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IT-enabled Idea Competitions for Organizational Innovation: An Inquiry into Breakdowns in Adaptation

ABSTRACT: Idea competitions can help organizations innovate and IT support can make it easier to enroll participants, facilitate collaboration, and manage the process. Thus far, the literature on IT-enabled idea competitions has mainly focused on engaging external actors; consequently, we know less about the internal engagement of employees. Moreover, although the literature reveals several challenges in managing internal IT-enabled idea competitions, there are no comprehensive empirical accounts of how these challenges manifest in organizational contexts. Against this backdrop, we investigate how an engineering consultancy adapted an IT-enabled idea competition to support innovation, innovation awareness, and knowledge sharing. This descriptive case study provides a detailed analysis of the breakdowns that manifested, what triggered the breakdowns, and how the organization responded. Our analysis reveals that the system required substantial adaptation, and, although it addressed well-known challenges in managing idea competitions, other challenges surfaced. We combine these empirical insights with extant literature to propose a model for understanding and explaining how our case organization handled the breakdowns that occurred while implementing the idea competition system.

KEYWORDS: idea competition, organizational innovation, breakdowns, adaptation, case study

INTRODUCTION

Idea competitions involve "the invitation of a private or public organizer to a general public or a targeted group to submit contributions to a certain topic within a timeline. A review committee evaluates these contributions and selects the rewarded winner(s)" (Ebner et al., 2009; Leimeister et al., 2009). The intention is to expand organizational innovation processes by generating ideas from a broader base of contributors with diverse skills, experience and creativity (Bullinger et al., 2010). The use of such competitions to leverage employees' ideas is not new (e.g. Hardin, 1964; Ekvall, 1995; Carrier, 1998; Lasrado, 2012). However, the increased focus on innovation and IT developments, have resulted in a growing market for both idea competition software and consulting. As an immediate measure of success, idea

competitions should create organizational value by generating ideas for new or improved products, services, or processes (Tidd & Bessant, 2014). There may, however, also be higher-level goals, such as image building, knowledge management, employee motivation, or an improved innovation culture (Ekvall, 1995; Erickson et al., 2012).

Previous literature on idea competitions has mainly focused on involving external partners and related challenges (Adamczyk et al., 2012). A few studies discuss the challenges encountered while using these systems internally to an organization (Erickson et al., 2012; Bergendahl & Magnusson, 2014; Gamlin et al., 2007). While these studies are single or multiple case studies looking at 1) the relationship between a given design and the outcome and 2) at a given time, our study addresses the ongoing adapting of an IT-enabled idea competition to meet the organization's internal needs and conditions for innovation at a given time and over time.

We investigated the use of an IT-enabled idea competition called *IdeaExchange*, for innovation purposes within the Danish business unit at Engineering Consult (pseudonym). The specific objective was to understand how the organization adapted the IT-enabled idea competition to engage employees in innovation and address innovation needs and conditions. The study focused on how Engineering Consult adapted the system, including adjustments and changes in technology as well as user procedures, assumptions, knowledge, or relationships (Tyre & Orlikowski, 1994). To analyze adaptation challenges, we adopted a breakdown perspective (Madsen, 1994). Breakdowns have previously been used to analyze technology adaptation (Sharples, 1993; Bjørn & Ngwenyama, 2009), shedding light on situations where technology use does not proceed smoothly, and adaptations are made on both individual and organizational levels. As a result, we identified five major breakdowns and related adaptations: unbalanced idea contribution, few relevant ideas, unbalanced incubation responsibility, nomination pushback, and narrow success focus. We then combined these empirical insights with extant literature to propose a model for understanding and explaining how organizations adapt IT-enabled idea competitions.

In the following, we first review and discuss the extant literature on employee engagement in idea competition. Next, we present breakdown as a theoretical lens followed by our research design. We then offer a detailed empirical analysis and present our model for organizational adaptation of IT-enabled idea competitions. In conclusion, we discuss empirical and theoretical contributions in relation to theory and practice.

ORGANIZATIONAL IDEA COMPETITIONS

Adapting Leimeister et al.'s (2009) definition, we define IT-enabled internal idea competitions as organizational use of a web-based system to formalize submission of ideas from employees about certain topics within a given time frame combined with application of formal review mechanisms for selecting winners. Organizations implement internal idea competitions to support organizational innovation through strategic involvement of groups of employees in eliciting and combining their knowledge and ideas (Lauto et al., 2013; Bjelland & Wood, 2008; Villaroel & Reis, 2010). Although there are basic similarities, internal idea competitions are situated in the organizational culture and the social dynamics at play (Bakker et al., 2006; Neyer et al., 2009; Erickson, 2012) while the litterature on external idea competitions are focused on how to use external resources to solve problems and build external relations (Boudreau et al., 2011; Girotra et al., 2010). In the following, we present the key characteristics of internal idea competitions extracted from the literature as summarized in Table 1.

