

Contextualising ambidexterity in small and medium-sized manufacturing enterprises

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Abstract

The ability to balance exploration and exploitation is essential for small and medium-sized manufacturing enterprise's (SMME) sustained growth and survival. The purpose of this research is to explore how SMME managers understand exploration and exploitation and manage organisational ambidexterity. The collected data was gathered during a workshop with in total eleven participants of the management teams from five SMMEs. The findings provide with the managers understanding of the topics and further indicates that unplanned tasks act as disturbances for planned tasks, and that daily operations often are higher prioritised than innovation work, affecting the employee's ability to work ambidextrous.

Keywords: Innovation, Organisational ambidexterity, SMME

Introduction

This paper explores how managers of small and medium-sized manufacturing enterprises (SMMEs) understand organisational ambidexterity – i.e. switching between explorative and exploitative activities (March, 1991).

SMEs, crucial to the European industrial landscape and addressed through initiatives such as the European Workplace Innovation Network (European Commission, 2018), face challenges regarding how to promote innovation while simultaneously achieving operational efficiency. This ability, referred to as organisational ambidexterity (OA), is essential for sustained growth and survival (Gibson & Birkinshaw, 2004; Lubatkin et al., 2006) and relates to March's (1991) idea that companies need to explore and exploit their businesses simultaneously. Exploration may be described with terms such as “search, variation, risk taking, experimentation, play, flexibility, discovery [and] innovation” and exploitation as “refinement, choice, production, efficiency, selection, implementation [and] execution” (March, 1991, p. 71).

Current OA research has mainly focused on large multi-divisional organisations, with split organisational designs where innovation-exploration activities occur in research and development (R&D) and new venture divisions, and efficiency-exploitation activities are relegated to established operations. SMMEs can rarely afford such split arrangements due to scarce resources. Further, Edh Mirzaei (2015) shows that many SMMEs struggle with being stuck in exploitation mode, implied by a fire-fighting mentality, depending on

customers' decisions and planning. They also face problems associated with separate allocation of time for exploration and exploitation resulting in an unfocused approach to both (Engström, 2014). Therefore, such organisations are useful for the study of OA since the scapes resources and split functions, where several roles normally lay with one person, highlights/enlighten the phenomenon. To increase the understanding of organisational ambidexterity within this multifaceted context it is of interest to empirically study SMME managers perception of the phenomenon. Thus, the purpose of this research is to explore how SMME managers understand exploitation and exploration, and manage organisational ambidexterity.

We view OA as a phenomenon related to activities performed by individual organisational members, applying a behavioural operations perspective on this ability. This implies a focus on the individual level of the nested organisational system (March, 1991), rather than the organisational or social system levels, viewing the individuals as “potentially non-hyper-rational actors in operational contexts” (Croson et al., 2013, p. 1). This focus is crucial for the study of SMEs, as their scapes resources often result in individuals representing several functions.

Theoretical background

Innovation and organisational ambidexterity

This research adheres to Kanter's (1984) definition of innovation and takes a broad perspective, including creation and exploitation of new ideas that are perceived as new to the people involved. These novel concepts can refer to a product, a process, marketing and organisation setup and often appear in combination. Despite innovation being on the managerial and academic agendas for decades, its focus has since the '90s become more global and pronounced (O'Reilly & Tushman, 2013). E.g., Peters (1990;1991) claims that innovation is the key to firm survival. Further, he argues that innovation should be comprised of numerous strategic and structural initiatives primarily driven by a firm's CEO. This implicate that innovation is a top-down activity.

O'Reilly III and Tushman (2004) indicate that innovative projects are more successful if they are based in an ambidextrous organisation. Such an organisation can balance between the exploration of new possibilities and the exploitation of old certainties (March, 1991). This balance, organisational ambidexterity (OA), can promote company performance, including sales growth (He and Wong, 2004), rates of innovation (Tushman et al, 2010), business unit performance (Gibson and Birkinshaw 2004), market valuation (Goosen et al, 2012), and firm survival (Hill and Birkinshaw, 2014). The logic behind the need for OA is that if the focus is on exploration without exploitation, the costs for development initiatives such as experimentation often rises without the organisation being able to see the benefits of such investments (March, 1991). If the opposite occurs, and the focus of the organisation is on exploitation without the inclusion of exploration, there is a high risk of facing a suboptimal stable equilibrium (March, 1991). Thereby, exploration and exploitation are competing logics where exploitation often are favoured over exploration (March, 1991). If nothing is done to counter this, obsolescence and failure will be the inevitable result (March, 1991). The main problem related to this balance can be associated with organisational scapes resources, especially related to humans and their knowledge. Therefore, what often happens is that companies tend to focus their resources on exploitation, as exploitation often is associated with the organisation's efficiency and ability to fulfil current customer demands.

