

# Crowdsourcing in a Public Organization: Transformation and Culture

*Full Paper*

**Thomas Wagenknecht**  
FZI Research Center for  
Information Technology  
wagenknecht@fzi.de

**Olga Levina**  
FZI Research Center for  
Information Technology  
levina@fzi.de

**Christof Weinhardt**  
Karlsruhe Institute of Technology  
weinhardt@kit.edu

## Abstract

Employees increasingly want to participate in the decision-making processes of their organization. Approaches that facilitate organizational participation, such as internal crowdsourcing platforms, can achieve this. However, although organizations of various backgrounds should be able to reap benefits from such systems, in practice, implementation might fail due to an organizational culture built on hierarchical structures, low experience with employee participation and fixed processes. Taking a design science approach, we explore this relation in a five-month case study of a transformational process at a public organization. We design, implement and evaluate an information system for internal crowdsourcing. Based on the results from user-generated content analysis of the proposals and comments, survey data and several in-depth interviews, we observe an IT culture conflict that significantly affects system adoption and use. Our findings contribute to the discussion on theoretical and practical implications for design and implementation of information systems in organizational contexts.

## Keywords

Participation, Crowdsourcing, Organizational Transformation, Culture, Design Science Research.

## Introduction

A recent survey by IBM suggests that the majority of change management projects fails, with almost half of the 1,500 executives from 15 countries reporting that organizational culture is one of the biggest challenges in this context (Jørgensen et al. 2014). In the Information Systems (IS) literature, studies on IS-enabled organizational transformation (OT) have repeatedly stressed that organizational culture and the accompanying leadership decisions during the implementation can significantly affect the adoption and use of new information systems (Besson & Rowe 2012; Nevo & Wade 2010). If organizational values are in a mismatch with the values represented by new technology, users will be reluctant to or even actively resist the adoption (Cooper 1994). This clash of values might be especially pronounced when it comes to Organizational Participation (OP), which promotes decision-making by all employees, including novices and lower-level staff, in order to benefit from the wisdom of the crowd (Wagenknecht, Filpe, et al. 2017). Despite recent efforts by many organizations to implement such a culture in the wake of “New Work” trends that promote more flexibility and empowerment (Bock 2016), OP is far from being widespread as it builds on flexible processes and flat hierarchies (Erickson et al. 2012). When implemented through information systems, OP entails ideating, developing and evaluating new ideas, similar to open innovation and internal crowdsourcing (Adamczyk et al. 2012; Zuchowski et al. 2016). Although these topics enjoy increased attention by researchers and practitioners, studies have only narrowly explored what type of organizations can reap most benefits from OP systems and whether and how organizational culture affects the implementation of internal crowdsourcing systems (Nevo & Wade 2010). This is even less the case for crowdsourcing in public organizations, which often build on fixed processes and hierarchical structures.

In this research, we discuss and present a software artifact that allows bottom-up (anonymous) participation in the strategic decision-making process for all employees (incl. non-managerial staff). We describe the requirements engineering for this software system and test usage and acceptance in a case study at a public organization with more than 100 employees, following a design science research approach (Hevner et al. 2004; Peffers et al. 2007). Our research objective is to identify organizational culture characteristics that need to be taken into account when implementing such an internal crowdsourcing system. More specifically, we seek to explore whether an information system is capable of transforming organizational information and knowledge sharing for (internal) innovations. As a result, our findings extend the research within the theory of information technology (IT) culture conflict (Leidner and Kayworth 2006); provide important insights into user acceptance research (Venkatesh et al. 2003), as well as system design and implementation. Therefore, although rooted in design science research, our study bridges into behavioral and management sciences, incorporating various sociotechnical aspects. In effect, our study contributes to IS research in IS-enabled OT as well as Computer-supported Collaborative Work (CSCW).

We structure our paper as follows. We begin by reviewing prior research on OT with regard to organizational culture and leadership and explore crowdsourcing studies in Section 2. Thereafter, we present our study method in Section 3 and describe our artifact in Section 4. We evaluate the artifact in Section 5 and discuss our results in Section 6.

## **Related Work and Theoretical Background**

OT can have various effects on the organization, leading to both operational as well as strategic improvements (e.g., efficiency, responsiveness, flexibility) (Cha et al. 2015; Gregor et al. 2006). While technology can contribute to changing organizational processes and structures in order to achieve such outcomes, IS research suggests that IT assets do not create value in isolation (Luna-Reyes et al. 2005). In this sense, IS-enabled OT also entails a realignment of organizational routines to reach a level of diffusion for new software implementations (Nevo & Wade 2011). OT studies need to take a variety of social and other non-technical elements into account (Cha et al. 2015; Markus 2004; Besson & Rowe 2012; Gregor et al. 2006; Silva & Hirschheim 2007; Ulbrich 2010). IT can only produce beneficial effects when the technology fits the organizational characteristics, especially its culture and related working routines (Nevo & Wade 2010). If there is a mismatch between the system's values and the cultural norms, implementation of new IS can fail (Cooper 1994).

