"Open Calls" Rather than "Fixed Assignments": A Longitudinal Field Study of the Nature and Consequences of Internal Crowdsourcing

Research in Progress

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Abstract

While the use of social IT-enabled "internal crowdsourcing" with employees in organizations has substantially increased in recent years (e.g., LEGO, IBM), internal crowdsourcing is not well understood from a theoretical point of view. In this research in progress, we build on the literature on new forms of organizing to improve our theoretical understanding of internal crowdsourcing, to consider whether it constitutes a theoretically distinct phenomenon, and to gain insights into its theoretical nature. The paper presents insights from an ongoing interpretivist field study of internal crowdsourcing at the multinational company BOSCH. Theorized as a form of organizing, we find that internal crowdsourcing is a very different form of organizing compared to work based on fixed assignments. Among the key dimensions of organizing, we identify internal crowdsourcing's "open calls" model of work allocation as the key characteristic.

Keywords: *crowdsourcing, internal crowdsourcing, enterprise crowdsourcing, organization, new forms of organizing, social media, social business, enterprise 2.0, case study, ethnography, interpretivist*

Introduction

Within organizations, the use of social information technology (IT) such as social media and crowdsourcing tools has increased substantially in recent years (Bughin et al., 2015). Such social IT use gradually transforms organizational processes and structures (e.g., McAfee, 2009; Leonardi, et al., 2013).

In this research in progress, we are interested in analysing the nature and consequences of "internal crowdsourcing", a particular form of use of social IT in organizations. Crowdsourcing in general refers to the practice of issuing open calls to large groups of people via social IT (Estellés-Arolas & González-Ladrón-de-Guevara, 2012). Crowdsourcing provides organizations with access to the knowledge and skills of a distributed and potentially very large "crowd" for solving a problem (Afuah & Tucci, 2012; Jeppesen & Lakhani, 2009). External crowdsourcing by organizations—that is, involving external parties such as customers—has been documented at several companies, such as LEGO (Schlagwein & Bjørn-Andersen, 2014) and NASA (Lakhani, et al., 2012). More recently, internal crowdsourcing has emerged as a distinct, recognized phenomenon (Zuchowski, et al., 2016). Internal crowdsourcing concerns the use of crowdsourcing within organizations (with employees constituting the crowd).

As the call for papers in this track highlights, crowdsourcing and similar social IT and peer-to-peer-based phenomena are not well understood theoretically. We lack theories and knowledge to answer essential questions regarding the forms of work organization that are enabled or created. The purpose of this research is to contribute specifically to our theoretical understanding of internal crowdsourcing. We ask two research questions: *Does internal crowdsourcing constitute a theoretically distinct form of organizing? What is the nature of internal crowdsourcing as a form of organizing?*

We develop answers to these questions based on a longitudinal case study and ethnographic account of the emergence and conduct of internal crowdsourcing at BOSCH, a multinational engineering and electronics company.

Based on the analysis of the case data, we are able to articulate provisional answers to the research questions. We found in the analysis of the case that, first, internal crowdsourcing constitutes a new and theoretically distinct form of organizing. Second, then, we identified the nature of this form of organizing as using an "open call" instead of a "fixed assignment" model of task allocation (one key dimension of organizing). We discuss this allocation model in detail and identify and discuss key preconditions and organizational consequences of using it.

This paper is organized as follows. Section 2 summarizes prior research on internal crowdsourcing. Section 3 discusses the theoretical background of our analysis. Section 4 outlines our case-study research method. Section 5 presents our key (preliminary) empirical findings. Section 5 analyses and discusses those findings. The paper concludes with an outline of future work in this research-in-progress.

