirit \*. *Journal of the Association for Information Systems*, 9(10/11), 609-632.
- Martin, P. Y., & Turner, B. A. (1986). Grounded Theory and Organizational Research. *The Journal of Applied Behavioural Science*, 22(2), 141-157.
- Mesgari, M., & Faraj, S. (2012). Technology affordances: the case of Wikipedia. *18th Americas Conference on Information Systems (AMCIS)*, 5, 3833-3841.
- Norman, D. (1999). Affordance, conventions, and design. *Interactions*, 6 (3), 38-43.
- O’Riordan, S., Feller, J., & Nagle, T. (2012). Exploring the affordances of social network sites: an analysis of three networks. *European Conference on Information Systems (ECIS), Paper No. 177, Barcelona*.
- Orlikowski, W. (1992). THE DUALITY OF TECHNOLOGY - RETHINKING THE CONCEPT OF TECHNOLOGY IN ORGANIZATIONS. *Organization Science*, 3(3), 398-427.
- Orlikowski, W. (2007). Sociomaterial Practices: Exploring Technology at Work. *Organization Studies*, 28(9), 1435-1448.

- Orlikowski, W. & Scott, S. (2008). Sociomateriality: Challenging the separation of technology, work and organization. *The academy of management annals* 2(1), 433-474.
- Pickering, A. (1995). *The Mangle of Practice: Time, Agency, and Science*. Chicago: University of Chicago Press.
- Punt, M. (2007). Technology Matters: Questions to Live With (review). *Leonardo*, 40(4), 405-406.
- Sassen, S. (2006). *Territory, Authority, Rights: From Medieval to Global Assemblages*, Princeton. NJ: Princeton University Press.
- Sawyer, S., & Rosenbaum, H. (2000). Social Informatics in the Information Sciences: Current Activities and Emerging Directions, *Informing Science* 3(2), 89-89.
- Sein, M. K., & Harindranath, G. (2004). Conceptualizing the ICT Artifact: Toward Understanding the Role of ICT in National Development. *The Information Society* 20(1), 15-24.
- Silverman, D. (2011) *Interpreting Qualitative Data: a guide to the principles of qualitative research*. London: SAGE
- Silverman, D. (2013) *Doing Qualitative Research*, (4.th Ed.). Thousand Oaks, CA: SAGE
- Simmons, G., Armstrong, G., & Durkin, M. (2011). An exploration of small business website optimization: Enablers, influencers and an assessment approach. *International Small Business Journal* 29(5), 534-561.
- Stridh, A., & Wittberg, L. (2015). *From feared tax collector to popular service agency*. Göteborg: Skatteverket.
- Suchman, L. (1994). Do categories have politics? *Computer Supported Cooperative Work (CSCW)*, 2(3), 177-190.
- Sutcliffe, A., Gonzalez, V., Binder, J., & Nevarez, G. (2011). Social Mediating Technologies: Social Affordances and Functionalities. *International Journal of Human-Computer Interaction*, 27(11), 1037-1065.
- Taylor, J. R. (2001). Toward a Theory of Imbrication and Organizational Communication. *The American Journal of Semiotics*, 17(2), 269-298.
- Treem, J., & Leonardi, P. (2013). Social Media Use in Organizations: Exploring the Affordances of Visibility, Editability, Persistence, and Association. *Annals of the International Communication Association*, 36(1), 143-189.
- Turner, B. A. (1981) Some practical aspects of qualitative data analysis: One way of organizing the cognitive processes associated with the generation of grounded theory. *Quality and Quantity*, 15, 225-247.
- Van Maanen, J. (1979). The fact of Fiction in Organizational Ethnography. *Administrative Science Quarterly*, 24(4), 539-550.
- Van Maanen, J. (2011). Ethnography as Work: Some Rules of Engagement. *Journal of Management Studies*, 48(1), 218-234.
- Volkoff, O., & Strong, D. M. (2013). Critical Realism and Affordances: Theorizing IT-Associated Organizational Change Processes. *MIS Quarterly* 37(3), 819-834.
- Watson, T. J. (2011). Ethnography, reality, and truth: The vital need for studies of 'how things work' in organizations and management. *Journal of Management Studies*, 48(1), 202-217.
- Zammuto, R. F., Griffith, T. L., Majchrzak, A., Dougherty, D. J., & Faraj, S. (2007). Information Technology and the Changing Fabric of Organization. *Organization Science* 18(5), 749-762.