In this section, we describe how the organizational culture and the leadership play an important role in IS development and implementation. Moreover, we briefly summarize prior research on OP and systems for crowdsourcing and open innovation.

### ***Organizational Culture***

Organizational culture can be defined as a set of shared assumptions and a common understanding about organization functioning, encapsulated in a complex system of norms and values (Deshpande & Webster 1989; Schein 1985; Ke & Wei 2008). It is both pervasive and elusive (Hofstede 1980; Davison & Martinsons 2002). Both information flows and information technologies are closely connected to culture (Leidner & Kayworth 2006). In effect, culture influences employees' perception and behavior (Schein 1985), determines how social groups interact with IT (Leidner & Kayworth 2006) and, thus, has a profound effect on the IS implementation process (Cooper 1994; Ke & Wei 2008; Cha et al. 2015; Leidner & Kayworth 2006; Jackson 2011; Iivari 2005). Employees are more likely to adopt a technology if they perceive its value to match the cultural norms of a given team or the entire organization (Leidner & Kayworth 2006; Nevo & Wade 2010; Davison & Martinsons 2002; Silva & Hirschheim 2007). In case of a misalignment, systems might remain unused and employees could even resist implementation (Tyworth 2014; Cooper 1994; Markus 2004). Thus, as cultures vary between organizations, the same IT can produce different effects depending on the specific organizational context (Leidner & Kayworth 2006). Usually, organizational cultures differ in terms of learning and development approaches, power sharing and participative decision making as well as support and collaboration, communication and tolerance for conflict and risk-taking (Hurley & Hult 1998). Although it is relatively stable, an organization's culture can be consciously designed and (slowly) transformed (Schein 1985; Nevo & Wade 2011; Tyworth 2014). If the emergent work practices change the power relations of the organization, technologies are able to alter the

underlying social systems (Leonardi & Barley 2010). However, these dynamics are recursive so that the design, implementation and use of IT affects the organizational structures – and vice versa (Luna-Reyes et al. 2005). Although conflicts may emerge during IS implementation projects, they can positively contribute to a cultural change (Leidner & Kayworth 2006). In order to implement an information system successfully, Ke and Wei (2008) propose that an organization should adopt a culture that encourages employees to participate in decision-making and generate innovative ideas, while openly sharing information and knowledge and tolerating conflicts and risks. Executive leadership can meaningfully contribute to reaching such a culture.

### ***Leadership***

Leadership is crucial for the effectiveness of IT adoption and organizational change as leaders attitudes and behavior influences their employees' perception and IS adoption (Ke & Wei 2008; Erickson et al. 2012). In the wake of an IS implementation, adoption and diffusion often depends on employees' perception of uncertainty about benefits and costs of the new systems and technologies (Ke & Wei 2008; Leidner & Kayworth 2006; Polites & Karahanna 2012). Thus, it is the leadership's responsibility to define the facilitation of and interactions with the new systems (Nevo & Wade 2010). For instance, extant research suggests that top managers should embrace a readiness for change, rather than fighting resistance, in order to increase motivation and reduce uncertainties and stress for their subordinates (Ke & Wei 2008; Cho et al. 2011; Leidner & Kayworth 2006; Erickson et al. 2012). Leadership can achieve this by formulating a vision and roadmap, generating awareness, modifying organizational structures, creating incentives or by allocating time and resources to the implementation (Ke & Wei 2008; Leidner & Kayworth 2006; Nevo & Wade 2010; Erickson et al. 2012).

### ***Organizational Participation***

In order to shape its strategy, processes and culture, employees increasingly seek to be involved in various decision-making processes of their organization (Tumasjan et al. 2011). Initiatives fostering employee participation are able to meet these demands (Wilkinson et al. 2010). The positive effects on job satisfaction, employee motivation and productivity of OP are well recognized in work and organizational psychology (Wilkinson et al. 2010; Wegge et al. 2010). For instance, OP can increase employees' commitment, intrinsic motivation as well as feelings of self-efficacy (Spreitzer 1995; Humborstad 2014). Extant research has argued that OP is appropriate to all organizations and circumstances (Wilkinson 1998). However, this notion has been called into question as OP-related outcomes depend on organizational variables, such as organizational culture and business processes (Davison & Martinsons 2002). For instance, employees need to be motivated and need to have the necessary skills and knowledge in order to be able to contribute in participatory decision-making (Wagenknecht, Filpe, et al. 2017). The distribution of power relations and management commitment to employee-generated proposals is equally relevant (Davison & Martinsons 2002).

