POSITIONING THE STUDY OF FIRST LINE MANAGERS' RESILIENT ACTION STRATEGIES

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Abstract
This paper introduces a study on the action strategies of first line managers (FLMs) using a resilience perspective and the aim is to position the study in the theoretical field of resilience management and engineering. One important key to an organization's long-term competitiveness are the first line managers' ability to handle the role as a leader in daily work. In the role of a FLM, there are a lot of conflicting objectives to manage, for example, regarding available resources, subordinates' views versus superiors', centralized and/or local control, optimization of cost and capability (quality and delivery). Moreover, at the operational level of detail, FLMs have to balance daily deliveries in relation to development activities, i.e. technical development, product development, implementation of new system and management concepts. Regardless of the complexity in work and organisational change over time, a FLM's most important task is to contribute to a high and stable production output out of an input that is characterized by variability and disturbances. To do so in a sustainable way, the FLMs must develop action strategies about ways of working and problem solving that systematically facilitate coping with the situation and managing their own workload. We consider this as developing resilient actions strategies that allow the FLMs to handle the upcoming problems without getting problems on their own. In this paper we describe and develop the theoretical underpinnings of the study as well as how we position our own research in relation to the different theoretical strands of resilience management. We further suggest some methodological ideas on how to capture the work and nature of first line managers' resilient action strategies. The focus in our work will thus be on how FLMs handle and can improve the more or less chaotic mix of activities in daily work in a resilient way.

Keywords: First line managers, resilience, manufacturing industry

1. INTRODUCTION

The basic idea of the study is that an important key to an organization's long-term competitiveness is first line managers' ability to handle the role as leaders in the daily work. This should be done according to contextual factors and in such a way that it provides

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stable output according to customer demands from an input of material and resources that often are characterized by short term disturbances, variability, different role expectations, goal conflicts, and chaos. In order to do so in a sustainable way, the first line manager (FLM) has to develop action strategies about ways of working and problem solving that systematically facilitate coping with the situation. We call this resilient action strategies, which relates to the capability of FLMs to manage the situation including everything that does not occur as planned during a work period. The overall logic of the project is visualized in Figure 1.

A first line manager's ability to fulfil their role over time is dependent on their expectations and the conditions provided by decisions made by others and/or at higher levels in the organization. In industrial activities, the conditions for long-term competitive production are created by focusing simultaneously on operational and strategic leadership level. The two perspectives are important individually, but research and experience show that they are closely linked. "In reality, the strategic management of any operation cannot be separated from how resources and processes are managed at a detailed and day-to-day level." [1]. We therefore focus on FLMs, who are the individuals who have a management position in a hierarchy closest to the producing level where the value-adding processes occur. FLMs play a key role in the daily detailed activities in most product and service organizations regardless of size and focus [2]. The complex nature of this work and its importance for a successful business is confirmed by several researchers [2-4].

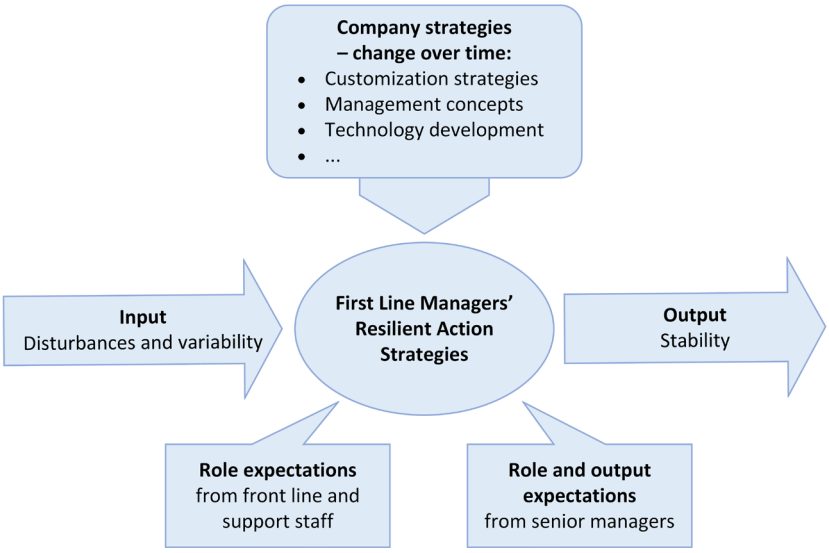

Figure 1: The overall logic of the study

In the role of FLM, there are a lot of conflicting objectives to manage, for example, regarding available resources, subordinates' views versus superiors', centralized and/or local control, optimization of cost and capability (quality and delivery). At the operational level of detail, FLMs have to balance daily deliveries in relation to development activities, i.e. technical development, product development, implementation of new system and management concepts. The FLMs also play a key role regarding the work environment of their subordinates, which also affect the conditions for performance and well-being [5]. Regardless of the complexity in work and organizational change over time, a FLM's most important task is to contribute to a high and stable production output out of an input that is characterized by variability and disturbances.

