

# **LEARNING WITH THE CROWD: A FIELD STUDY OF INTERNAL CROWDSOURCING AS A FORM OF ORGANIZATIONAL LEARNING**

*Research in Progress*

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## **Abstract**

*The use of IT-enabled “internal crowdsourcing” with employees in organizations has substantially increased in recent years. Being a novel phenomenon, internal crowdsourcing is poorly understood. Organizational learning theory has been successfully applied to gain revelatory insights for external crowdsourcing with end-users. Hence, it is promising to analyse internal crowdsourcing as a form of organizational learning. Based on an interpretivist field study, this research in progress builds on organizational learning theory and analyses two internal crowdsourcing communities of an European automotive supplier. Preliminary findings suggest that internal crowdsourcing can be understood as a part of a new wave of IT-enabled learning in organizations, distinct from traditional, hierarchy-based work.*

*Keywords: internal crowdsourcing, enterprise crowdsourcing, organizational learning, knowledge management, knowledge management system, social media, social business, web 2.0, enterprise 2.0, case study, ethnography, interpretivist.*

## 1 Introduction

The use of “social IT” in organizations has increased substantially in recent years and gradually transforms organizational processes and structures (e.g., McAfee, 2009; Leonardi, et al., 2013). In a McKinsey study, 82% of the organizations surveyed use a social IT tool (Bughin et al., 2013). However, only very few organizations are able to unfold the full potential of social IT, especially for the internal use (Aral et al., 2013; Hu & Schlagwein, 2013; Koch et al., 2012).

“Crowdsourcing” idea generation and other tasks to a large group of people is a famous example for a novel organizational process, enabled by social IT. Crowdsourcing leverages the work or the ideational potential of the “crowd”, for a requestor, using an open call to contribute via the Internet (Estellés-Arolas & González-Ladrón-de-Guevara, 2012). “External crowdsourcing”, meaning the involvement of end-user, has been applied by several enterprises such as LEGO (Schlagwein & Bjørn-Andersen, 2014), and SAP (Leimeister et al., 2009). A specific form of crowdsourcing is created by narrowing down the involved crowd to identifiable internal employees, rather than independent externals. This “internal crowdsourcing” has emerged as a phenomenon in practice and has created a first generation of research. Internal crowdsourcing’s unique characteristics make it distinct from both external crowdsourcing and hierarchy-based work (Zuchowski, et al., forthcoming).

Being a new phenomenon, internal crowdsourcing is poorly understood. We lack knowledge, and theories to answer essential questions. For example, how can organizations apply crowdsourcing for learning? The latter has been addressed in a study of LEGO’s external crowdsourcing, based on organizational learning theory (Schlagwein & Bjørn-Andersen, 2014). The authors recommend that hierarchy-based work and learning is best for solving problems that require expertise and experience and external crowdsourcing is best for connecting different, previously unconnected, contexts. Although organizations apply internal crowdsourcing to uncover and codify what those that work there know (e.g., Stocker, et al., 2012), research on internal crowdsourcing as a form of organizational learning is still in its infancy. Also Zuchowski, et al. (forthcoming) suggest that organizational learning theory might be a useful theoretical framework for future internal crowdsourcing research. Hence it is promising to have a closer look on internal crowdsourcing through the organizational learning lens. This research in progress presents preliminary results of an interpretivist case study (Barrett & Walsham, 2004; Klein & Myers, 1999; Walsham, 1995; 2006), built on organizational learning theory (Argyris & Schön, 1978). Two internal crowdsourcing communities were analysed at a large European automotive supplier to answer the question: what kind of learning results from internal crowdsourcing and how is the internal crowdsourcing-based learning different from traditional, hierarchy-based work organization?

The analysis of the case shows that internal crowdsourcing is a specific form of organizational learning. It is different from hierarchy-based learning in terms of how problems are identified and corrected, how underlying norms and objectives are adapted, and how new learning strategies are developed.