In practice, organizations of different sizes implement various forms of social software to facilitate participation and collaboration, including Enterprise Social Networks (ESNs), open innovation, prediction markets and crowdfunding platforms (Leonardi et al. 2013; Muller et al. 2013; Feldmann, Gimpel, et al. 2014; Leimeister et al. 2009). Generally, (internal) crowdsourcing software is highly valuable to facilitate computer-supported OP (Wagenknecht, Filpe, et al. 2017; Zuchowski et al. 2016).

### ***Internal Crowdsourcing***

Pedersen et al. (2013) define crowdsourcing as a collaboration model that uses human-centric information systems to address organizational, individual and societal problems by engaging on a crowd of interested people. Crowdsourcing engagements usually include phases of idea generation, collaboration and evaluation, all of which have been analyzed extensively in IS research in the past decade (Zuchowski et al. 2016). Internal crowdsourcing leverages the expertise, skills and creativity of the employees (Adamczyk et al. 2012; Zuchowski et al. 2016). Thus, instead of limiting research and development to a dedicated unit, companies can tap into the wisdom of their entire staff. In effect, they are able to gain more knowledge, make better informed decisions and generate more diverse as well as higher quality ideas and solutions (Adamczyk et al. 2012; Blohm et al. 2010; Wagenknecht, Filpe, et al. 2017). However,

Erickson et al. (2012) suggest that internal crowdsourcing requires a shift in traditional practices as organizations often build on *hierarchical* structures and *fixed* processes. Thus, the open and democratic nature of internal crowdsourcing might be in contrast to the less egalitarian communication in place in many organizations (Riemer et al. 2015). Crowdsourcing shifts these norms, structures and processes, valuing informal individual contributions – both tangible and intangible – while also enforcing *flat* hierarchies and *flexible* processes (Erickson et al. 2012; Zuchowski et al. 2016; Riemer et al. 2015).

Thus, leadership should actively support the implementation of crowdsourcing systems in order to overcome barriers due to the current organizational culture and structures by promoting openness, transparency and social feedback (Zuchowski et al. 2016). Moreover, for a crowdsourcing engagement to be successful, the information systems needs to convey a motivational and trusted environment (Ebner et al. 2009). However, some employees might be reluctant to share their opinion openly because they might be afraid of their superiors or peers (Haines et al. 2014). Thus, crowdsourcing facilitators choose to let users contribute content anonymously. Yet, anonymous communication has been shown to have various effects on human perceptions and, eventually, decision-making processes (Postmes & Lea 2000; Wagenknecht et al. 2016). While it might protect user privacy and encourage reticent employees to speak their mind, user anonymity has more recently been identified as a major deterrent in online discussions as it also provides a veil of protection for those using foul language, polarizing arguments and hate speech (Cho et al. 2012; Haines et al. 2014).

While IS research on crowdsourcing has overwhelmingly focused on the effectiveness and quality of idea evaluation processes, studies on how crowdsourcing systems affect organizational culture are scarce (Erickson et al. 2012; Benbya & Leidner 2016). In particular, as crowdsourcing entails sourcing peer knowledge, organizations with hierarchical structures and fixed processes might struggle with the implementation of a crowdsourcing system.

## **Study Method**

In order to explore the relationship between organizational culture and an internal crowdsourcing system in more detail, we conduct a case study of an OT process at a public organization. Besson and Rowe (2012) recommend describing and conceptualizing both the process of OT as well as the construction phase. We address this recommendation by adopting a design science research (DSR) approach (Hevner et al. 2004; Peffers et al. 2007). DSR aims to capture both the practical side of relevant business environmental conditions (i.e., people, organizations and technology) as well as the theoretical foundations and rigorous IS research methodologies in order to develop artifacts and theories that can then be evaluated in practice (Hevner et al. 2004).

In our case, we implement a system at a public-sector organization. It has three offices in rural Germany and serves a constituency of over 200,000 people with more than 150 staff members, who are tasked with placing and training people of various backgrounds for new jobs. The organization has a rather high degree of formalization and hierarchy (Hurley & Hult 1998). That is, both strategy as well as some operational procedures are defined by a federal agency. This federal agency also appoints the senior management. However, the public organization is free to define how, when and where employees engage with their clients. At the public organization, a management board meets every month to discuss and decide on strategic issues for the entire organization. Although final decision-making is limited to three board members, all employees are invited to join these meetings as auditors and contributors. Yet, attendance by the staff was very low.