OA may be understood through two main categorisations, either as sequential vs. simultaneous, or structural vs. contextual. Chen and Katila (2008) conceptualise the sequential and simultaneous approaches to the OA balance. The sequential approach is

based in that the organisation periodically switches between exploration and exploitation, and therefore over time is ambidextrous. Thereby, it is possible for the company to find a focus and be efficient by being internally consistent in decision making. The simultaneous approach, on the other hand, is connected to adaptive systems research and means that successful organisations must be able to balance both exploration and exploitation at once, since the two reinforce each other. The conclusion is then that organisations that simultaneously balance are more innovative (Chen & Katila, 2008). The second set of categorisations concerns structural and contextual OA, where structural OA is the most researched. Here, organisations jointly conduct exploration and exploitation activities by developing specialised compartmented structures (Tushman & O'Reilly, 1996). Contextual ambidexterity, on the other hand, is "the behavioral capacity to simultaneously demonstrate alignment and adaptability across an entire business unit" (Gibson & Birkinshaw, 2004, p. 209). Thus, structural OA relates to organisations with specialised functions either executing exploration or exploitations, hence, more closely related to sequential OA, since each group at one specific point in time explores or exploits. Further, contextual OA has a closer link to simultaneous OA, as the organisation is required to work together towards the same goal and adapt its activities within the business unit to meet changing demands. In contextual OA it is important to have an allowing culture where the individual is encouraged to balance exploration and exploitation simultaneously (Gibson & Birkinshaw, 2004).

Gibson and Birkinshaw (2004) suggests that the individual is of importance in organizational ambidexterity. Good and Michel (2013, p. 437) discuss individual ambidexterity and define it as "the individual-level cognitive ability to flexibly adapt within a dynamic context by appropriately shifting between exploration and exploitation". Thus, it is the individual's ability to simultaneously cycle exploration and exploitation. According to Davis, Eisenhardt and Bingham (2009) it is necessary to have individual ambidexterity, if the organizational context is dynamic and unpredictable, to be successful.

Research method

The empirical data was collected during a workshop with five Swedish SMMEs. There where a total of 11 participants from the companies' management teams, see Table 1. These specific SMMEs were selected based on their good performance, having worked with operations improvements and now expressed a willingness to enhance their innovation capabilities. This type of selection can be beneficial when seeking knowledge within specific areas (Yin, 2009).

Table 1, Companies and participants

Company Plastic	CEO
Company Casting	CEO
Company Casting	Quality Manager
Company Machining	CEO
Company Machining	Finance Director
Company Machining	Production Manager
Company Air	CEO
Company Air	Product Developer
Company Cutting	CEO
Company Cutting	Industrial Engineer
Company Cutting	Planning and Logistics Manager

During the workshop the researchers divided the participants into three focus groups consisting of three to four participants from different companies' management teams. The groups were given approximately one hour. The group discussions were focused on the participants' perceptions of exploration, exploitation and ambidexterity. This data collection method is suitable when comparing perspectives and perceptions about a certain topic (Chilcott & Barry, 2016). However, the studied concepts are not always easily grasped without previous knowledge, thus, the researchers presented the underlying rationale of the concepts and offered several questions for the focus groups to centre their discussions around. The questions concerned the three topic areas (1) exploration, (2) exploitation and (3) ambidexterity, with the following questions: (1a) What does "daily operations" mean to you? (1b) What is needed to be good at "daily operations"? (2a) What does "innovation work" mean to you? (2b) What is required to be good at "innovation work"? and (3) How do you balance the two?. After 45 minutes of group discussions a joint discussion was held among the three focus groups. Both the groups' discussions and the joint discussion were facilitated by a researcher.

The data from each focus group were voice recorded and transcribed by the researchers. Thereafter, the transcribed data was coded by both researchers in the software Nvivo. The coding of the data followed the logic of the questions asked and hence, included definitions of "daily operations", "innovation work" and ambidexterity. The coding also revealed data on organisational and individual level. New categories were created based on patterns appearing in the transcribed data. E.g., the participants frequently mentioned planned activities and unplanned activities in connection with daily operations, innovation work and ambidexterity. The qualitative data analysis was conducted by both authors.