Prior Research on Internal Crowdsourcing

According to the first wave of research studies on the topic, internal crowdsourcing is a practice or method to activate or find knowledge or skills of employees within an organization who would not otherwise be involved with the problem in question (Zuchowski, et al., 2016). Through internal crowdsourcing, knowledge and information that may be scattered among distributed functions, departments, and geographic locations within the organization can be integrated (e.g., Benbya & Van Alstyne, 2011). Examples of internal crowdsourcing include IBM mobilizing thousands of employees to share ideas in "Innovation Jams" (Bjelland & Wood, 2008) and Deutsche Telekom receiving predictions about future events and analysing big data from previous projects (Hoerbelt, 2013). Internal crowdsourcing leverages employees as a source of ideas for improving existing (Simula & Vuori, 2012) or creating new products, services or processes (e.g., Simula & Ahola, 2014). Internal crowdsourcing provides the organization with a systematic process for deriving decisions and increases employee's identification with those decisions (Malone et al., 2009).

IT is playing a crucial role for internal crowdsourcing. As with crowdsourcing in general, internal crowdsourcing is a social IT-enabled phenomenon that employs both generic social media (e.g., wikis, blogs, forums) and specific software for internal crowdsourcing platforms. As a group activity, internal

crowdsourcing can be run in a collaborative (e.g., Bjelland, & Wood, 2008) or competitive manner (e.g. Simula & Ahola, 2014).

Zuchowski et al. (2016) provide a review of all internal crowdsourcing research currently available.

While research on internal crowdsourcing has studied different motivations on individual level (e.g., Benbya & Van Alstyne, 2010) or the role of IT (e.g., Bailey & Horvitz, 2010), we do not yet fully understand how internal crowdsourcing is to be understood at an organizational level of analysis. This is the focus of this study.

Theoretical Background: New Forms of Organizing

For our analysis of internal crowdsourcing, we found it useful to draw from organizational theory and particularly the emerging literature on "new forms of organizing". We present here a brief overview of this literature, as it provides the theoretical background for our analysis of the BOSCH case.

The nature of "organizing" has, of course, has been a focus of our neighbouring discipline of Organization Studies. For example, Weick (1969; 1974) considered organizing to be the processing of information with the target audience to reduce uncertainty and equivocality in relation to what needs to be done with that information.

Corresponding to the framing of this research track, organizational scholars have recognized that IT-enabled organizational forms (crowdsourcing, sharing economy, online communities, peer-to-peer social networks, etc.) may constitute genuinely "new forms of organizing" (e.g., McAfee, 2009; Leonardi, et al., 2013). One concern in this literature, relevant for our analysis, is the question of when a form of organizing qualifies, on theoretical grounds, as "new". This question is important because the answer, for example, clarifies whether we should expect prior organizational theory to hold or whether separate study of the form of organizing is needed to develop new and more appropriate theories. Puranam et al. (2014, p.6) consider that the novelty of a form of organizing needs to be assessed compared to the form of organizing it replaces, challenges, or complements along the universal dimensions of organizing. We found it useful to draw on the Puranam et al. (2014) framework of universal dimensions of organizing, which in turn draws on Weick's organizing theory (1969; 1974). That is, we distinguish four theoretical dimensions in which any form of organizing can be said to be "new" (Puranam et al. 2014):

1. Is the **division of tasks** organized in a new way (compared to the traditional organizational form)? Organizations and organizers have to break down their overall goals into feasible tasks for their organizational units. This dimension concerns the division of tasks and includes the definition of interrelated subtasks and necessary information flows between the parties involved (see, further, Baldwin 2010; Newell & Simon 1972; von Hippel 1990).

2. Is the **task allocation** new? This second dimension concerns the mapping of tasks resulting from the division of tasks among individuals and groups. It covers matching subtasks to the skills of available parties and, if applicable, joining similar repeatable tasks (i.e., specialization) (see, further, Camerer & Knez 1996, 1997; Gulati, et al. 2005; Hackman & Oldham 1976; Heath & Staudenmayer 2000; Lawrence & Lorsch 1967; Simon 1951).