2. FIRST LINE MANAGER JOB CHARACTERISTICS IN MANUFACTURING INDUSTRY

The manufacturing shop floor level is characterized by complexity, conflicting goals, intense pressure to perform (deliver) and a high level of social interaction between FLMs and subordinates [6]. Scherer [7] defines shop floor control as decision-making in a socio-technical environment where constantly conflicting objectives regarding cost, output and personnel must be dealt with. McKay and Viers [8] describe shop floor control in manufacturing as being chaotic and characterized by instability, unforeseen problems to deal with, problematic to handle by formal techniques, and constantly needing human judgment and decision making in at least 95 % of all businesses. This picture of management work as being of a chaotic character is verified by Tengblad and others [2] and in our teaching of FLMs in university and commissioned courses. Managers' daily work practice is fragmented due to recurrent interruptions and unforeseen events. They act in a context of various expectations concerning both task and managing people, including conflicts and negotiations. As a result, their workdays are intensive, both in terms of performance pressure and emotional stress [2].

According to Mintzberg, FLMs plays a key role in the interface between the top management, the techno-structure and the operative core [9]. The FLM is "the manager of the middle line" who incorporate standards from the techno-structure, handles disturbances in the operating core and aggregate feedback information both up and down in the hierarchy and sideways in the operative flow. All these tasks of the middle line manager require personal contacts. Like the squirrel "Ratatosk", the herald in the mythical tree "Yggdrasil", the FLM is a significant communication link and coordinator between the different branches of the organisation.

The pressure to find cost-efficient production solutions is high and the core management concept to meet this challenge in industry is lean production or just lean [10]. Many manufacturing companies have their own lean systems or are inspired by such efforts [11]. The many ways of practicing and implementing lean are described extensively in literature, but less is described about how leadership is practiced on the first-line manager (FLM) level. Moreover, the notion that the FLM has large impact on an organization's performance is common, see e.g. Rabey [3]. However, the uncertainties in defining the role have been increased by lean, which needs to be considered [10, 12, 13].

The concept of continuous improvements is firmly rooted in, for example, lean production efforts, six sigma or total quality management [14, 15]. After the introduction of Kaizen or continuous improvements [16], an additional task for FLMs regarding developing procedures and work methods was more clearly acknowledged. The development towards demands for combining daily performance with development efforts and other extended responsibilities for FLMs has been reported by several authors [13, 17-19]. Hasle and Nielsen [12] elucidate the conflicts between lean development and daily delivery, as well as the meeting between a dynamic uncertain reality and the ideal structures of lean. Moreover, Engström [20] noted that technical developments are often openly discussed and jointly developed while issues related to processes, relations and resources are more difficult to handle. Difficulties were also present in change efforts at the Swedish Post Office where problems related to organizational issues and powers were not handled [21].

FLMs further play an important role in effectively linking a company's policies to subordinate staff's conditions of work. Purcell and Hutchinson [22] argue that this should

be given priority in development efforts. Involvement in development is predicted by availability of job resources [4], and increases commitment and work engagement [23]. It has been shown that the working conditions for FLMs directly influence the working conditions and the performance of subordinates and thereby also the performance of the company or organisation.

The continuous change and development of production systems described above have changed the expectations and created a lack of clarity regarding the role of FLMs. This has, for example, caused poor institutional support [17] and a gap between role expectations and performance expectations [24]. Delbridge and Lowe [6] exemplified how the need for operational flexibility affects the relation to labour and its dependence on managerial control and rules of the organization. The supporting structures for the changed role of FLMs have not been aligned with this development, leaving FLMs with more reporting, larger control spans, more responsibility, longer working hours and a mentally more strenuous job [18, 19, 24].

Moreover, the interest in Industry 4.0, Internet-of-Things and Cyber-Physical Systems is huge and the focus on digitalization will have a large impact on working life [25]. We conclude that the role and work of FLMs has become more complex and difficult.

3. ACTION STRATEGIES

At the core of work performed are the actions by people working. Argyris [26] described how every actor designs their actions according to believed cause-effect relationships (theories) related to actions. Argyris further distinguished between Espoused theories which are expressed by the actor and Theories-in-use which are the ones which governs our behavior and that these should be observed in order to fully explain the actions. The basic idea of the relations relating to the actions strategies is displayed in Figure 2.