The paper is organised as follows. The second section lay the foundation of this research by summarizing the empirical context (internal crowdsourcing), followed by the third section, the theoretical background (organizational theory). The fourth section explains the research method (interpretivist ethnography and longitudinal case study). An overview on the empirical material (preliminary findings) is given in section five. Section six (discussion) presents the theoretical interpretation of the empirical material. Finally, section seven gives a conclusion and an outlook on future work.

## 2 Empirical Context

The empirical context for this research is “internal crowdsourcing”. Through increasing social interaction internal crowdsourcing integrates knowledge and information that may be scattered among distributed functions, departments, and locations within the organization (e.g. Benbya & Van Alstyne, 2011). IBM, for example, mobilised thousands of employees and affiliated contributors to participate in their Innovation Jams, to quickly generate ideas (Bjelland & Wood, 2008). Also the Deutsche Telekom

showed how internal crowdsourcing can integrate knowledge and experience of their employees efficiently (Hoerbelt, 2013). For addressing design problems, internal crowdsourcing leverages employees outside the formal hierarchy as a source of ideas for how to improve (Simula & Vuori, 2012) or create new (e.g., Simula & Ahola, 2014) products, services and processes. Internal crowdsourcing provides the organization with a systematic process for deriving good decisions, including an increased employee's identification with those choices (Malone et al., 2009). As with crowdsourcing in general, internal crowdsourcing is a social IT-enabled phenomenon. The applied IT includes both generic social media such as wikis, blogs, forums, and dedicated specialist software for internal crowdsourcing platforms. As a group activity, internal crowdsourcing can be run in a collaborative (e.g., Bjelland, & Wood, 2008: IBM Innovation Jams), or competitive way (e.g. Simula & Ahola, 2014: Idea competitions). The open call in internal crowdsourcing can be active (e.g., via email) or passive (e.g., through an internal networking site, inviting for participation). What makes this form of crowdsourcing internal, is that it takes place within an organization with identifiable employees (Zuchowski, et al., forthcoming). When comparing internal with external crowdsourcing, internal crowdsourcing is more long-term oriented as the involved people are permanent employees, not independent externals. As a consequence for the governance of internal crowdsourcing it means that culture and change management become important, while less governance is required for legal issues. For external crowdsourcing this knowledge is outside the organization (e.g., customers, partners). In the case of internal crowdsourcing this knowledge can be found inside the organization, but in other parts (departments, locations).

Schlagwein & Bjoern-Andersen (2014) have recently investigated the phenomenon of IT-enabled organizational learning with external crowdsourcing. The examples in the first paragraph imply that also internal crowdsourcing facilitates learning within organizations. Hence, organizational learning theory may be useful also to study internal crowdsourcing, which might be understood as a part of a new wave of IT-enabled learning in organizations (Argote, 2012).

For an extensive review of all internal crowdsourcing studies see Zuchowski, et al. (forthcoming).

### **3 Theoretical Background**

The underlying theory for this research is organizational learning, including all theories concerned with how organizations learn (for an extensive review, see Argote, 2012). Organizational learning analyses organizations taking the behavioural approach. Put simply, organizational learning means the process of improving actions through better knowledge (Argote, 2012), whereby knowledge is composed of both declarative (such as facts) and procedural knowledge (such as skills or routines). Organizational learning has been identified long ago as relevant for IS research (Argyris, 1977). The role of IS for organizational learning has been discussed in the most recent and most comprehensive literature review on organizational learning by Argote (2012). According to her summary organizational learning IT systems can be categorized into two groups. The traditional ones provide primarily a document repository for explicit knowledge. They can serve as pointers to experts and thereby enable "connections between members that facilitate the transfer of tacit knowledge" (Argote, 2012, p.46). Yet, the connection between the involved parties happens outside of the IT system. Enabled by Web 2.0 technologies, new generations of IT systems arise, providing new opportunities for organizational learning that "facilitate connections and interactions among individuals within the system through blogs and forums" (Argote, 2012, p.46). However, the realization of these new opportunities depends on how they are implemented and supported in organizations (Argote, 2012).