Findings

The following section is divided into two parts: first, the empirical data is presented according to how the participants in the study perceived the three topic areas exploration (daily operations), exploitation (innovation work) and ambidexterity (the balance); second, a framework is presented for how work tasks in daily operations and innovation work and their inherent relationships may be defined. Three related propositions are presented.

Empirical data: daily operations

When the participants discuss their perceptions of what constitutes “daily operations” the focus is to a large extent on the job description and employment contracts. E.g., the CEO at Company Plastic says: *“you have your job position, what does that job contain? You should deliver based on what the job description states. That must be what constitutes daily operations”*. The CEO at Company Casting adds that *“change management is part of daily operations”*. This inclusion of change of work in the definition of daily operations is supported by the Planning and Logistics manager at Company Cutting: *“Yes, that must be covered in daily operations”*. Related to this change management and its task in the operations function, the CEO at Company Casting highlight the importance of deviation control and establishment of routines: *“we have to measure deviations, correct them, make the changes long-term. So, daily operations are our routines described in our routine manual”*. The participants understandings of daily operations are centred around work tasks related to daily management, delegations, execution, pulse meetings, improvement work, firefighting and follow-up on investments and quality problems. Since the work tasks of daily operations are this scattered and focus on several different dimensions this implies that an individual employee’s tasks may vary and change from day to day or week to week or be roughly the same from year to year depending on the employee’s position, employment contract and job description.

Further, the participants make a clear distinction between planned and unplanned work. Several of them explain that one of the challenges with the daily operations at their company is that the planned tasks often are disrupted by unplanned tasks. They define the planned tasks as those that are scheduled and known on beforehand. Unplanned tasks are not. They may for example concern problems with the machinery or quality issues and are often related to the firefighting management approach that constitutes quite a large portion of their daily operations. Related to the conflict between planned and unplanned work, and the consequences of this struggle for the participants the Industrial Engineer from Company Cutting exemplifies in what way his work is planned: *“I have a list with tasks that I should do [...] of course I know what to do the upcoming three weeks, its planned”* and how these daily operations often are disturbed: *“there is always something like machine stoppages”*. The CEO of Company Air can relate to this conflict between planned and unplanned work and explains that since the schedule normally is fully booked unplanned tasks are now also scheduled: *“I am a slave under my calendar, I do not have a lot of time for surprises, I have to take the unplanned tasks before 8 am”*.

The CEO of Company Plastic believes that this conflict between planned and unplanned work is not only an issue for the management teams but probably all employees face unplanned tasks in their daily operations: *“...the technical engineer is disturbed by an operator, the operator is disturbed by another operator or whatever it might be. Obviously, then you cannot perform. No matter what position you have. Daily operations are what you are there to perform. In the best of worlds, you should be able to work without being disturbed”*. To understand the relationship between planned and unplanned work the Industrial Engineer from Company Cutting refers to a small study they have done at their company: *“...a study of how many hours I actually worked on what I should, it turned out to be two hours per day”*. The CEO of Company Plastic elaborates: *“It is often these distractions [unplanned tasks] or bottlenecks that makes it problematic”*. The Planning and Logistics manager from Company Cutting fills in: *“Yes, there are many disturbances in the processes, but also many external disturbances [among employees]”*. The CEO of Company Casting relates the problems to their machinery, where there are too many interruptions because of equipment breaking down: *“There are broken screws or bolts or something else ... We cannot have it like this, what*

do we do? ... If we see to many disruptions, we need to find ways to remove them". The Industrial Engineer from Company Cutting explains that at their company the problems related to the conflict between planned and unplanned work have partly been solved by means of standardisation of work tasks: "...improved since we started our journey of standardisation". The participants conclude that to have efficient daily operations the number of unplanned tasks need to decrease, to enable work with the planned tasks.

Empirical data: innovation work

The most noticeable aspect of the SMME managers' perceptions of what constitutes innovation work is the inherent mix up with change management work. The participants discuss along the logic that there is a spectrum where changes to work procedures go from being part of the daily operations to being truly innovative, but that there is a grey area in between. The CEO of Company Casting exemplifies this: "*I have a supplier here that is misbehaving, I receive bad quality, it is not the first time and it is not working anymore. We discussed, and I make the decision to find a new supplier, that is not innovation, that is daily operations [...] if I instead decide to change it, change our routines... If you sit down and think of new ways of working... Then innovation is about renewal, new ways of thinking*". Based on this example, related to what theoretically can be described as process innovations, the participants agree that innovation is when you use a new way of thinking; renewal.