3. Is the **reward distribution** new? This third dimension describes the allocation of financial and non-financial rewards to organization's parties involved. These rewards are based on implicit or explicit mechanisms for motivating parties to contribute (see, further, Gibbons, 1998; Prendergast, 1999; Simon, 1951).

4. Finally, is the **information flow** new? The fourth dimension describes how information is provided to the individuals and groups involved. The organization's parties need specific information for the execution and coordination of tasks. Either the information flow is addressed during the division of tasks (with a target of reducing the need for information) or the channels needed to generate such information are enriched (see further, March & Simon, 1958; Schelling, 1960).

These four dimensions are the universal problems and dimensions of organizing. Any form of organizing provides specific solutions to these four problems. Hence, a form of organizing is new if one or more of these problems are addressed in a novel way.

There is some indication in the literature that internal crowdsourcing may qualify as a new form of organizing. For example, Puranam et al. (2014) compare Wikipedia, an example of external crowdsourcing (e.g., Doan et al., 2011), with traditional organizing around the *Encyclopædia Britannica* and the German *Brockhaus Enzyklopädie*. They conclude that the Wikipedia case meets their criteria for being a novel form of organizing. Online communities (e.g., open source software communities) have been studied extensively and have also been identified as a new form of organizing (e.g., Adler, 2001; Adler & Heckscher, 2006; Adler, et al., 2008; 2011; Chen, 2013; Powell, 1990; 2002). However, empirical accounts and organizational-level analysis are lacking for many other new forms of organizing (Puranam et al. 2014).

Internal crowdsourcing certainly is a form of organizing, one potentially very different with respect to how the same types of problems were previously solved in the respective organizations. Hence, we found it useful to build on the literature on organizing and new forms of organizing to improve our theoretical understanding of internal crowdsourcing, to consider whether it constitutes a theoretically distinct phenomenon (our first research question), and to gain insights about its theoretical nature (our second research question).

Research Method

For this study, we adopted an interpretivist epistemic stance and approach to information systems (IS) research (Barrett & Walsham 2004; Klein & Myers 1999; Myers 1993, Walsham 1993). Interpretivist approaches make it possible to study a phenomenon in its full richness and contextual complexity. They focus on the lived, differential experiences of the people involved in a given social setting and account for the fact that there is substantial sense-making on the part of both participants and researchers involved in interpreting the meaning of such settings (Gioia, et al. 2012). This stance is appropriate considering that internal crowdsourcing is an emerging phenomenon at the complex intersection of IT, business and social behaviour.

In particular, we employed a longitudinal interpretivist case study research method (Walsham, 1995; 2006) in combination with ethnographic observation (daily, personal on-site involvement with the setting). This approach has sometimes been labelled as "intense" field work (Locke, 2011). Combining case study techniques with ethnographic techniques puts the researcher in an "actor-observer" role directly involved in the phenomenon as a participant (Gioia, et al. 1994). This allowed us to explore intensely an early case of internal crowdsourcing at the German multinational company BOSCH (>300,000 employees). In its large logistics function, two internal crowdsourcing communities were implemented and analysed for this research: "LOGipedia" and "myLogistics." The purpose of the LOGipedia community was to integrate logistics knowledge (such as common definitions or good practices) that were scattered among its logistics departments all over the world. The purpose of the myLogistics community was to solve logistics design and decision problems (such as ideas for process optimizations or common requirement specifications). One of the authors was involved directly and actively in the internal crowdsourcing campaigns as a "crowd manager", thus wearing two hats concurrently: that of the practicing expert and that of a reflective scholar. This gave us the opportunity to document and reflect continually on the practices enacted.