Following the DSR process prescribed by Offermann et al. (2009), we identify the low employee participation in this strategic decision-making process as our relevant problem. Based on interviews with the organization's managing director and the head of the worker's council, as well as a literature review, we propose to implement an internal crowdsourcing platform. We design and implement an IT artifact as a solution, which draws from extant research. In terms of software implementation, we run a two-week pre-test with a small team of employees. Thereafter, we refine our artifact based on user feedback. Then, we run a five-month test from August 2016 to January 2017, which was open to all employees of the organization. We evaluate our IT artifact in four steps. First, we collect and analyze data from user-generated content, such as proposals and comments. Second, we invite all employees (including those that did not register for the system) to fill out a survey on their experience with the system. We ask for

users' behavioral intention to use the system as well as performance and effort expectancy, i.e. perceived usefulness and perceived ease of use, following Venkatesh et al. (2003). Furthermore, we asked survey participants to evaluate the quality of ideas and comments. We measured all items on a 5-point Likert scale. The worker's council of the public organization approved the survey. Note that due to strict privacy regulation, we were restricted from requiring survey participants to report their gender, age and other personal data. Third, we conduct interviews with the managing director and the head of the worker's council. Fourth, to gain an even deeper understanding, we also conduct a focus group interview with eight lead users of our artifact (as defined by Von Hippel 1986). We record, transcribe, code and analyze all interviews. In what follows, we describe our artifact design and evaluation in detail.

## **Artifact Design**

Our goal was to design a system for internal crowdsourcing that enables employees to contribute to the strategic decision-making of their organization. Based on prior research, our design embraced the principles of participatory decision-making with a strong emphasis on collaboration and open feedback (Hurley & Hult 1998). We designed an artifact that closely interacts with its socio-technical environment (Niederman & March 2012; Gregor & Hevner 2013). In order to increase employee participation, we designed a crowdsourcing system that enables users to contribute, develop and evaluate ideas and proposals for change (Zuchowski et al. 2016; Wagenknecht, Crommelinck, et al. 2017). The expected users of the artifact are the employees (i.e., non-board members) of the public organization. The IS development is based on an open source project called "Adhocracy," developed by Liquid Democracy, a German non-profit organization. We collected user requirements starting with prior research in CSCW and enriched them based on individual interviews with the managing director of the organization as well as the head of the worker's council. Thereafter, we consolidated these requirements with the current software architecture.

We identified three major requirements. First, the management board wanted to leverage the existing structures in the organization. Employees should be able to contribute ideas, which would be taken up for discussion and decision-making in the regular strategic board meetings. Generally, users were able to contribute proposals, like and comment them. After a fixed period of time (usually two to three weeks), users were invited to vote on which proposal should be discussed in the following strategic board meeting. The management board agreed to include this idea on its agenda and provide feedback to the employees whether and how it will implement the idea. Each user had one vote per cycle and only the idea that received most votes would be added to the meeting's agenda. The system saves all other ideas in a stack and users are able to re-nominate them. Second, as the organizations has a relatively high average employee age, the software needed to be easily useable. Thus, we opted to follow common design patterns and choose a minimalistic, clean style sheet. We also provided training before the implementation to a number of key employees that would function as multipliers. Third, both the management board as well as the worker's council stressed the importance of privacy protection. This had two implications for the artifact design. In terms of user registration, we personally invited each employee to sign a written document approving our terms of use. We only setup an account if users gave their explicit consent. Moreover, we designed a feature that enabled users to contribute proposals and comments anonymously. Acknowledging prior research on user anonymity, we wanted to leverage the positive sides while mitigating the negatives effects. Thus, the software should both encourage reticent members and still avoid foul language and hoax. By default, the system displayed a user name (which usually represented an employee's full name) next to every proposal and comment. Conversely, by checking a dedicated box ("post anonymously"), users could save their content to the overall profile of an anonymous user. In effect, neither the system administrator nor the management would be able to trace back the content originator. However, once submitted, users could not edit posts. Furthermore, we supported the implementation in several ways. There were multipliers in every team and all were regular employees, rather than team leaders, in order to facilitate a grassroots movement. Team leaders on their side were encouraged by the managing director to promote the system as well. The managing director also encouraged employees to use the system through a talk in front of all employees and a series of internal newsletters.

## Evaluation Results

We conducted our evaluation in four steps. First, we analyzed the content that users generated during the course of our five-month main test phase. Eighty-one users registered for the system that contributed thirteen unique proposals on various issues. Five proposals came from low-level employees, while only one was posted by a senior manager. Three ideas were submitted anonymously. In total, users contributed 77 likes and 20 comments. None of the proposals or comments included any form of foul language, such as swearwords, insults or defamation. Nonetheless, only one of the six proposals that were voted to get on the agenda of the board meeting was contributed by an anonymous user. While one worker's council representative was an active user in the system, there was no contribution by senior management.