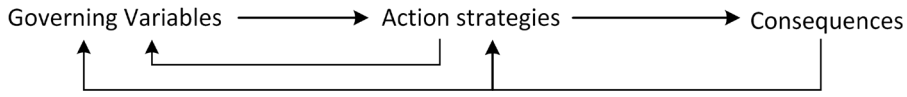

Figure 2. Theory-in-Use Model [27]

A change in the governing variables will cause sequences of actions performed, the action strategies, and the observed consequences feedback the efficiency of the performed action strategies. The model in Figure 2 is very simple but in reality, the relation between action strategies and consequences often is characterized by high complexity, trade-offs and both expected and unexpected outcomes [27].

Another perspective/factor of the action strategies, shaped by both the governing variables and the actors themselves, is the complex web of traditions, values, norms, knowledge and work-practice, the company culture [28]. As a new employee you observe, learn and adopt action strategies by watching how other acts, the role-models. Your own professional "work practice horizon" meets the company's "work-practice horizon". Thus, horizons are not stable or closed, rather they are open and in constant motion. Consequently, the FLMs action strategies are adjusted to the cultural patterns as much as they are affecting the patterns. In fact, Alvesson et al. [29] argues that culture forms leadership rather than, or at least as much as, the other way around. Despite this, Alvesson et al. highlights that the "culture-driven" nature of leadership action strategies is neglected in most of the literature and in the talk of management gurus and practitioners.

The FLMs' action strategies also consist of the two-sided logic of a work-practice, the "knowing what" and the "knowing how". In the essay *Praktikens logik* [30] Bergendal discusses the two French expressions: *Comprehension par intellectuelle* and *Comprehension par corps*. *Comprehension par intellectuelle* is an intellectual understanding, not bound to space and time, the 'know what'. *Comprehension par corps* is 'the senses and the doings understanding', it has a direction in time, and it connects a vivid memory to a pending task for attention, it is the 'know how'. These two logics of the work-practice are so deeply involved in the FLMs action strategies, that they are hardly recognized, it's the tacit knowledge.

In psychology, strategies have been researched regarding problem solving and a strategy is defined by a plan of action how to reach certain goals. Frese et al. [31] describe five types of action strategies related to how the strategies are planned for before action. The strategies are complete planning (extensive planning before you start acting), critical point (planning highly focused on a goal), opportunistic (small amount of planning when acting), reactive (absence of planning) and routine/habit (routine application of previous plan). The different characteristics of the strategies are displayed in Table 1.

Table 1. Features of the action strategy characteristics [31]

	Orientation to goal	**Long-term planning**	**Situational responsiveness**	**Proactive-ness**	**Planning and action overlap**
Complete planning	High	High	Low	High	Low
Critical point	High	Middle	Middle	High	Middle
Opportunistic	Low	Low	High	High	High
Reactive	Low	Low	High	Low	No planning
Routine/habit	Low	Low	Low	Low	No planning

Another way of investigating action strategies is to relate them to performance [32]. Griffin et al. distinguish between three different subdimensions of work role performance. Proficiency which is related to the formal role requirements. Adaptivity which is how an individual can adapt to changes and proactivity which describes to what extent the individual takes self-directed action. These subdimensions are not mutually exclusive, they are all important but the latter two are especially important under uncertain circumstances.

Berglund and Karltun [33] describe how actions in production management could involve both breaking the rules and creating greater decision latitude than formally decided to cope with the task. Sometimes the concept of 'doing leadership' is used to describe the daily work of leading, where activities are manifested in small talk, management dialogues with individuals and activities taking place during formal and informal meetings [10, 34, 35]. All such activities can be considered to be action strategies, i.e. actions performed to reach a certain goal or output.

4. RESILIENCE AS SOLUTION PROPOSAL

4.1. Theoretical base and focus

In their literature review of organisational resilience, Annarelli and Nonino [36] defined it as "the organization's capability to face disruptions and unexpected events in advance thanks to the strategic awareness and a linked operational management of internal and external shocks". Furthermore, they divide the research on resilience depending on whether the research is done on single organisations or supply chains and whether the resilience is static (focus on strategic initiatives) or dynamic (focus on capabilities of managing disruptions and unexpected events). Sullivan-Taylor and Branicki [37] concluded that SMEs have both a distinctive perspective and approach to resilience when compared to larger organizations. They found that small firms were less concerned with formal systems and its proactive decision-making processes but were rather prepared to take action and 'muddling through' disturbances in daily action. Tengblad and Oudhuis [38] discuss organisational resilience in a Swedish context and Andersson [39] and Eriksson [40] provide some knowledge regarding operational level, but without specific focus on FLMs. The lack of shared vocabulary for managers to discuss their resilience practice poses a challenge in this area. As stated above, we use the resilience concept as the capability of FLMs to apply appropriate action strategies when things do not occur as planned during a work period. The focus is thus on dynamics within single organisations related to the action strategies of FLMs and linked to the demands for output, both regarding deliveries and developments. We also emphasize that "resilience is a dynamic process of steering and not a static state of an organization" [41]. Annarelli and Nonino [36] identify a knowledge gap regarding enhancing organisational and operational dynamic resilience in single companies. Other researchers have identified a knowledge gap with focus on dynamic resilient strategies. Bhamra et al. [42] noted that resilience and its application at an organisational level has a strong research focus in theoretical studies but that there is a lack of empirical studies.