In addition, we used a "conventional" case study research approach in which we collected all kinds of natural data and conducted 41 interviews. We spoke to all key stakeholders and different participants until no further insights emerged. We interviewed employees of the organization who participated in internal crowdsourcing campaigns. The interviews involved 12 requestors, 28 solvers and the initiator of the internal crowdsourcing communities. We followed a semi-structured interview protocol, beginning with questions about the interviewees' experience with internal crowdsourcing and moving on to questions focused on organizational aspects of internal crowdsourcing. We also asked questions about the interviewees' roles in internal crowdsourcing activity, the perceived differences through the introduction of IT, and obstacles to and benefits of internal crowdsourcing. We began examining the case in January 2014 and our research is ongoing as of the time of this writing (June 2016).

We followed Gioia, et al.'s (2012) approach for qualitative research to analyse the data. As an initial step to analyse the emerging data, we applied open coding, using in vivo language whenever suitable (Charmaz, 2006, p.70) to achieve a list of first-order codes. To reduce the codes to a manageable number, we searched for similarities and differences among them (comparable to axial coding; see Charmaz, 2006, p.75). Based on the condensed list of first-order codes, we looked for themes that would help describe and explain the

phenomenon, resulting in second-order concepts. Simultaneous to scanning for these themes, we consulted the literature to begin a process of cycling between emerging data, codes, concepts, dimensions, and the relevant literature. This approach of reporting both voices—interviewee and researcher—makes it possible to document transparently how the relations between data and the interpreted concepts and dimensions were built (Gioia, et al., 2012). A soon as a conclusion was in sight and no further relevant concepts emerged, we reached a state called "theoretical saturation" (Charmaz, 2006, p.129).

Empirical Findings (Preliminary)

In the research in progress, we were able to study the planning, emergence and conduct of two crowdsourcing communities and platforms at BOSCH. No comparable internal crowdsourcing communities existed at BOSCH prior to their launch.

Emergence and Nature of "MyLogistics"

Before internal crowdsourcing was introduced at BOSCH, small teams of logistics experts, allocated and supervised by management, were in charge of developing logistical processes and IT solutions. Based on their work, logistics standards were specified and introduced worldwide. In 2014, senior management encouraged voluntary internal crowdsourcing among logistics employees targeted at deriving such standards: As a requestor of myLogistics wrote, "I would like to involve as many people as possible to get diverse opinions … under the motto 'you can join'." The crowdsourcing in the myLogistics community was organized as individual campaigns, each with a specific setup in terms of target, requestor, participating solvers and form of invitation. During the time we studied the case, a campaign's contribution phase was typically open for two weeks, at the end of which contributions were aggregated and summarized by the crowd manager. Generally, all employees worldwide could be solvers, although the focus was to involve employees working in logistics and related functions. Solvers participated on a voluntary basis. The open invitation was issued by email to all logistics employees of the organization. In addition, an invitation was posted on several internal online blogs. At the time of this writing (June 2016), 1,148 Bosch employees had participated in the myLogistics community. Six campaigns had been completed. On average, 170 employees participated actively in each campaign. In total 183 ideas were generated and more than 1,253 votes were submitted. The most successful campaign generated ideas for a logistics mobile application. Other campaign results were used for requirements specifications, a new IT-supported goods receipt process, and a new training concept.

Emergence and Nature of "LOGipedia"

Generally, the central logistics department was responsible for defining and explaining logistics terminology. A team of experts, allocated and supervised by management, answered questions such as: What is a "cross-dock" for? Which "incoterms" are available? Before crowdsourcing, these fixed-allocated experts typically defined terms top-down. The "logistics dictionary" was updated regularly and distributed via email. According to logistics employees, this dictionary was not very helpful in their daily work. As one interviewee told us, "Either terms are not explained properly, terms are missing completely, or the explanation does not fit to the local understanding. … This has often led to misconceptions, especially when we have to rely on a precise definition". In 2014, senior management introduced a new approach to defining and explaining logistics terminology, based on the opinion of all logistics employees. The LOGipedia community was implemented and internal crowdsourcing was applied as a method. An email invitation was sent from the requestor. As of the time of this writing (June 2016), 343 articles had been created by 91 authors, 2,854 employees were following (receiving updates) about LOGipedia, and an average of 1,000 employees per month used the LOGipedia. Certain topics were heavily discussed on the platform. As a LOGipedia requestor stated, "LOGipedia made it possible to develop logistics definitions together with many employees worldwide. With LOGipedia, we have the possibility to see what is bothering our employees. … It's amazing to see how the crowd organizes itself and how new topics come up, are prioritized, and developed until a consensus is found—at least until someone else has a different view and joins the discussion."