This research in progress specifically builds on Argyris & Schön's (1978) model of organizational learning. Their model consists of three organizational learning processes: single-loop, double-loop and deuteron learning. The definition of single-loop learning is based on Bateson (1973), who describes it as „the organization's ability to remain stable in a changing context denotes a kind of learning" (Argyris & Schön, 1978, p. 18). Single-loop learning occurs when errors are detected and corrected, while organizational policies and goals remain untouched. Double-loop learning occurs when, in addition to the

error detection and correction process, organization's underlying norms, policies and objectives are adapted (Argyris & Schön, 1978, p.2-3). Deutero learning is learning how to learn. It occurs when the two processes, single and double loop learning, are inquired into the entire learning system of error detection and correction. Organizations reflect on past learning experiences to discover what facilitated or inhibited learning (Argyris & Schön, 1978, p.4).

Argyris and Schön's (1978) organizational learning framework is particularly useful because the provided learning types seem to be well-suited to reflect the learning and feedback loop observed in long-term-oriented internal crowdsourcing processes (Zuchowski, et al., forthcoming). In addition, it has been successfully applied to study IS topics through the organizational learning lens (e.g., Stein & Zwass, 1995).

## 4 Research Method

To identify what kind of learning results from internal crowdsourcing an interpretive research approach was adopted (Barrett & Walsham, 2004; Klein & Myers, Myers, 1999; Walsham, 1995; 2006). Interpretive methodologies allow to study a phenomenon in the richness and complexity of its context, which is especially relevant for internal crowdsourcing, being an emerging phenomenon. Instead of assuming a rigid external meaning and building theory disconnected from the lived experience, the interpretive way gives voice to the actors involved, and the researcher's interpretation thereof (Gioia, et al. 2012).

The intense research method applied combined the techniques of ethnography and longitudinal case study. An ethnographic, "actor-observer" approach was used (Gioia, et al., 1994) with one of the authors being directly and actively involved in the projects as a "crowd manager", and constantly documenting and reflecting on the practices enacted (wearing two hats, that of the practicing expert and that of a reflective scholar at the same time). In addition to the ethnographic data, a "conventional" case study research approach was used for which 41 interviews were conducted and all kinds of natural data was collected. All key stakeholders were taken into account until no further insights emerged. The interviews were carried out with employees of the organization that participated in internal crowdsourcing campaigns. The interviews involved 12 requestors, 28 solvers and the general initiator of internal crowdsourcing within the functional area of logistics. A semi-structured interview protocol was used, starting with general questions about the interviewees' experience with internal crowdsourcing, followed by questions focusing on learning aspects of internal crowdsourcing. Also questions concerning the interviewees' role in the internal crowdsourcing activity, the perceived differences through the introduction of IT, and obstacles and benefits from internal crowdsourcing, were asked. The time-period of examining the case started in January 2014 and is ongoing as of March 2016.

This allowed us to intensely explore an early case of internal crowdsourcing at an European, multinational automotive supplier (>100.000 employees) in the functional area of logistics. Large and multinational enterprises in particular have a substantial, diverse range of (possible) solvers (Simula & Ahola, 2014); providing the diversity that is critical for successful internal crowdsourcing (Stieger et al., 2012). Two internal crowdsourcing communities were implemented and analysed for this research called "LOGipedia" and "myLogistics". The idea of the LOGipedia community is to integrate logistics knowledge, scattered among logistics departments all over the world (such as common definitions or good practices). The purpose of the myLogistics community is to solve logistics design and decision problems (such as ideas for process optimizations or common requirement specifications). Further insights about the cases are given in the preliminary findings.