Second, 37 employees followed our invitation to fill-out a survey. However, only 23 participants completed it and only 20 reported that they noticed a feature allowing anonymous posting. For our analysis, we only include the latter part and report results for user acceptance rates (Venkatesh et al. 2003) in Table 1. Although most participants (45%) reported high perceived usefulness for the organization, many others were undecided (40%) and a small portion (15%) reported low usefulness. Results on behavioral usage intention in the coming months were quite similar. Yet, when it comes to exploring the reasons for these results, participants reported a high satisfaction with the ease of use. In more detail, we are able to establish this for the anonymity feature too. We find that the vast majority (80%) thought that the identity of users contributing proposals or comments anonymously was completely untraceable, while only few (10%) did or rather did not agree. Hence, the reasons for the mixed results of perceived usefulness might be non-technical. Participants reported low (10%) or even very low (50%) satisfaction with the number of user-generated contributions. In exploring the organizational culture, we find that 60% of participants were not afraid to post content that is in conflict to senior management's attitude and opinion. Yet, a significant subset (30%) reported that they were indeed afraid or very afraid of posting contrary opinions.

|                              | Perceived usefulness |      | Usage intention |      | Perceived ease of use |      |
|------------------------------|----------------------|------|-----------------|------|-----------------------|------|
| <i>Very low</i>              | 1                    | 5%   | 2               | 10%  | 0                     | 0%   |
| <i>Rather low</i>            | 2                    | 10%  | 1               | 5%   | 0                     | 0%   |
| <i>Neither low, nor high</i> | 8                    | 40%  | 6               | 30%  | 2                     | 10%  |
| <i>Rather high</i>           | 6                    | 30%  | 7               | 35%  | 11                    | 55%  |
| <i>Very high</i>             | 3                    | 15%  | 4               | 20%  | 7                     | 35%  |
| <i>Total</i>                 | 20                   | 100% | 20              | 100% | 20                    | 100% |

**Table 1. Evaluation Results: User Acceptance**

As these survey results can only serve as an indication, we need to gain a deeper understanding of users' perception of our IT artifact. Thus, we conducted two new individual interviews with the managing director and the head of the worker's council in order to explore the effects the software implementation had on the organization. Both interviews lasted for roughly 45 minutes. Fourth, we conducted a focus group with eight selected key users from seven different teams of the organization. Half of the participants were regular employees, while the other half were team leaders. All of the interviews yielded insights on conditions and reasons for usage and non-usage as well as the impact on the organization as a whole. Participants unilaterally reported that the system's design was suited for its purposes. Moreover, the number of employees attending the strategic board meeting slightly increased. For instance, the managing director said: *"I saw employees participating that I never noticed in such a context before."* Furthermore, interviewees claimed that most of the topics discussed in the system were highly relevant to the entire organization. Both the worker's council as well as the managing director perceived the system to serve as a sort of sentiment analysis. However, users were discouraged by the low perceived up-take and internal structures. We traced this back to a series of reasons. For one, despite the moderate number of user-generated contributions on the platform, proposals were constant topics of the office grapevine. In some teams, employees discussed the proposals offline and had one colleague post their aggregate opinion online. Moreover, although everyone agreed that content posted anonymously was indeed anonymous, there was widespread anxiousness for criticism and feedback by colleagues. Interviewees said employees

were most reluctant to use our system because they worried they might be criticized by their colleagues for posting incorrect or irrelevant content. Moreover, interviewees reported that some users were singled out for supposedly having a low workload as they found time to engage on the platform. (This was echoed by two proposals posted in the system asking for workshops on peer feedback and supervision. One of the proposals demanded a more respectful feedback culture as many colleagues spoke about other colleagues' performance behind their back.)

Moreover, with regard to the internal routines, interviewees also reported that the managing director asked the user that contributed the winning proposals to join the board meeting personally. Apparently, this put increased pressure on those users as they would have to spend two hours in the meeting, present their idea and might end up receiving the responsibility for its implementation. Furthermore, some interviewees claimed that the managing director, having joined the organization only two years ago, has implemented a series of new mandatory programs to improve client relations quality. These programs included additional trainings and changing routines, embracing peer feedback and new techniques such as storytelling. Nonetheless, as the software is part of a non-mandatory program, some employees did not want to increase their workload any further. Furthermore, interviewees said that, as of now, many employees would claim that the system would not bring meaningful change. According to the interviewees, this might be related to the experience with previous directors who followed a less inclusive, non-participative management style.

## **Discussion & Conclusion**

In this study, we designed and implemented a system for internal crowdsourcing at a public organization and evaluated it through a survey and additional in-depth interviews. Our results suggest that the developed system is easy to use and well designed. The system's introduction resulted in a number of new strategic structural proposals for the organization. However, the organizational culture makes it difficult to sustain a more participatory approach to decision-making. Most notably, there was only a rudimentary communal and open feedback culture in place, which arguably created an IT culture conflict (Leidner & Kayworth 2006) with the internal crowdsourcing system, which promotes open information and opinion exchange. Despite an option for anonymous content contribution, users were afraid their colleagues might harshly criticize them. In the survey, the proportion of participants stating that they are afraid to post content that is opposed to the senior management's opinion might even be greater in reality because of social desirability effects. Furthermore, senior management's requirement for users with the winning proposal to join the board meeting complicated the situation even further as employees perceived this as a heavy workload burden. Interestingly though, employees tended to discuss issues offline, feeding back their opinion to the system through a dedicated team member. Yet, this led others to question the usefulness of the IS because of the perceived low user activity.