Analysis and Discussion (Preliminary)

Internal Crowdsourcing as a New Form of Organizing?

To assess whether internal crowdsourcing is a new form of organizing in theoretical terms (or, for example, "just another channel" in the communication mix), we use the four universal dimensions (problems) introduced above. We asked the four questions above to compare how the associated problems are solved under the prior form of organizing and with internal crowdsourcing. Table 1 presents a side-by-side comparison.

Table 1. Problem Solving at BOSCH in the Universal Organizing Dimensions		
Universal Dimensions of Organizing (Puranam, et al., 2014)	**Prior Organizing Form** (at BOSCH)	**Internal Crowdsourcing** (at BOSCH)
How are tasks divided? (Baldwin 2010; Newell & Simon, 1972; von Hippel, 1990)	Made "delegable" by functional manager	Made "crowdsourceable" by crowdsourcing staff and requestor
How are tasks allocated? (Camerer & Knez, 1996, 1997; Gulati, et al., 2005; Hackman & Oldham, 1976; Heath & Staudenmayer, 2000; Lawrence & Lorsch, 1967; Simon, 1951)	Through job description, delegation, and reporting structures	Through voluntary pickup of "open calls"
How are rewards distributed? (Gibbons, 1998; Prendergast, 1999; Simon, 1951)	Through salaries and bonuses, determined by functional manager	No (additional) monetary rewards, visibility, diversion from daily (routine) tasks
How is information provided? (March & Simon, 1958; Schelling, 1960)	Through information transfer along reporting structures	Through information exchange on the internal crowdsourcing platform

Table 1. Solutions to the Universal Dimensions of Organizing at BOSCH

In the prior form of organizing the **division of tasks** (table 1, first row) is executed by the functional (or project manager), who translated the overall goals into "delegable" tasks. The division of tasks was targeted at identifying subtasks that could be processed well by the members of the appropriate manager's team. In internal crowdsourcing the division of tasks is executed by the requestor working together with a crowdsourcing expert - an intermediary role introduced in the organization to support crowd campaigns. The requestor of a campaign has a specific problem to solve and consults the crowdsourcing expert to map this problem into tasks that can be processed by crowdsourcing solvers. This crowd manager must take care to ensure that the tasks are understandable for the target crowd (see also Bailey and Horvitz 2010). While the employees who comprise the crowd are identifiable, the main difficulty is that most of them are unknown to both the requestor and the crowdsourcing expert. The crowdsourcing expert emphasized that the "task division process has to be transparent; only then will potential solvers understand the overall goal". This transparency allows solvers to self-select tasks in which to participate based on their personal skills and motivations. If the task is split up, the *ex-post* aggregation of the results must be taken into account to ensure the overall requestor's goal can be reached.

In the prior form of organizing the **task allocation** (table 1, second row) was done by fixed management assignments, typically based on employees' individual skills, availability, and preferences as explicated in formal contracts or job descriptions. In internal crowdsourcing task allocation is done through the solver's voluntary self-selection. An "open call" makes a major difference in organizing, as essentially everyone within the organization is invited to join. The "open call", in our case, was issued either actively (e.g., email) or passively (e.g., blog post). A requestor emphasized the importance of the "open call": "The main challenge is to reach the right people inside the organization and motivate them to contribute. This can be done only with the open call." How the open calls are designed in terms of textual appearances and media used are

crucial for the entire campaign: "We even hired a special agency to develop an advertising concept for our open call," one crowdsourcing expert told us. Once the open call is issued, solvers can self-select with respect to joining the crowdsourcing campaign and contributing ideas or other forms of input. BOSCH, as a multinational company, can draw on a very broad range of solvers, thus providing the necessary diversity for internal crowdsourcing (see also Stieger et al., 2012).