For the analysis of the data this research follows Gioia, et al.'s (2012) approach for qualitative research. The initial step of analysing the emergent data was done by open coding, using in vivo language whenever suitable (Charmaz, 2006, p.70). To reduce the codes to a manageable number similarities and differences among the first-order codes were found (comparable to axial coding; Charmaz, 2006, p.75). To derive second-order concepts emerging themes were identified, helping to describe and explain the examined phenomenon. Simultaneously to scanning for emerging themes, the literature was conducted to

start a process of cycling between emergent data, codes, concepts, dimensions and the relevant literature. This tandem approach of reporting both voices – interviewee and researcher – makes it possible to transparently document how the relations between data and the interpreted concepts and dimensions were built (Gioia, et al., 2012). As soon as a conclusion is in sight and no further relevant concepts emerge, a state called “theoretical saturation” was reached (Charmaz, 2006, p.129).

## **5 Preliminary Finding**

This section presents the preliminary findings from the case.

### **5.1 MyLogistics**

The crowdsourcing in the myLogistics community is organized by individual campaigns (i.e. internal crowdsourcing iterations) with a specific setup in terms of target, involved requestor, participating solvers, and form of invitation. During the time that the case was studied, a campaign’s contribution phase was usually open for two weeks. After the closure of the contributions were aggregated and summarized by the crowd manager. The requestors are coming from the top logistics management. Generally, solvers can be all employees worldwide, though the focus is to involve employees working in logistics and related functions. Solvers are participating on a voluntary basis. The open invitation is issued through an email to all logistics employees of the organization. Additionally, a passive invitation is posted on several internal online blogs. For myLogistics, the applications forum and ideation were applied to collect and organize contributions. Solver’s feedback is immediately visible after upload and all employees are able to see the contributions (i.e. collaborative mode). The myLogistics community went online January 2014. As of the time of this writing (March 2016), 1053 associates have followed the myLogistics community. Six campaigns were completed. On average 170 associates actively participated in a campaign. As a result 183 ideas were generated and over 1253 votes were submitted. The most successful campaign aimed to derive new ideas for a logistics mobile application. Other campaign results were used for requirements specifications, a new IT-supported goods receipt process, or a new training concept.

### **5.2 LOGipedia**

In contrast to myLogistics, the LOGipedia community is running in a continuous internal crowdsourcing mode. That means that the setup was fixed before launching the community and remained unchanged since the go-live in February 2014. The requestor of LOGipedia is a logistics top manager. An invitation was executed once, through an email from the requestor to all logistics employees. Additionally a passive invitation was placed by the requestor on the front page of the community. As the crowdsourcing is running without defined end, the contribution phase is ongoing. Same as for myLogistics the set of potential solvers are all logistics employees. Also IBM connections was used as software solution. In the LOGipedia case, the wiki application builds the basis for integrating knowledge. Knowledge is organized by topics in the form of wiki articles, which can be edited by everyone on voluntary base. As of the time of this writing (March 2016), 312 articles were created by 82 authors. 2672 associates were following LOGipedia and on average 1100 visitors were counted per month.

## **6 Discussion of Preliminary Findings**

To analyse how organizational learning is performed at the case organization Argyris, and Schön’s (1978) organizational learning type were used. Argyris, and Schön (1978) distinguish between single-, double-, and deutero learning. Accordingly three questions were asked how these types are performed in internal crowdsourcing based and hierarchy-based organizational learning (table 1).

<b>Organizational learning types (based on Argyris &amp; Schön, 1974)</b>	<b>Internal crowdsourcing based organizational learning (at case organization)</b>	<b>Hierarchy-based organizational learning (at case organization)</b>
Single-loop learning: how are problems identified and corrected?	Problems are identified by the crowdsourcing requestor, ideas for correction are given by voluntary solvers	Problems are identified by management, corrections are done by employees
Double-loop learning: how are underlying norms and objectives modified?	Internal crowdsourcing is improved as a method, based on the experiences made	Management defines norms and objectives
Deutero learning: how does the organization develop new learning strategies?	The organization develops a new “crowdsourcing-friendly” corporate culture	Learning strategies are defined by central HR

Table 1. Comparing internal crowdsourcing-based organizational learning vs. traditional, hierarchy-based organizational learning