However, the participants are somewhat confused over the distinction between product and production/process innovation and discuss that innovation previously was a word used for major innovations, often product oriented, but that they now see innovation as something graspable. The CEO of Company Air says: "*When I started to look at innovation it was very product oriented. But the more I dug into it, the more I realised that innovation also is about processes, ways of working and structures*". The Financial Manager on Company Machining fills in: "*The word [innovation] has shrunk, it is supposed to be huge, like space research, but no. An innovation could be to create a meeting if you develop it in some way. It can be so small, only being new thinking/renewal*". The participants define process innovation as focusing on finding new ways of being more efficient, of working, deleting problems and reducing waste.

In line with how the discussion on daily operations highlighted an inherent conflict between planned and unplanned work, the same conflict seems to exist for innovation work. The CEO of Company Cutting discusses two types of focuses on innovation, planned and event-driven where the planned innovation is related to the company's strategy, both short and long term: "*We have seen in our strategic work that we need to do these things now, to be able to do those things later*". The unplanned innovations are often initiated by immediate needs in the operations. Hence, relating to the changes of work. The CEO of Company Cutting exemplifies this relation to the daily operations: "*The best deviations [in the daily operations] are those that are easy to extinguish, but there are other deviations that are a lot more problematic; based in basic or structural problems*". The CEO continues by explaining how these deviations in the daily operations lead to innovations: "...create a project, where we investigate the cause of the problem, we might not even know what we are investigating. I would say that the unplanned innovations have an ability to prevail a bit [over the planned innovations]". Hence, the planned innovations are often set aside by the unplanned innovations. Further, while the planned innovations often are internally driven and planned for through the strategic directions of the company, the unplanned innovations are often externally driven, commonly due to changes in customer demands.

Empirical data: organisational ambidexterity

When it comes to balancing daily operations and innovation work the participants agree that unplanned daily operations steal time and energy from innovation work, which often gets unjustly down-prioritised. Thus, the participants claim that to ensure the balance conscious decisions on how to manage innovation are needed. The Financial Manager from Company Machining explains: *“You need to decide together how important innovation is for the company”*. The CEO of Company Air has struggled with this balance, especially in relation to the company owners’ intentions: *“Our strategy says that we should be innovative. [But] when the owners heard that we should stop the production one afternoon to have some team-practices they said no. I had a real quarrel with them. I refused to cancel that day, [so] we did it and it turned out great. Four months later we are producing more than ever”*.

When an agreement on the importance of innovation has been reached within the company, and with the owners, there is a need to allocate resources accordingly. To be able to do so, the participants agree on the need for a clear structure. The CEO of Company Air exemplifies: *“This must be possible to solve using structure. I usually think like this: when you want to hang out and have a nice time you invite your friends. [But] then you do not just sit down and ask them: “OK, tonight we will have a really nice time. So, do you have a nice time now? Do you have a nice time now?” No, you do not do it like that. Instead you create conditions for it. You fix some food, clean and all of that. Then you will have a nice time. It must be the same factors here. You cannot only talk about innovation, you need to create conditions for it”*.

Further, it seems as if standardisations may be the key to innovation work for the participants. They base this argument on the logic that standardisation may eliminate the unplanned daily operations, the primary intruder on the planned innovation work. The CEO at Company Casting summarises: *“What it takes to be good [at innovation]? Fewer disruptions”*. The Industrial Engineer at Company Cutting links the need for standardisations with employee involvement: *“As long as we have not standardised [the processes], there is a lot of negligence causing problems in production. Then I must go there, while the operator stands scratching his head”*. The CEO of Company Air also emphasises the importance of involving the whole organisation: *“We need to be able to use the power within the people [employees]. I am not going to be able to solve this by myself, we need to do it together”*. Related to this, it is also important to have clear job descriptions, defining what is expected of each employee regarding daily operations and innovation work. Depending on the job description, the expectations of level of involvement in innovation work also varies. E.g., a manager is more likely to have a higher percentage of innovative work than an operator. The CEO of Company Air explains: *“It depends on what role you have. I usually try to manage my daily operations, [like] routine work with [for example handling] bills, things like that, that always comes back. I would like to use 30 % of my day for that type of tasks. If you instead meet an operator, then 90 % of his day might be controlled by the system”*.

Further, to ensure high level of innovation work and a good balance between daily operations and innovation, it is important to have motivated employees, who feel that they are under secure work conditions. This perceived feeling of security is primarily related to the risks of lay-offs associated with production/process innovations. Hence, it is important not to link innovative solutions to efficiency problems in production with obsolete workers.