Idea competitions are mainly vehicles for innovation, but companies also pursue indirect or long-term *objectives* including a supportive innovation culture (Schepers et al., 1999), building skills and capabilities (Sergeeva, 2014), knowledge management (Erickson et al., 2012), involving and motivating employees (Ekvall, 1995; Gamlin et al., 2007, Rohrbeck & Schwarz, 2013), and strengthening image-related objectives (Townsend, 2009; Erickson, 2012). Submitted ideas and implemented ideas measure the *success* of idea competitions (Zhu et al., 2014) along with the percentage of participating employees and estimated savings (van Dijk & van den Ende, 2002; Lasrado, 2012)—meaning focus is on short-term and direct objectives. *Strategic emphasis* refers to the formalization of employee involvement as a strategic innovation resource. This is achieved through formulation of strategic focus areas for idea submission and dedication of resources to set up, implement and run the competition (Lasrado, 2012; Gamlin et al., 2007). Dedicated IT-support may be used to digitize and thereby organize and formalize the idea collection processes (Fairbank et al., 2003) as well as to communicate the strategic focus areas to the organization.

<Table 1>

Promotional communication is valuable to generate awareness and understanding (Varshney, 2012). It serves to share the importance and feasibility of the idea competition, highlighting, for example, the ideas that were implemented and who suggested them (Fairbank & Williams,

2001). This communication is best achieved through a wide range of media—from the idea competition platform to events, information boards, and newsletters (Lauto et al., 2013). *Feedback* such as acknowledging the reception of ideas and their status throughout the process may be an integrated part of the system, supported by workflow or automated replies (Fairbank and Williams, 2001). Another form of feedback is comments given by peers and managers to further develop the ideas in the elaboration phase (Eleryd-Tryde & Hooge, 2014; Schepers et al., 1999) or later in the incubation phase, when experts contribute to transform selected ideas into business proposals (Zhu et al., 2014; Santoss & Spann, 2011; Fairbank et al., 2003; Schepers et al., 1999). *Participation* typically refers to the contribution of ideas, but employees may take on other roles, e.g., commenting on ideas, engaging in the evaluation of ideas in panels, rating ideas through different evaluation mechanisms, such as likes (Santoss & Spann, 2011), or trading virtual stocks known as idea markets (Lauto et al., 2013). Invited participants to the idea competition may include all employees (Neyer et al., 2009; Fairbank & Williams, 2001; Fairbank et al., 2003), or specific employee groups (Lauto et al., 2013; Leach et al., 2006). It is argued that a broad scope (inviting everyone) leads to incremental ideas, whereas a focused scope (only inviting experts) may lead to more radical ideas (van Dijk & van den Ende, 2002). Moreover, Leach et al. (2006) found that decentralized systems (differentiated idea competitions for different departments) provide more suggestions due to local anchoring. *Motivation* to participate mainly focuses on reasons for contributing ideas (Santoss & Spann, 2011; Lauto et al., 2013), while less attention has been given to other roles such as providing feedback (Bjelland & Wood, 2008) or team-based contributions and motivation (Carrier, 1998; Bergendahl & Magnusson, 2014). In addition to the individual motivation, some studies focus on differences in individual qualifications to participate (Zhu el al., 2014), the importance of age on having ideas (Verworn, 2009) or cognitive innovation style preferences (Lomberg et al. 2017). Motivation to participate may also relate to the process—experiencing a fair and timely handling, for example, creates trust in the process (Fairbank and Williams, 2001; Lasrado, 2012; Erickson et al., 2012). *Evaluation and selection of ideas* may happen at different stages of the process and involve different evaluators. For example, idea markets are employee-based selection systems as they involve employees in the ideas screening. Such initiatives are often combined with expert panels including management to ensure a strategic idea selection (Lasrado, 2012; Santoss & Spann, 2011). Drawbacks of employee-based selection systems may be that higher-voted ideas generate more views (Bjelland & Wood, 2008) or employees may collaborate to favor specific ideas (Varshney, 2012).

IT-support can contribute to idea competitions by assisting in the formalization of the process, supporting online promotion of the program, providing information about the status, offering simple forms to collect ideas and feedback, and by streamlining evaluation and selection processes (Fairbank et al., 2003; Gamlin et al., 2007; Arif et al., 2010). In this sense, IT-support can foster trust in the idea competition by building a common memory, creating transparency, and facilitating idea processing (Spencer, 2007). However, running IT-enabled idea competitions internally to an organization is not a straightforward activity. Some of the challenges exist independently of the adopted IT-support, while others are directly related to how the IT-support is designed and provided. Idea competitions require orchestrating processes, which must be designed, organized, and aligned to fit the organization, employees, and managers (Erickson et al., 2012), or to overcome existing socio-political forces (Bakker et al., 2006).