Overall, our results question whether the organization was (culturally) ready for a system designed to increase employee participation (Cho et al. 2011). As participatory decision-making entails a bottom-up approach, an implementation driven by the senior management (i.e., top-down), might have been counterproductive. Thus, the relatively low perceived usefulness of the system might be related to an organization that is not used to flat hierarchies, flexible processes and direct decision-making as routines of the organization were otherwise highly hierarchical and fixed (Erickson et al. 2012). A large proportion of the employees also seem to be very skeptical towards change initiatives, a behavior deeply rooted in the organizational structures because of the prior director's management style. Although the new managing director might have put too much pressure on users by requiring them to join the board meeting, the organization's leadership also implemented a series of helpful measures to facilitate the transformation process (e.g., multipliers, newsletters, etc.). On one hand, in light of the employees' anxiousness for criticism, we consider it a good choice for the senior management to stay out of the online discussion. On the other hand, the managing director's presence could have also functioned as a role model. Furthermore, a fixed period of time to engage on the platform for the employees and more incentives to participate in the system are known tools for increasing user activity (Ke & Wei 2008; Leidner & Kayworth 2006; Nevo & Wade 2010; Erickson et al. 2012) that were omitted in our case. Although employees might still be intrinsically motivated (e.g., recognition by colleagues, gaining control over their work environment), there were little to no extrinsically motivating factors. In terms of our system development, we might incorporate gamification features in the future, such as badges and scores, in

order to provide some incentives and increase user motivation (Feldmann, Adam, et al. 2014; Benbya & Leidner 2016).

In conclusion, in order to reap all benefits of the internal crowdsourcing system, we suggest implementing an organizational culture that promotes open information and knowledge sharing, while tolerating conflicts and risks (Ke & Wei 2008). In our case study, though, the system's values currently do not match the organization's cultural norms (Leidner & Kayworth 2006; Nevo & Wade 2010; Davison & Martinsons 2002; Silva & Hirschheim 2007). Therefore our research supports the notion of Davison and Martinsons (2002) that OP is not per se suitable to all organizations. While it might indeed bring several benefits, organizational readiness in terms of culture is key and has a significant impact on user acceptance (Cooper 1994; Ke & Wei 2008; Cha et al. 2015; Leidner & Kayworth 2006). As crowdsourcing transforms organizational structures and processes, an IT culture conflict is inevitable (Erickson et al. 2012; Leidner & Kayworth 2006).

Practitioners need to be aware of this and should engage with employees of various backgrounds in the entire organizations in order to understand the organizational structures and culture before the implementation. Instigating a more friendly, open feedback culture might be a prerequisite to ensure the adoption of crowdsourcing systems (Zuchowski et al. 2016). The organization's executive leadership needs to scrutinize all internal processes and routines in order to determine whether and, if so, where the current structure needs changes. They should also consider expertise and workload of their employees (Wagenknecht, Filpe, et al. 2017), as this was one of the obstacles in our case study. For instance, dedicated time slots or the provision of incentives (both monetary as well as non-monetary) could help in this regard.

Going forward, we will aim to investigate how the utilization of our software artifact proceeds (Besson & Rowe 2012). With time, the organizational culture might adapt, taking the IS implementation as an activation moment (Riemer et al. 2015).

## Acknowledgements

This study was part of the joint research project "Participation as a Service" (PaaS), funded by the German Federal Ministry of Education and Research (under grant no. 01IS150120). We would like to thank our project partners at Liquid Democracy e.V., partou eG and HRpepper GmbH & Co. KGaA and the public organization as well as the two anonymous reviewers of this paper.

## REFERENCES

- Adamczyk, S., Bullinger, A.C. & Möslin, K.M., 2012. Innovation Contests: A Review, Classification and Outlook. *Creativity and Innovation Management*, 21(4), pp.335–360.
- Benbya, H. & Leidner, D., 2016. Harnessing Employee Innovation in Internal Crowdsourcing Platforms : Lessons from Allianz UK. In *Thirty Seventh International Conference on Information Systems*. pp. 1–19.
- Besson, P. & Rowe, F., 2012. Strategizing information systems-enabled organizational transformation: A transdisciplinary review and new directions. *Journal of Strategic Information Systems*, 21(2), pp.103–124.
- Blohm, I. et al., 2010. Does Collaboration among Participants Lead to Better Ideas in IT-based Idea Competitions? An Empirical Investigation. In *Proceedings of the 43th Hawaii International Conference on System Sciences*. pp. 1–10.
- Bock, L., 2016. *Work Rules!: Insights from Inside Google That Will Transform How You Live and Lead*, Hodder and Stoughton.
- Cha, K.J., Hwang, T. & Gregor, S., 2015. An integrative model of IT-enabled organizational transformation. *Management Decision*, 53(8), pp.1755–1770.
- Cho, D., Kim, S. & Acquisti, A., 2012. Empirical analysis of online anonymity and user behaviors: the impact of real name policy. In *Proceedings of the 45th Hawaii International Conference on System Science*. pp. 3041–3050.
- Cho, J., Park, I. & Michel, J.W., 2011. How Does Leadership Affect Information Systems Success? The Role of Transformational Leadership. *Information & Management*, 48(7), pp.270–277.
- Cooper, B., 1994. The inertial impact of culture on IT implementation. *Information & Management*, 27,