**Single-loop learning** is observed in different ways at the case organization. For every internal crowdsourcing campaign performed, a problem is identified by the crowdsourcing requestor, usually coming from top management. Internal crowdsourcing supports the correction of those problems by inviting basically everyone within the organization to contribute. This open invitation, known as ‘open call’, is performed in this case either actively (e.g., email) or passively (e.g., blog post). Afterwards solvers can self-select themselves to join the crowdsourcing campaign and to contribute with ideas or other forms of input to solve the stated problem. These contributions are provided by solvers in the form of collaborative answers (LOGipedia articles co-authored by solvers), creative ideas for new products and services, or new process solutions (e.g., by solvers’ feedback in myLogistics). Contributions are made through an internal IT platform featuring social application (e.g., wikis, blogs, and forums), making it possible to discuss potential ideas globally. A requestor emphasized that only thanks to IT, internal crowdsourcing is possible: “such platforms are the best opportunity to reach them [solvers]”. The outcome of such a campaign may also lead to the creation of new problems, consistent with Argyris, and Schön’s claim that “the achievement of stable solutions is not an appropriate criterion for organizational learning” (1978, p. 42). For hierarchy-based organizational learning problems are identified by management and formulated as tasks to be executed by employees to correct the problem.

Every internal crowdsourcing campaign is one single learning loop, initiated with an identified problem as input and completed with potential corrections as outcome. With internal crowdsourcing being a new method at the case organization, every performed internal crowdsourcing campaign comes with new lessons learned about the method. The collection and analysis of these lessons learned yields in **double-loop learning**. Double-loop learning occurs when internal crowdsourcing (as a method) is improved, based on experiences made in the organization. Requestors reported that improvements were made in terms of how problems are formulated into tasks processable for solvers (e.g., “A well performed transformation of a problem into ‘crowdsourcable’ tasks is the crucial part (...)”, a myLogistics requestor), or how the user interface is designed (e.g., “(...) after rearranging several items, it was much easier to navigate (...)”, a myLogistics solver). Argyris (1996, p.79) emphasises that double-loop learning only occurs when changes in actions are made. In the observed case the improvements were not only recognized, but also directly implemented at following campaigns. In contrast to internal crowdsourcing, at hierarchies management defines norms and objectives at the case organization.

**Deutero learning** can be observed at the case organization in the way how corporate culture is being transformed since the introduction of internal crowdsourcing. As stated by Argyris, and Schön (1978, p.27) organizations realize what inhibited and supported their learning. Based on that organizations develop new learning strategies, in this case a new corporate culture. Both LOGipedia and myLogistics are based on voluntary work (see preliminary findings). Hence contributions are only possible when solvers are open towards knowledge sharing and solutions from other departments or functions. These

cultural differences are often theorized as “organizational culture” (e.g., Argote, 2012; Simula & Ahola, 2014), or “corporate culture” (e.g., McAfee, 2006). Several solvers experienced a change of the corporate culture through the introduction of internal crowdsourcing. For example a solver of LOGipedia reported: “I see that many colleagues actually discovered that they like to share their knowledge (...) and this is not only happening in our department”. Other examples of upsetting power structures, such as open innovation (e.g. Lichtenthaler, 2011; West & Gallagher, 2006) or co-creation (e.g., Zwass, 2010) have been already documented. In hierarchies learning strategies (i.e., training schedules) are defined and adapted top-down by the central human resources department.

## **7 Conclusion and Future Work**

This ongoing research shows that internal crowdsourcing is a specific form of organizational learning. Internal crowdsourcing based learning is very different to hierarchy-based learning. Argyris, and Schön’s (1974) learning types provide a valid and valuable lens on the phenomenon. This in-depth field study contributes to organizational learning theory and the theoretical understanding of internal crowdsourcing. Additionally, the results provide insight into how organizational learning is supported by social IT. For practitioners, the analysis of the case reveals learning experiences that the organization achieved through internal crowdsourcing. This paper provides a reference for practitioners interested in using internal crowdsourcing in their organization. In the progressing case study, further insights are expected about how internal crowdsourcing based learning is different from hierarchy-based learning. It is planned to deepen the analysis about the three types of learning to compare the findings with literature.

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