BREAKDOWNS IN TECHNOLOGY ADAPTATION

We use the concept of breakdown to analyze the adaptation of *IdeaExchange* in Engineering Consult. The concept of breakdown goes beyond simple observation of challenges and opportunities as it provides a framework to pinpoint and analyze the difficulties arising when adapting a system, including what triggered the difficulties as well as the means of overcoming them. Breakdowns are situations where routines are interrupted, and as such they help understand where a system is not working and what is done to overcome problems (Madsen, 1994). The use of breakdowns as lens to understand management and use of IT systems is not new. Other studies have used the concept to understand system design based on metaphors (Madsen, 1994), work practices of system developers (Guindon, Krasner & Curtis, 1987), IT infrastructures (Ciborra & Hanseth, 1998), communication practices in virtual teams (Bjørn & Ngwenyama, 2009), and adaptation of computer mediated communication systems within higher education (Sharples, 1993).

To overcome technology-related breakdowns, Bjørn and Ngwenyama (2009) argue for reassessment and redesign of teamwork practices and relevant organizational policies, procedures, technology, and norms. The authors thus move the concept beyond individual breakdowns to include breakdowns on an organizational level. Inspired by their work, we focus on the organizational breakdowns where the managerial expectations of the IT-enabled idea competition were not met. Various factors may trigger breakdowns including technology, management, work group, and organizational context (Sharples, 1993; Bjørn & Ngwenyama,

2009). Moreover, breakdowns provide an opportunity to reflect and learn about how resolutions depend on the resources involved in the adaptation effort (Staib Duffy, 2008). Organizational actors may either attempt to respond or resist responding to a given breakdown and they may either succeed or fail in doing so (Sharples, 1993). For example, Guindon et al. (1987) describe how system developers approach breakdowns differently; some construct the best possible solutions by adapting earlier solutions while others develop new solutions to the situation at hand. Table 2 offers definitions of breakdowns, breakdown triggers, and breakdown responses.

<Table 2>

RESEARCH METHOD

To address our research objective, we conducted a descriptive case study of Engineering Consult's adaptation of *IdeaExchange.* Such a case study is a useful method for investigating and describing the characteristics of a complex real-life phenomenon (Walsham, 1995; Yin, 2003). The chosen case illustrates typical challenges in adapting an internal idea competition. The case provides the setting for an in depth study of the complex interrelationships between the design of the idea competition and the acts of different organizational members over three consecutive rounds of the idea competition. As such, it provides us with the opportunity to describe and analyze the adaptation challenges met, how they were handled and with what result.

Data Collection and Analysis

We based our data collection on semi-structured interviews with open-ended questions and secondary material (Walsham, 1995). In total, we conducted 26 interviews lasting ½-1½ hours each (Table 3). We combined strategic appointing of key informants with random sampling (Bryman, 2012). All employees interviewed worked at the company at the time of the study. *IdeaExchange* was new to all employees and rolled out simultaneously in headquarters and regional offices. The innovation director provided access to conduct field work in the company. He pointed out three key people to interview first, including the marketing manager, the manager in charge of implementing the idea competition, and another member of the supporting innovation team. Being aware of, and to reduce potential bias, this selection was based on several criteria that we deemed important: the respondents were involved with the

daily planning and management of *IdeaExchange*; they were located at the headquarters; and, they provided different perspectives, understandings and appreciations of *Idea Exchange*. In addition, the innovation director gave them permission to work with us to strategically select other respondents. These included the platform provider Nosco, innovation champions, both "very active" and "less-active participants", the winner(s) of the idea competition as well as non-participants. Since the company has several offices located throughout Denmark, we interviewed respondents from the headquarters and regional offices (using Skype or phone) to reduce geographical bias. In addition, to ensure a broad representation of employees and minimize selection bias we combined strategic with random informant selection. We did so by spending one day at the headquarters and asking random employees that we met in the coffee area or in the corridors to participate in our study. Here, we focused especially on non-participants and nine employees agreed to be interviewed. The interviews were conducted in an office that the innovation director had made available for the purpose. We did not include people who had left the organization. Two years later, we conducted follow up interviews with the innovation director and two key informants from the first round to follow up on breakdowns. We recorded and transcribed all interviews. Finally, to reduce bias we used data triangulation and respondent validation. Secondary data included internal documents, such as templates to submit ideas (Figure 1), samples of submitted ideas, winning ideas, idea selection criteria, as well as annual reports, PowerPoints presentations, videos and press releases. The secondary data helped us to get background knowledge on the innovation approach in the company. It also helped us getting an initial understanding of IdeaExchange, how it functioned and how it was formally managed. This made it possible for us to better understand the positions and understandings of the informants. Moreover, the press releases and the internal communication, helped us understand what was coined and communicated as successes and they provided us with an understanding of the importance and extent of IdeaExchange in the company. We discussed and tested our understandings and results in follow-ups with informants in the same or following rounds of interviews. We asked for, but did not get access to, the statistical data of the idea competition, due to confidentiality.