- pp.17–31.
- Davison, R. & Martinsons, M.G., 2002. Empowerment or enslavement? A case of process-based organisational change in Hong Kong. *Information Technology & People*, 15(1), pp.42–59.
- Deshpande, R. & Webster, F.E., 1989. Organizational Culture and Marketing : Defining the Research Agenda. *Journal of Marketing*, 53(1), pp.3–15.
- Ebner, W., Leimeister, J.M. & Krcmar, H., 2009. Community engineering for innovations: the ideas competition as a method to nurture a virtual community for innovations. *R&D Management*, 39(4), pp.342–356.
- Erickson, L.B., Trauth, E.M. & Petrick, I., 2012. Getting Inside Your Employees' Heads: Navigating Barriers To Internal- Crowdsourcing for Product and Service Innovation. In *Proceedings of the Thirty Third International Conference on Information Systems, Orlando 2012*. pp. 1–11.
- Feldmann, N., Gimpel, H., et al., 2014. Idea Assessment via Enterprise Crowdfunding: An empirical analysis of decision-making styles. In *Proceedings of the Twenty Second European Conference on Information Systems, Tel Aviv*. pp. 1–10.
- Feldmann, N., Adam, M. & Bauer, M., 2014. Using serious games for idea assessment in service innovation. In *Twenty Second European Conference on Information Systems. Tel Aviv*, pp. 1-17.
- Gregor, S. et al., 2006. The transformational dimension in the realization of business value from information technology. *Journal of Strategic Information Systems*, 15(3), pp.249–270.
- Gregor, S. & Hevner, A.R., 2013. Positioning and Presenting Design Science Research for Maximum Impact. *MIS Quarterly*, 37(2), pp.337–355.
- Haines, R. et al., 2014. Anonymity in Computer-Mediated Communication: More Contrarian Ideas with Less Influence. *Group Decision Making and Negotiations*, 23(4), pp.765–786.
- Hevner, A.R. et al., 2004. Design Science in Information Systems Research. *MIS Quarterly*, 28(1), pp.75–105.
- Von Hippel, E., 1986. Lead Users: A Source of Novel Product Concepts. *Management Science*, 32(7), pp.791–805.
- Hofstede, G., 1980. Motivation, leadership, and organization: Do American theories apply abroad? *Organizational Dynamics*, 9(1), pp.42–63.
- Humborstad, S.I.W., 2014. When industrial democracy and empowerment go hand-in-hand. A co-power approach. *Economic and Industrial Democracy*, 35(3), pp.391–411.
- Hurley, R.F. & Hult, G.T.M., 1998. Innovation , Market Orientation , and Organizational Learning : An Integration and Empirical Examination. *Journal of Marketing*, 62(3), pp.42–54.
- Iivari, N., 2005. The Role of Organizational Culture in Organizational Change - Identifying a Realistic Position for Prospective IS Research. In *Proceedings of the 13th European Conference on Information Systems*.
- Jackson, S., 2011. Organizational culture and information systems adoption: A three-perspective approach. *Information and Organization*, 21, pp.57–83.
- Jørgensen, H.-H., Bruehl, O. & Franke, N., 2014. *Making Change Work*, Available at: [https://www-01.ibm.com/common/ssi/cgi-bin/ssialias?subtype=XB&infotype=PM&appname=GBSE\\_GB\\_TI\\_USEN&htmlfid=GBE03618USEN](https://www-01.ibm.com/common/ssi/cgi-bin/ssialias?subtype=XB&infotype=PM&appname=GBSE_GB_TI_USEN&htmlfid=GBE03618USEN) [Visited on 04/24/2017].
- Ke, W. & Wei, K.-K., 2008. Organizational Culture and Leadership in ERP Implementation. *Decision Support Systems*, 45(2), pp.208–218.
- Leidner, D. & Kayworth, T., 2006. A Review of Culture in Information Systems Research: Toward a Theory of Information Technology Culture Conflict. *MIS Quarterly*, 30(2), pp.357–399.
- Leimeister et al., 2009. Leveraging Crowdsourcing: Activation-Supporting Components for IT-Based Ideas Competition. *Journal of Management Information Systems*, 26(1), pp. 197-224.
- Leonardi, P.M. & Barley, S.R., 2010. What's Under Construction Here? Social Action, Materiality, and Power in Constructivist Studies of Technology and Organizing. *The Academy of Management Annals*, 4(1), pp.1–51.
- Leonardi, P.M., Huysman, M. & Steinfeld, C., 2013. Enterprise social media. Definition, history, and prospects for the study of social technologies in organizations. *Journal of Computer-mediated Communication*, 19(1), pp.1–19.
- Luna-Reyes, L.F. et al., 2005. Information systems development as emergent socio-technical change: a practice approach. *European Journal of Information Systems*, pp.93–105.
- Markus, M.L., 2004. Technochange management: using IT to drive organizational change. *Journal of Information Technology*, 19(1), pp.4–20.