The **reward distribution** (table 1, third row) in the prior form of organizing were based on incentives paid as salaries and bonuses by the responsible functional manager. For internal crowdsourcing reward distribution is based on non-monetary rewards. As an employee, each solver receives a monthly salary for his or her work, which is independent of any contribution made to a crowdsourcing campaign. Through their contributions to the online platform, solvers have an opportunity to "be visible" and to be recognized company-wide, across hierarchical boundaries. Solvers also reported a perceived "power to change something from the bottom up", for example through decisions based on direct democratic voting results. Through the "open call," everyone was able to join a campaign, which was perceived as a welcome diversion from the daily (routine) tasks. Additionally, solvers perceived participation as enjoyable; as one myLogistics solver said, "answering the questions was actually a lot of fun." This might be explained through the focus on the ease of use of every campaign, as the crowd expert explained. "We try to provide the solver a positive experience when joining the campaign."

The **information flows** (table 1, fourth row) in internal crowdsourcing are virtual through the online platform. All relevant information is processed through the social IT system. The initiation of the "open call", explanation of the tasks to be performed (including the overall goal) and contributions from solvers are executed online through the internal crowdsourcing platform. Internal crowdsourcing can be designed in different modes (collaborative or competitive, e.g., Boudreau & Lakhani, 2013). In the BOSCH case, all campaigns were performed in a collaborative mode. Solvers' names, departments, and contributions are visible to all, and online discussions are allowed and encouraged. As the crowdsourcing manager explained: "It is possible to combine ideas, develop ideas together, or evaluate ideas. As everything happens on the platform, it is visible and transparent to all participants". At BOSCH, in the prior form of organizing, the same kind of tasks, information flows were typically face-to-face between employees according to existing reporting structures or supported by electronic communication channels such as email.

The implementation of a logistics mobile application is a particularly illustrative example from our case that highlights the differences in organizing. In the prior form of organizing, the task to develop such an application was delegated by management to a defined group of experts who addressed the requirements specifications on their own. The experts focused on the correct provision of information, but many interviewees said that the general sense among the intended users was that the application needed further enhancements to unlock the potentials of a mobile application. Several months later, an internal crowdsourcing campaign was initiated seeking ideas from the crowd. That is, the application requirements gathering was crowdsourced. The results were completely different. The crowd offered a variety of "hands-on" ideas focused on how such an application could help in daily work. Through online discussions and the voting feature, the crowd came up with a prioritized list of potentially useful apps. As aggregation was not supported by the crowdsourcing IT system, a high level of effort was necessary on the crowd manager side to consolidate the ideas into a "management-ready" format as the basis for decision-making.

Based on our analysis of the BOSCH case, internal crowdsourcing is not just another communication channel (such as email), but a different way of organizing work, a "new form of organizing."

The Nature and Consequences of "Open Calls" Organizing

While our analysis reveals differences in all organizing dimensions, the key difference and hence the key consideration of the nature of internal crowdsourcing lies in the "open calls" form of work allocation. It is the "open call" that makes it possible to reach voluntary, self-selecting solvers who help in solving a requestor's problem. Hence, we further analysed what an organization needs for and what an organization obtains from "open calls" in internal crowdsourcing (figure 1).