<Table 3>

We followed Miles and Huberman's (1994) instructions for analyzing qualitative data and interviews by using the breakdown scheme presented in Table 2 to identify and analyze breakdowns, triggers and responses. We identified five organizational breakdowns in the

adaptation of *IdeaExchange;* these were situations where top management, or the innovation team decided for changes. We used the insights from the breakdown analysis to raise theoretical and practical issues, examining and extending the existing knowledge on adaptation of IT-enabled internal idea competitions.

Case Description and Contextualization

Engineering Consult is part of a leading Scandinavian consultancy group in engineering, management and information technology (IT) fields. Engineering Consult provides many different types of services including management consulting and design of buildings. Engineering Consult employs about 13,000 employees in 35 countries. In Denmark, the company has thirteen offices and counts 3,000 employees with 1,600 employees located at the Headquarters in Copenhagen, the capital of Denmark. Traditionally, innovation at Engineering Consult has been characterized by incremental innovations developed within the scope of consulting projects. Due to increased market competition and globalization pressure, recent strategies have the ambition of increasing both innovation awareness among the employees and technological innovation within the company. To address this, Engineering Consult has hired an innovation director, who after investigating different alternatives for how to achieve these objectives, had decided to go for *IdeaExchange* both for its social dimension and especially for overcoming the shortcomings of earlier e-mail-based idea competitions such as being time consuming as well as lacking in both transparency and feedback. Consequently, Engineering Consult made an agreement with the Danish market leader of IT-based idea competitions, Nosco (Nosco.dk) for implementation, support and facilitation of the idea competition process, thus making a well-planned effort and ensuring to receive the best possible advice on how to go about implementing the system.

IdeaExchange is a social innovation platform that organizations can use to generate and manage ideas from employees (www.nosco.dk). *IdeaExchange* gives employees the possibility to create ideas for new products or services, improving existing products or services and new uses for existing products and services (Figure 1 and Figure 2).

<Figure 1>

<Figure 2>

IdeaExchange includes a number of features that enhance interaction and collaboration by supporting three main roles for participant employees: 1) each employee can post his/her idea in the system; 2) each employee can comment on the ideas posted by other colleagues to further develop them or by giving suggestions on how to develop them; 3) each employee can act as trader by buying and selling shares on the ideas contributed by others thus affecting the ranking of the idea. Each employee, in fact, is given an amount of virtual money at the beginning of the idea competition process to invest. The spot value of an idea is proxied by the aggregate investment positions held on it relative to all other ideas. The ideas get ranked automatically according to their spot value.

In Engineering Consult three versions of the Idea Exchange ran over a period of 4-5 years. In the first version the idea competition lasted a year (Figure 3). Engineering Consult established an innovation team under the supervision of the innovation director to plan, run and communicate about *IdeaExchange*. The team included eight employees carefully chosen to represent different business areas and regions. The management group formulated five strategic categories to elicit ideas. Just before the idea competition launch, all employees received an e-mail with a link to *IdeaExchange*, a personal login, and an invitation to share and collaborate on ideas for new or improved services or processes. The generation of ideas went on for six weeks. During this period, the communication department used different media to encourage participation. Ten ideas were selected for incubation which ran for a period of three weeks. The incubated ideas were then presented to a panel on innovation day where three ideas were selected for implementation.

< Figure 3 >

In the second version of the idea competition, the design was almost the same, whereas the third version was changed towards a department-based idea competition, focusing on collective contributions, collective incentives and less decision power to the employees (Figure 4). The process and the differences between versions are further explicated in the analysis of the breakdowns.

< Table 4 >

BREAKDOWNS IN ADAPTING *IDEAEXCHANGE*

The first breakdown that emerged from the data was *unbalanced idea contribution,* since most ideas were contributed by employees representing two departments from company headquarters. Secondly, the highest ranked ideas on *IdeaExchange* were not highly innovative ideas, triggering a breakdown of *few relevant ideas*. Additional highly innovative ideas were therefore selected for incubation. However, since this process did not account for an equal distribution of ideas across business areas it resulted in the breakdown of *unbalanced incubation responsibility.* After a couple of weeks of incubation, the innovation day took place featuring an invited audience of employees and customers, talks on innovation, and symbolic prizes to category winners: the best commentator and the best trader. A panel of top managers and an innovation expert entered a dialogue with each idea presenter to investigate the value of the business proposals (the incubated ideas) and to decide which to implement. However, the audience did not accept its intended passive role and interfered in the evaluation, resulting in the breakdown of *nomination pushback*. A final breakdown was *narrow success focus,* since only few of the potentially relevant ideas were implemented and positive side effects were unacknowledged. In the following sections, we use our analytical framework (Table 2) to analyze each breakdown, the breakdown triggers, and breakdown responses.