- Muller, M. et al., 2013. Crowdfunding inside the Enterprise: Employee-Initiatives for Innovation and Collaboration. *Proceedings of the SIGCHI conference on human factors in computing systems*, pp.503–512.
- Nevo, S. & Wade, M., 2011. Firm-level benefits of IT-enabled resources: A conceptual extension and an empirical assessment. *Journal of Strategic Information Systems*, 20(4), pp.403–418.
- Nevo, S. & Wade, M.R., 2010. The Formation and Value of IT-Enabled Resources: Antecedents and Consequences of Synergistic Relationships. *MIS Quarterly*, 34(1), pp.163–183.
- Niederman, F. & March, S.T., 2012. Design Science and the Accumulation of Knowledge in the Information Systems Discipline. *ACM Trans. Manage. Inf. Syst.*, 3(1), p.1:1--1:15. A
- Offermann, P. et al., 2009. Outline of a Design Science Research Process. In *Proceedings of the 4th International Conference on Design Science Research in Information Systems and Technology*.
- Pedersen, J. et al., 2013. Conceptual foundations of crowdsourcing: A review of IS research. In *Proceedings of the 46th Hawaii International Conference on System Sciences*.
- Peppers, K. et al., 2007. A design science research methodology for information systems research. *Journal of Management Information Systems*, 24(3), pp.45–78.
- Polites, G.L. & Karahanna, E., 2012. Shackled to the Status Quo: The Inhibiting Effects of Incumbent System Habit, Switching Costs, and Inertia on New System Acceptance. *MIS Quarterly*, 36(1), pp.21–42.
- Postmes, T. & Lea, M., 2000. Social processes and group decision making: anonymity in group decision support systems. *Ergonomics*, 43(8), pp.1252–1274.
- Riemer, K., Stieglitz, S. & Meske, C., 2015. From Top to Bottom: Investigating the Changing Role of Hierarchy in Enterprise Social Networks. *Business and Information Systems Engineering*, 57(3), pp.197–212.
- Schein, E.H., 1985. *Organizational culture and leadership*, San Francisco: Jossey-Bass.
- Silva, L. & Hirschheim, R., 2007. Fighting Against Windmills: Strategic Information Systems And Organizational Deep Structures. *MIS Quarterly*, 31(2), pp.327–354.
- Spreitzer, G.M., 1995. Psychological empowerment in the workplace - Dimensions, measurement, and validation. *Academy of Management Journal*, 38(5), pp.1442–1465.
- Tumasjan, A., Strobel, M. & Welpe, I., 2011. Employer brand building for start-ups. which job attributes do employees value most. *Journal of Business Economics*, 81(6), pp.111–136.
- Tyworth, M., 2014. Organizational identity and information systems: how organizational ICT reflect who an organization is. *European Journal of Information Systems*, 23(1), pp.69–83.
- Ulbrich, F., 2010. Adopting shared services in a public-sector organization. *Transforming Government: People, Process and Policy*, 4(3), pp.249–265.
- Venkatesh, V. et al., 2003. User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, 27(3), pp.425–478.
- Wagenknecht, T., Crommelinck, J., et al., 2017. Ideate. Collaborate. Repeat. A Research Agenda for Idea Generation, Collaboration and Evaluation in Open Innovation. In *13th International Conference on Wirtschaftsinformatik*.
- Wagenknecht, T., Filpe, R. & Weinhardt, C., 2017. Towards a Design Theory of Computer-supported Organizational Participation. *Journal of Enterprise Information Management*, 30(1), pp.188–202.
- Wagenknecht, T., Teubner, T. & Weinhardt, C., 2016. The Impact of Anonymity on Communication Persuasiveness in Online Participation. In *Proceedings of the Thirty Seventh International Conference on Information Systems*.
- Wegge, J. et al., 2010. Promoting Work Motivation in Organizations. *Journal of Personnel Psychology*, 9(4), pp.154–171.
- Wilkinson, A., 1998. Empowerment: Theory and Practice. *Personel Review*, 27(1), pp.40–56.
- Wilkinson, A. et al. eds., 2010. *The Oxford Handbook of Participation in Organizations*, Oxford University Press.
- Zuchowski, O. et al., 2016. Internal crowdsourcing: Conceptual framework, structured review, and research agenda. *Journal of Information Technology*, 31(2), pp.166–184.