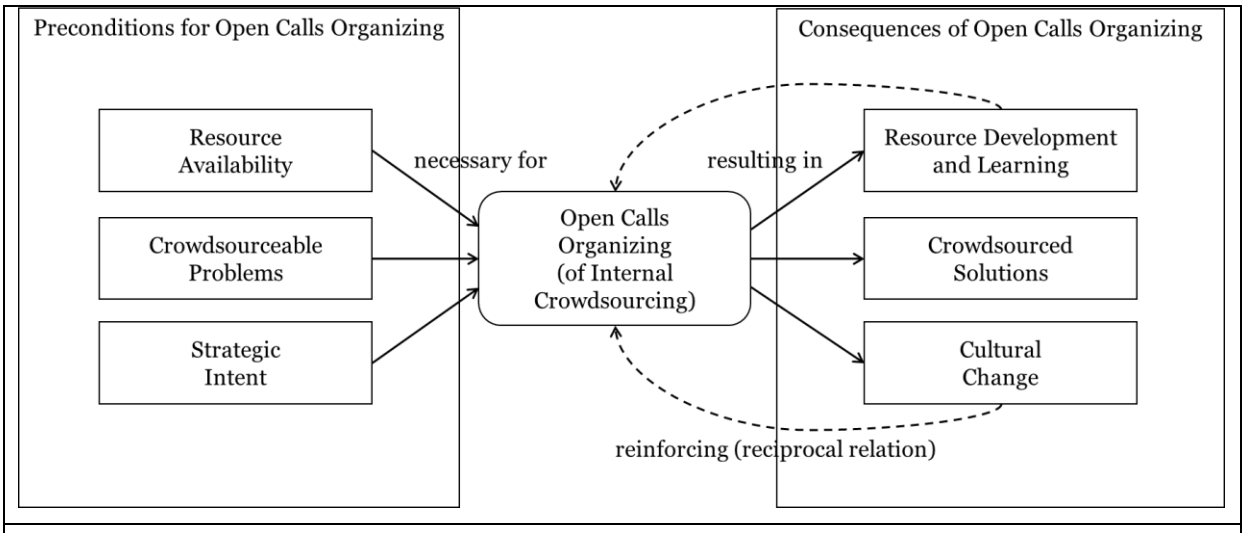

Figure 1. The Nature and Consequences of Open Calls Organizing

The data analysis revealed three central preconditions for open calls-based organizing (figure 1, left side).

To initiate an "open call", a number of **resources** are needed. First, an IT system with social applications (e.g., wikis, blogs and forums) is necessary to enable issuing the "open call" and for collecting solvers' responses. Requestors emphasized that internal crowdsourcing is possible only through IT: "Such platforms are the only opportunity to reach [solvers]." For external crowdsourcing, these systems are referred to as "crowdsourcing systems" (Doan, et al., 2011; Geiger, et al., 2011). Second, a crowdsourcing expert ("crowd manager") or similar intermediary is needed between the requestor and solvers. Such an intermediary help to divide the requestor's problem into tasks that are solvable by solvers online. After the contribution phase, the intermediary aggregates solvers' results into a format understandable to the requestor. For example, as a myLogistics requestor explained, "You need someone who sums up everything".

For this form of organizing to emerge, the organization needs to have **problems** that can be broken down into "crowdsourceable" tasks, and that are expected to be solvable through crowdsourcing. A crowdsourceable problem has to be modularizable, that is, it must be possible to decompose the problem into reasonable (sub)tasks with solutions that can be aggregated later on. Puranam et al. (2014) call this a "modular task architecture". This problem was formulated by the crowdsourcing requestor, who, in the BOSCH case, typically is a member of senior management. Our data suggest that innovation problems with a high level of uncertainty in terms of the required resources and potential outcome are addressed especially well through this new form of organizing; or generally speaking, when diverse feedback is required. As one requestor explained, for example, "any type of question is suitable for crowdsourcing for which it is important to get opinions from many people worldwide".

For the emergence of "open calls" organizing at BOSCH, it was critical that the organization shows **strategic intent** to support and endorse the initiative. Influential organizational members (e.g., senior management, the CEO) must carry and act on such intent. Only with such strategy level intend will the organization overcome inertia to engage in this new form of organizing. Further, contributions are possible only when solvers feel they are officially invited and allowed to share their ideas and solutions openly (for example, by senior members of the organization acting as role models). Otherwise, organizational members may not contribute. In the BOSCH case, for example, an interviewee considered that some colleagues did not participate because their names and departments would be disclosed but their respective managers had not posted on the crowdsourcing platform.