Unbalanced Contribution of Ideas

About 50% of all Engineering Consult's employees logged into *IdeaExchange,* some without any visible participation—few posted ideas, some commented on ideas, and most traded shares. Although the innovation director expressed satisfaction with this participation level, he had hoped for more ideas and a more even idea contribution across the organization. While 100 ideas were contributed, only a somewhat limited number of employees posted ideas and most of them were from two departments at the headquarters.

The interviews with participants revealed reasons (triggers) why employees were reluctant to participate beyond the trading of shares, the most important trigger was lack of time. It took time to learn how to use *IdeaExchange*, to think about and describe ideas, and follow up on peers' comments. The innovation team was aware that lack of time was a barrier for involving employees beyond the few innovation enthusiasts (#10). Some employees (#16 & #20) interpreted the voluntary approach and the lack of allocated work time from management as a signal of low priority of *IdeaExchange*.

A general reminder was sent out to everyone to stimulate activities. Some department managers initiated discussions at department meetings to stimulate contributions and they encouraged innovative employees to contribute ideas. The innovation team contributed ideas themselves to give a good example. These activities, however, reinforced participation by core innovators and departments more used to innovate.

To address this breakdown, the innovation team reminded less active managers to engage more and to comment on posted ideas to show their support. In the second round more was done to communicate about the results of the idea competition, to enhance awareness of the event and stimulate activities (#18). Other organizational responses were the initiation of departmental activities, with a departmental idea competition ahead of the organization wide and a tool box to educate and encourage employees in innovation which happened in the third round of *IdeaExchange*. The consequence of this response was that the majority (but not all) departments participated. One practice which was observed was all employees of a department being asked to come up with at least one idea. The ideas were discussed at a department meeting and a small group got time to refine three of the ideas to enter the organization wide idea competition (#26). As a result the quality of the ideas contributed improved and one of the ideas chosen for implementation came from a department not previously represented.

Few Relevant Ideas

The *few relevant ideas* breakdown concerns failure to capture the potential value of posted ideas. The idea market mechanism did not function as a proper evaluation tool. Some short-listed ideas did not point to business opportunities, some were out of scope for Engineering Consult, and others were just comments. Even though this was expected, the problem was more severe than anticipated. The reasons for this included personal relations, power, cognitive issues and the fact that only a few participants (if any) read all the ideas. The employees followed different strategies to buy shares—some scanned the highest ranked ideas, some voted for ideas aligned with their own work or field, while most wished or felt obliged to support close colleagues—a behavior that some colleagues directly encouraged:

> "Someone started sending e-mails to encourage the ones they knew. Come and vote on my ideas—and I did—but because they (the ideas) appealed to me and it was within my area. But I also bid on other (ideas) that I found interesting." #23

Moreover, groups of employees created coalitions to affect the idea ranking:

> "Last year, when I lost, I had been number one for a long time. Ten o'clock in the evening, another got number one, because they joined forces in a club." #14

Although, the innovation team was aware of these shortcomings, management decided not to overrule the employees' voice to maintain trust in *IdeaExchange*. To overcome the few relevant ideas breakdown, the innovation team introduced different organizational responses. The first was a strategic procedure making management select extra ideas (termed "wild cards") for incubation, which was introduced right away and included in the following versions. The second response was introduction of narrower and more precise categories for ideas generation in the subsequent idea competition. In the third version the idea categories and the trading mechanism were abandoned. Instead, departments first generated and screened their own ideas to select three ideas to enter the organization wide idea competition. Employee votes would then be used to select just one idea to enter incubation, while management would decide on the other nine (#26).

Unbalanced Incubation Responsibility

The *unbalanced incubation responsibility* breakdown appeared because the short-listed ideas came from a few departments. These departments were thus required to invest substantial resources to further develop the ideas. While the strategic categories should ensure a fair distribution of work load across business areas, the innovation team applied the criteria for highly innovative ideas ("knowledge in play," "expected effects," "resource needs," "x-factor," and "realization potential" with no consideration to where ideas came from) to identify the five "wild cards" which resulted into this imbalanced distribution. To overcome the breakdown, the group of directors included a new criterion, "certain distribution" to balance responsibilities across business areas:

> "We ensured what would be called a certain distribution. It was not really a criterion from the outset." #9

Nomination pushback

The *nomination pushback breakdown* describes the audience interference in the evaluation process that took place at the "Innovation Day" event that concluded the idea competition. About 1,000 employees and customers participated in the event. The ten finalist idea owners

shortly presented their ideas by following predefined guidelines for time and presentation format:

> "People made slides in a special presentation form … there was a panel … who asked about the ideas. It was kind of an open debate including everyone ... the audience also asked questions. It was a really funny day." #11

The nomination panel, composed by Engineering Consult's directors and an external innovation consultant, was established to question and discuss the ideas and then select three "winner" ideas to be implemented. The evaluation process, however, did not proceed as planned. The audience interfered by highlighting issues of importance beyond those introduced by the nomination panel:

> "We had planned to have a dialogue between the idea owners and the panel. However, the audience could not hold themselves back, neither customers nor employees. They did not respect the rules of the game … the panel was kind of overruled." #9

The audience interference was a pleasant surprise, and management saw it as an improvement, enriched by the employees and customers' involvement. As one employee (#14) argued, this "interference" opened up the process, employees became intrigued and interested in participation, and the traditional decision hierarchy was bypassed. This practice was implemented in the design of the second and third version of the idea competition (#17 & #26).

Narrow success focus

The final breakdown, *narrow success focus,* concerns the celebration of the few ideas implemented (three) based on *IdeaExchange*, leading to the notion of "few winners and many losers" (#8). This was a problem not only in realizing the idea competition's full potential here and now, but also for future idea competitions as employees could lose their motivation to participate. Employees and management expected the innovation team to channel potential ideas (besides the three winners) to relevant business-area managers, which was not the case. Another trigger for this breakdown was a narrow understanding of the outcome of *IdeaExchange* which did not take the networking and knowledge exchange into account, as in the example where a new method to effectively control drawings developed in one project inspired change of practice in another project (#18).

To overcome this breakdown and address the notion of "few winners and many losers", management introduced a number of initiatives. Some managers encouraged non-winners with

innovative ideas to develop their ideas. Also, a formal role was introduced to direct potential ideas to relevant managers (#9) in future idea competitions, which was accomplished in the third version (#26). And lastly, the third idea competition was redesigned to solicit collective contributions at department level. These collective contributions were based on the results of the first round of idea competition within each department. It also meant that collective incentives were used such as dinner for the department (#25).

DISCUSSION

The main objective of our research is to investigate the challenges of adapting IT-enabled idea competitions to the internal needs of organizations. To address this objective, our study provides an overview of the extant literature on employees' engagement in idea competitions as well as a comprehensive empirical account of the breakdowns encountered in the adaptation of *IdeaExchange* at Engineering Consult. As such, our study has generated new knowledge about breakdowns in technology adaptation for idea competitions, by providing rich insights into situations that did not work out as planned (the organizational breakdowns), the triggers of such breakdowns, and the actions (responses) taken by the organization to address them.

Based on our empirical inquiry and extant literature, we provide a model to manage breakdowns during adaptation of IT-enabled idea competitions (Figure 4) that can help managers in similar situations. The model starts out from the key design parameters for IT-enabled idea competitions. These key design parameters are part of what trigger breakdowns during the competition and they inform possible interventions to address the breakdowns by adjusting the current and future plan for the idea competition. The model is in this way based on analytical generalization (Lee & Baskerville, 2003; Yin, 2003) and we discuss it in the following in relation to extant theory.

< Figure 4 >

Empirical and Theoretical Grounding of the Model

To empirically and theoretically ground the model, we discuss each identified breakdown (Table 5) in relation to our empirical analysis, our analytical framework (Table 2) and the extant literature summarized in Table 1.

< Table 5 >

The breakdown *unbalanced contribution of ideas* was triggered by a clash between unclear *success criteria,* lack of *strategic emphasis* and the *motivation and qualifications* of the employees. The breakdown shows that the *success criteria* are not necessarily ensuring enough ideas as often argued (Lauto et al., 2013; van Dijk & van den Ende, 2002); instead it is a combination of ensuring enough ideas and having ideas from across the organization. Engineering Consult struggled with the situation where a small group of employees representing two departments provided most ideas. Zhu et al. (2014) found similar uneven idea contributions across departments as a result of promotional communication. The departments with higher contributions were research and development oriented as in our case study. This implies that expectations and competencies in innovative behavior by department managers (*strategic emphasis)* is needed to encourage participation and draw on or build *motivation and qualifications* of employees. In addition, our findings show that involving the "peripheral inside innovators" (Neyer et al., 2009) requires department managers to work purposefully to overcome the existing patterns of innovation (Erickson et al., 2012; Zuchowski et al., 2016). This may be done by encouraging employees, not usually involved in innovation, to participate (which is not an easy task). However, it also implies that encouraging the usual innovation enthusiast to ensure activity is a limited approach as it reinforces the existing patterns on innovation participation. While previous studies (e.g. Carrier, 1998, Simula & Vuori, 2012) show that the right skills and identities are important to contribute to idea competitions, our findings show that for employees not usually involved in innovation (certain skills and identities) management support in terms of dedicated time and priority are important to engage these employees. Time and priority issues are given little attention in the literature on idea competitions and mainly in relation to *motivation and qualifications* of employees. However, time may also be a *strategic emphasis* that signals to employees the importance of the idea competition. Hence, *strategic emphasis*, which is primarily understood as resources for incubating and implementing selected ideas (Schepers, 1999; Leach et al., 2006), should be expanded to include dedicated time to participate and management support. At Engineering Consult, the immediate response to unbalanced contribution of ideas was to invite department managers in less contributing departments to more explicitly support participation to Idea Exchange. No dedicated time was given to the employees. Hence, the response only partly addressed the triggers of the breakdown. Another response was the redesign of the following round of *IdeaExchange* with departmental idea competitions to raise the number of ideas in each department in line with the argument of Leach et al. (2006). This did occur as a result,