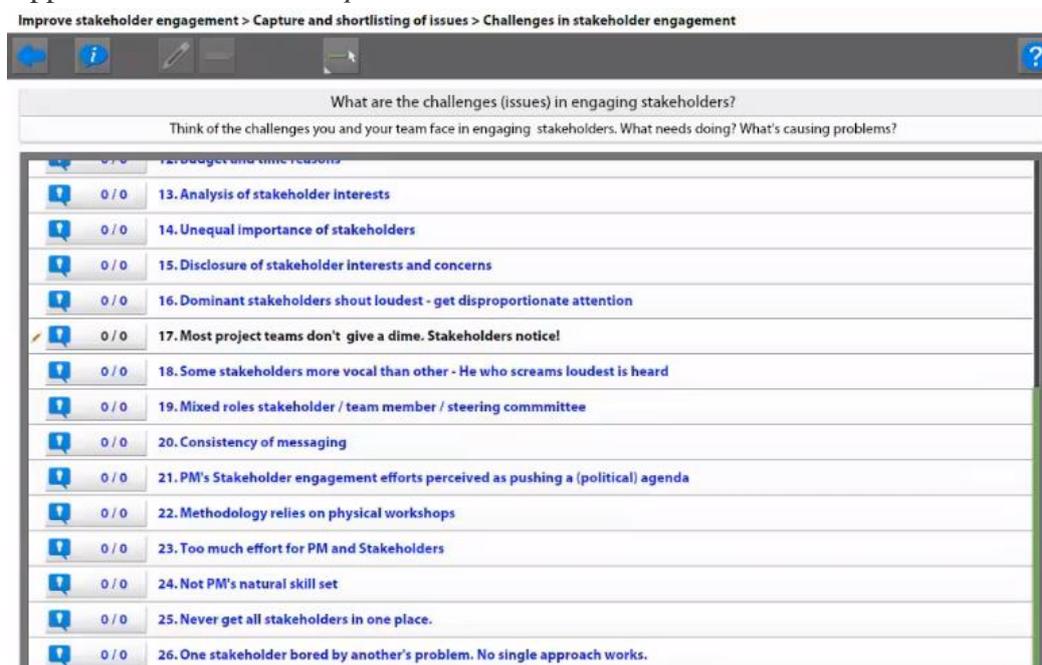
## Appendix

The following appendix consists of screen shots from the workshop facilitation tool, presenting how it can be used during workshops. However, the displayed views are not taken from the particular setting of the EDWs and are not consistent with the exact content that was used during the workshops but are rather examples on how the tool functioned and the various views and exercises.

### Appendix 1: *Compilation of answers*



### Appendix 2: *Comment on possibilities*



### Appendix 3: Rank the strengths

Improve stakeholder engagement > Capture and shortlisting of issues > Challenges in stakeholder engagement

What are the challenges (issues) in engaging stakeholders?  
 Think of the challenges you and your team face in engaging stakeholders. What needs doing? What's causing problems?

**2** We are good at this **1** Red flag!  
 Please drag the points on ideas or back to the sticky point bar.

Process	Count	Issue
5. Very distributed. Cannot access them easily	0 / 0	
6. Real added value	0 / 0	
8. <b>1</b> Analysis of stakeholder interests	0 / 0	
10. Disclosure of stakeholder interests and concerns	0 / 0	
13. <b>1</b> Mixed roles stakeholder / team member / steering committee	0 / 0	
14. Consistency of messaging	0 / 0	
18. Too much effort for PM and Stakeholders	0 / 0	
20. Never get all stakeholders in one place.	0 / 0	
28. Disclosure of stakeholder interests and concerns	0 / 0	
29. <b>1</b> Conflict between stakeholders	0 / 0	
30. (Lack of) stakeholder attention	0 / 0	

Enter your idea here. Select the right folder before you send.

- 0 Not categorized
- 20 People
- 12 Process
- 4 Systems

Contributions are anonymous.

### Appendix 4: Risk assessment

Improve stakeholder engagement > Understanding and prioritizing the issues > How important is this issue

How important is this issue?  
 Please judge the overall importance of DEALING SUCCESSFULLY with the item and the issue it points to.  
 0 = irrelevant 2 = hardly important 5 = makes a difference 8 = important 10 = extremely important

Issue	0	1	2	3	4	5	6	7	8	9	10
20 Real added value											
21 Disclosure of stakeholder interests and concerns											
22 The important stakeholders don't take the time to talk to us											
23 Lack of focus by project manager											
24 Conflict between stakeholders											
25 Difficult to make commitments, while retaining room for manoeuvre											
26 Listening to each stakeholder is too expensive											
27 Mixed roles stakeholder / team member / steering committee											
28 Analysis of stakeholder interests											
29 Unequal importance of stakeholders											
30 Stakeholder identification											
31 Some stakeholders more vocal than other - He who screams loudest is heard											
32 Disclosure of stakeholder interests and concerns											
33 Consistency of messaging											
34 List of stakeholders is incomplete. Mgmt does not tell us the most important ones.											
35 Different motivations of team members											

Contributions are anonymous.

## Appendix 5: Discussion view

Improve stakeholder engagement > Understanding and prioritizing the issues > Why important?

Why is it important to get this right?  
Please discuss the consequences of (not) dealing successfully with this issue.

- 10/10 Stakeholder Identification
- 19/19 Analysis of stakeholder interests
- 10/0 PM's Stakeholder engagement efforts perceived as pushing a (political) agenda
- 11/11 No shared platform for interaction with stakeholders
- 20/20 Most project teams don't give a dime. Stakeholders notice!

## Appendix 6: Comment view

Improve stakeholder engagement > Understanding and prioritizing the issues > Why important?

Why is it important to get this right?  
Please discuss the consequences of (not) dealing successfully with this issue.

PM's Stakeholder engagement efforts perceived as pushing a (political) agenda

- Could you please give examples? (#21 | Marketing)
  - It is clear from how some stakeholders react. For instance, the representatives of XY Corp clearly treated us as if we were trying to sell to them. (#22 | Marketing)
  - My observation, too. PMs are not seen as neutral (truly engaging) but as someone who must sell their project and assuage the opposition in order to complete their project. (#23 | Sales)
- This perception is a fundamental problem: Everything a PM puts forward is immediately discounted as partisan if not propaganda. (#24 | Sales)
  - Basic fact of life. (#25 | Production)
    - That does not make it less of a problem. We must find a way for dealing with this. (#26 | R&D)
      - Response to another participants contribution (#92 | Sales)
        - I have never witnessed this. Please substantiate. (#93 | R&D)
    - So training of the PM is unlikely to help? Should we accept the perception or try to change it? (#27 | Sales)
      - Unlikely because (a) this is not the typical PM skill set, so pushing manure uphill. (b) Perception of PM as partisan is not wrong. No way to hide it. (#28 | Production)

Enter your contribution here. To respond to a contribution, select it. Click again to deselect.