Our data suggest three central consequences of open calls-based organizing (figure 1, right side).

One outcome of "open calls" organizing is **resource development and learning** about the method itself. In the case we observed, knowledge about internal crowdsourcing is in a very early stage. The introduction of the two communities LOGipedia and myLogistics must be seen as preliminary internal crowdsourcing

steps. Hence, an important outcome is learning how internal crowdsourcing works and how it can be improved in terms of crowdsourcing design (e.g., the division of tasks, stated questions) or applied IT solution (e.g., user friendliness, social features). For example, a requestor, unsatisfied with the responses received, suggested "the next time, I will use a completely different formulation of the questions" (referring in this case to simpler, better developed wording of the task description).

Open calls organizing leads to **crowdsourced solutions** or ideas for solutions to a requestor's problem. This is, of course, the "intended consequence" of internal crowdsourcing. These answers are provided by solvers in the form of collaborative contributions (e.g., LOGipedia articles co-authored by solvers) or creative ideas for new products, services or processes (e.g., through solvers' feedback in myLogistics forums). As a requestor commented, "I am surprised how many different solutions already existed" (within BOSCH). New solvers were reached by the "open call" who would not have been reached in the past, resulting in more diverse and creative solutions. Jeppesen and Lakhani (2009) emphasized this phenomenon in their work about "broadcast search". The authors conclude that an "open call" leads to solutions from non-obvious individuals who typically remained usually "under the radar," thus providing the organization with alternative knowledge and new approaches to problems.

Cultural change is another outcome of open calls organizing. In the BOSCH case, through the promotion of internal crowdsourcing within the organization, more and more "open calls" reached employees. This led to an increased number of solvers experiencing what internal crowdsourcing is all about. As one solver commented, "I like the idea of 'everyone can join' … this is sort of a revolution for our company"—meaning a change process was unfolding as the result of open calls organizing. The cultural change initiated by the use of crowdsourcing can be summarized in three main categories: the change creates lower barriers for collaboration across departments, hierarchies and geographic locations; solutions from other parties (e.g., departments, locations) are more likely to be accepted by employees (minimizing the "not-invented-here" syndrome); and the value of an individual solver's opinion is increased (compared with the perceived feeling of being "just a small cog in a big wheel").

The dotted arrows in figure 1 indicate the **reciprocal relation** between the outcomes and the open calls organizing. Every crowdsourcing campaign reinforces the development of resources, learning and cultural change. By establishing a designated crowdsourcing expert, organizations learn through each crowdsourcing experience and increase their knowledge about the proper use of the method and the IT platform. The same applies to cultural change. The more employees and managers understand what crowdsourcing is all about, the more likely they are willing to participate in and support it. As a requestor told us, for example, "After initiating and observing several campaigns, I am now much more confident about when and how to use internal crowdsourcing. … I would like to do more campaigns to learn even more about this method."

Conclusion and Future Work

In this ongoing research, we build on the literature on new forms of organizing to improve our theoretical understanding of internal crowdsourcing, to consider whether it constitutes a theoretically distinct phenomenon, and to gain insights about its theoretical nature. We have found that internal crowdsourcing is a new, very different form of organizing compared to fixed assignment-based work (even within the very same organization, in our case BOSCH). While differences can be found in all organizing dimensions, the key difference and hence the key consideration regarding the nature of internal crowdsourcing is in the "open calls" form of work allocation. We have discussed preliminary findings about the nature and consequences of open calls organizing to contribute to the literature on organizing and new forms of organizing. As our case study progresses, we expect further insights about internal crowdsourcing's theoretical nature from which to derive further implications for both researchers and practitioners.

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