however, only in the 60-70% of the departments participating, showing lack of *strategic emphais* in the other departments.

The triggers of the next breakdown *too few relevant ideas* were a consequence of competing *objectives,* the *evaluation and selection* mechanism used and the *motivation and qualifications of employees*. The use of an idea market mechanism (*evaluation and selection*) to involve the employees (*roles and participation*) in idea ranking did not work well to identify ideas for incubation. The literature provides contradicting insights about idea market mechanisms to involve employees in the screening of ideas. Lauto et al. (2013) for example found that it worked well within a group of experts, while Soukhoroukova et al. (2012) reported groups playing the system, as in our case. Our study finds a selection process driven by insufficient overview and subjective interests identical to the one identified by Bjelland & Wood (2008). The *IdeaExchange* competition was seen as unfair by management and employees, plagued with "inattention, personal agendas and parochial evaluations" (Townsend, 2009) and not more fair despite transparency of the process (Fairbank et al., 2003). Processes were still socio-political (Gamlin et al., 2007) but in a way where the subjectivity of management (Townsend, 2009) widened to include the subjectivity of a larger number of employees. As a result, some ideas were aired that otherwise would not have received management attention, but too few innovative ideas were identified. Playing the system and provision of ideas out of scope may be seen as deviant behavior, which may be constructive or disruptive (Gatzwiller et al., 2017). It is constructive when creative ideas outside the norms lead to radical ideas, but disruptive when power is given away (Gatzwiller, 2017). As a repair mechanism to this breakdown, the innovation team and management performed a second screening to select five additional ideas (wild cards) for incubation based on the criteria for innovative ideas. As a result, Engineering Consult managed to both involve employees (*objective*) and *select* innovative ideas (the short-term strategic *objective)*. This was further addressed in later versions where the number of ideas *selected* by employees as a collective went from five to one, which can be seen as a way for management to take back power and reduce the influence of potential deviant behavior (Gatzwiller, 2017). According to Litzky et al. (2006) this may also reduce future deviant behavior.

The breakdown response identifying wild cards resulted in a new breakdown, *unbalanced incubation responsibility*. This breakdown concerns uneven resource requirements across departments to further develop selected ideas (*strategic emphasis*) as well as the *objective* of innovation initiatives across the organization. The immediate response to this

breakdown was adopting even representation across departments despite the innovation potential of the ideas, which fully repaired the breakdown. Our study thus points towards the importance of establishing *success criteria* and practices that stimulate participation by less innovative employees as well as less innovative departments (as in the breakdown of unbalanced contribution of ideas) if this is an *objective*. This is a concrete example of how to manage idea competitions to overcome the existing cultural patterns of innovation (Erickson et al., 2012; Zuchowski et al., 2016). However, such cultural changes often require long-term *objectives*, as it requires time to develop and cultivate capabilities for innovation (Rosenzweig & Grinstein, 2016).

The breakdown *nomination pushback* was triggered when the audience interrupted the Innovation Day dialogues between the nomination panel and the idea presenters (*evaluation and selection*) with utterances, questions and comments (*roles and participation*). This interference came unexpectedly and may be seen as constructive deviant behavior (Gatzwiller, 2017) as it helped prioritizing the incubated ideas. Hence, the organizational response was to accept this breakdown and incorporate it in future designs.

Although the two breakdowns *few relevant ideas* and *nomination pushback* created disruptions in the *evaluation and selection* process, the crowd processes involved were seen as important ways to increase interactivity (*roles and participation)* and "fun" in the sense of motivating engagement *(motivation and qualifications*) as key to create new and different kinds of ideas and insights (*objectives*). Thus, gamification (Hamari, Koivisto & Sarsa, 2014; Scheiner, 2015) created engagement and made it easy to get involved and exposed to ideation. However, our study indicates that gamification should be balanced with more business-driven values when it comes to *evaluating and selecting* ideas for incubation (*objectives*).