Organisational ambidexterity in SMMEs: defining a framework

Based on the participants discussion, two main parameters for how to define a work task in relation to organisational ambidexterity can be identified, see figure 1. (1) the degree of planning (the *y axis* in figure 1). At the highest degree the task is well planned, while at the lowest degree, it is unplanned and hit the organisation as a surprise. (2) the degree of innovation. The task on the highest degree of innovation is highly innovative; explorative and development oriented in its nature. The lowest degree is tasks that are more executive, i.e., daily operations. As figure 1 indicates, four types of tasks connected to the parameters can be defined: (A) Planned daily operations, (B) Planned innovation work, (C) Unplanned daily operations and (D) Unplanned innovation work.

The participants share the impression that unplanned tasks, C and D, often are prioritised over the planned tasks, A and B. This conflict might be caused by unplanned activities; breakdowns in the machinery, problems with quality or sudden changes in customer needs, that need to be dealt with within a near timeframe, at least in comparison to the time horizon for the planned activities. The participants also agree that daily operations, A and C, are higher prioritised than B and D. If relating daily operations to March's (1991) concept of exploitation, this conflict connects well to his claim; that companies, when having scarce resources, often focus on exploitation.

Based on this logic, it is evident that C, unplanned daily operations, is the task that steals resources from A, B and D. Further, B, planned innovation work, is the least prioritised task, losing its resources to primarily C, unplanned daily operations, but also to a large extent to D, unplanned innovation work. This implies that the innovations that emerge within the organisation, either as improvement ideas that take incremental steps towards innovation, or as results of changes to the external environment, primarily customer demands, are more prevalent than the innovations derived from strategic intentions. This relates with the participants' call for standardisation and structure of operations to reduce the amount of unplanned daily operations and give planned innovation higher prioritisation.

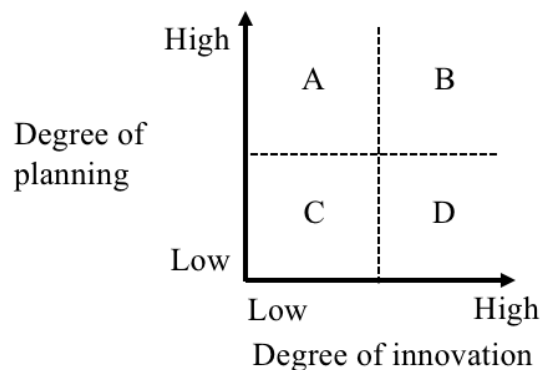


Figure 1. Types of work tasks and their inherent conflicts

Based on the empirical data and the framework presented here, the following propositions are proposed:

Proposition 1: Structure and standardisation is part of the process when facilitating individual ambidexterity. Due to the importance of planned work tasks, both when it comes to daily operations and innovation work, the organisation's ability to structure and standardise its work is crucial for ambidexterity and the possibility to remain innovative.

Proposition 2: The job descriptions play a vital role in the employees' possibilities to be ambidextrous. What defines planned work is, according to this research, how the job descriptions are formulated and what they include. Hence, clear job descriptions, with detailed instructions on what is expected of the individual employee when it comes to the balance between daily operations and innovation work is of importance not only for the employee's ability to act according to what is expected by the organisation, but also for the organisation to be able to assess its own innovation potential.

Proposition 3: Enabling innovation work is of vital importance for the companies' competitiveness. Based on the data retrieved in this research, it is evident that the participants perceive the need to improve, and organise, their innovation work as crucial for their survival.

Discussion and conclusions

The purpose of this research was to explore how SMME managers understand exploitation and exploration, managing organisational ambidexterity. The data showed that the participants perceive exploitation, here defined as daily work, as the task given by the work descriptions, including a wide range of tasks from pure repetitive operations to change management. Exploration was understood as renewal, changes to the thinking and acting, how the work is being organised. A clear distinction was made between product innovation, which the SMMEs did not focus on, and production/process innovation, where they identified an emergent need. Regarding organisational ambidexterity, the managers focused on the formulation of the job description, arguing for the need to identify the degree of daily operations and innovation work. They agreed that daily operations steal resources from innovation and that to handle this conflict, structure and standardisation is needed. Further, involvement of employees at all levels of the organisation is needed to reach high degree of innovation.

With this research we have taken a first step towards understanding the phenomenon of organisational ambidexterity from a SMME perspective, something that to a large extent has been missed in earlier research. However, as this is an initial study, we see a need to focus future research on more empirical evidence, especially from a micro-level. As this research highlights the importance of employee involvement, the next step is to understand how those employees understand this phenomenon and their roles related to it.

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