The final breakdown, *narrow success focus,* concerns management's focus on the three winning ideas as *the* outcome (*objectives* and *success criteria*) of *IdeaExchange*, with consequent non-exploitation of many potentially good, but not winning, ideas. Another important trigger of this breakdown was the lack of acknowledgement and communication (*promotional communication*) of outcomes such as networking and knowledge sharing (*objective*s). Our case provides specific examples of intangible outcomes (*success criteria*) addressed by Erickson et al. (2012) such as diffusion of solutions and identification of internal collaborators. To immediately overcome the *narrow success focus* breakdown, some department managers encouraged non-winners to further develop their ideas, which only addressed some of the triggers; nothing was done to show appreciation of enhanced networking

and knowledge sharing. The response however, failed as it did not include dedicated resources to develop the ideas (*strategic emphasis*). Using idea competitions to incubate non-winning ideas is a well-known challenge due to the unsettled responsibilities of the contributed ideas (Van Dijk & van den Ende, 2002), which explains why encouragement is not enough. Hence, management introduced departmental idea competitions to institutionalize and heighten departmental ownership of ideas in future idea competitions. Also, an effort was done to direct ideas to managers with a potential interest.

Managing Breakdowns during Adaptation of IT-enabled Idea Competitions

Our findings show that organizational adaptation of IT-enabled idea competitions is highly dependent on the plan and design of the idea competition. To be successful, the different characteristics that represent design parameters (Table 1) need to be well aligned to constitute an overall plan that fits the organization. While some of the parameters, such as the objectives and success criteria, are of a strategic character, others are based on qualifications and understanding which may need to be developed. This explains why adaptation is complex and emerging and cannot be fully planned from the outset. The complexity of the many design parameters, how they interact and what it takes to modify them makes the process difficult to manage. As a result, breakdowns emerge during the adaptation process, pointing to inconsistencies between the idea competition plan and the current state of the design parameters. As such, breakdowns are opportunities for managers to reflect about those inconsistencies, how they are triggered, and how they can make IT-enabled idea competitions work in their organization.

Managers must be aware of the high likelihood of breakdowns and identify breakdowns when they occur. Our model (Figure 4) suggests managers should follow three iterative steps 1) assess the breakdown to create a good understanding of which triggers are at play based on the characteristics in Table 1; 2) identify appropriate interventions or re-designs of the idea competition based on analysis of the identified triggers; and 3) adjust the competition plan by prioritizing interventions based on available resources. Some interventions may be enacted immediately whereas other interventions must wait until the next idea competition. The quality of each intervention depends on how well both the triggers as well as the consequences of the interventions are understood.

Our study shows a variety of responses with different impact. No response may be a proper response as in the case where a breakdown may be a positive change to the plan or when

no feasible intervention can be found. Partial repair may apply when only some of the triggers are addressed due to lack of understanding, lack of resources or difficulties of changing status quo. Full repair primarily occurs in the simpler breakdown situations. Moreover, responses may lead to new breakdowns, meaning it is important to be reflective and consider the consequences of each organizational response.

Overall, our research suggests that it is important to engage in systematic design and redesign of IT-enabled idea competitions. The objective parameter should guide the other parameters to design the idea competition to exploit and cultivate innovative capabilities across the organization (Björk et al., 2010) with particular focus on cultivating employee capabilities (Erickson et al., 2012; Rosenzweig & Grinstein, 2016) and engaging managers in departments less prone to innovation. This task is difficult and easily disrupted because short-term gains are prioritized over long-term improvement in innovation capabilities.

CONCLUSION

Our study, by taking the starting point in an overview of the extant literature on employees' engagement in idea competitions and a comprehensive empirical account of the challenges encountered in the adaptation of *IdeaExchange* at Engineering Consult, provides a theoretical model that can be used to manage adaptations of IT-based idea competitions. Our study provides new knowledge to understand the challenges and characteristics of organizational adaptation of IT-enabled idea competitions. We find that our case organization, contrary to extant research on the topic, explores new approaches to idea competitions by pursuing a balanced approach where the short-term strategic innovation outcome is combined with longer-term objectives, such as innovation awareness and innovation capabilities of larger groups of employees.

Our study also explores what is needed to engage larger groups of employees, not usually involved in innovation, in idea competitions. This aspect has not been well understood in the literature thus far. The findings indicate that we should not only talk about "peripheral inside innovators" but also "peripheral inside innovating departments". Organizations wishing to engage a broader group of employees must signal such priority by both allocating resources for employees training and time to allow employees to engage in these activities.

Based on a single case, our study have limitations and needs to be empirically validated on other cases and complemented with statistical data in order to make causal inferences. Our study also calls for further research on different idea competition designs as a means of

balancing different needs. We would be particularly interested in following up on development of employee innovation capabilities and innovation awareness in less innovation focused departments.

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