4.2. Application in this case

The request for FLMs to handle the complexity in work and organizational change over time calls for several requirements. Grote [43] suggest three fundamental leadership requirements related to managing for resilience. The first one is the leaders' ability to be adaptive themselves by altering their own role and behaviors according to the stability and flexibility demands their work teams face. The second is to design organizational mechanisms that support individual team adaptivity regarding structures and standards but at the same time avoid rigidity. The third relates to a leader's role in establishing an organizational culture as a stabilizing force to coordinate actions and integrate work processes in a flexible way.

Crane [44] further address four roles for managers in maintaining the resilience of employees. They include:

1. Reducing unnecessary drains on resilience, particularly hindrance stressors, for example bureaucracy or considerable administration that becomes a barrier to actual work outcomes.

2. Promoting adaptive workplace behaviors and thinking in the face of difficulties, e.g. identification of controllable and uncontrollable parts of a problem promoting optimism and agency regarding the achievement of organizational goals, celebrating success and promoting learning from, but not dwelling, on failures.

3. Supporting the development of both personal and social resources, e.g. promoting behaviors and thinking styles that are related to resiliency, e.g. after workplace setbacks, managers can highlight the merit of growth opportunities promoting self-efficacy and learning.

4. Allowing employees the opportunity to access needed resources to cope with demands of their job in various ways, e.g. allowing employees control over the timing of break periods and to allow recovery when needed. [44]

5. METHOD APPROACH

5.1. Design

The research approach is action research based on close cooperation with companies, where theory development in academia and practices in participating companies will evolve iteratively but also according to the demands in the contexts respectively [45]. The approach emphasizes joint learning between the participants and the researchers throughout the research process. It is further built on the assumptions that to understand the dynamics in real life settings it is important to examine contextual factors and expectations affecting daily work (Figure 1). This is preferably done as a partnership between scholars and practitioners in order to co-produce results that cannot only be described by "what is" but also by "how to," implying that the knowledge created should be actionable [46]. This means that data will be collected in different ways in co-production with the studied FLMs. The co-production of practical problem solving and knowledge building is supported by recurrent feedback and workshops, which will ensure a joint learning in the project.

A co-operative multiple case study approach using data triangulation is applied to fulfil the aim of the study [47]. To elucidate the characteristics of FLMs' work, an approach inspired by activity analysis [48] is used to guide data collection. This approach includes an in-depth investigation of the workplace, work situation and working conditions that set the context and content of what can be called FLMs' formal work. When investigating how the formal work is performed, issues related to the individual as well as the variabilities of the work settings and the individuals will be acknowledged.

5.2. Data collection

The data will be collected in an iterative process of collecting data and learning workshops with managers and professionals from the three organizations. The data collection will be adapted in relation to analyses performed along the way. The first phase is starting with individual interviews, observations and diaries. This is followed by analysis, presentations and discussions at learning workshops with key individuals in the organizations, first in each organization and then cross organizations. In the second phase shadowing of at least two FLMs per company is performed to obtain an in-depth understanding of how time is spent and distributed between different tasks, how access to information affects activities and processes in daily work and to get an understanding of how authority is presented in patterns of behaviors and how it has developed over time. This data collection is followed by company workshops and cross-case analysis. Company documents important for the focus of the study are collected, and additional data collection can be performed according to identified needs.

5.3. Participants

The choice of interviewees will be made in close cooperation with key individuals with in-depth knowledge of the organizations, who also help to arrange the interviews that will

take place at the sites. The sites have several FLM and a process with the organizations will help choose the cases/units that needs to be studied. Semi-structured interviews will be conducted with FLMs, relevant senior managers and subordinate employees including people that are important for the FLM's daily work. We expect at least 20 interviews. Observations in each work place including mapping of actions in FLMs daily work. Recorded personal diaries are undertaken by FLMs. The questionnaire regarding role and output expectations of FLMs will target group FLMs, shop-floor workers, superordinate managers, support staff and other relevant company participants. Around 200 participants are expected to answer the questionnaire.

5.4. Analysis

The qualitative data (interviews, observations, diaries and documents) will be analyzed through an intertwined iterative three-step procedure of data reduction; categorization of patterns between variables; and conclusions drawing and verification [49] assisted by NVivo 11 software. All interviews will be audio recorded and transcribed verbatim to enable analysis. Observations and shadowing will be documented through notes and recordings by researchers. These are analyzed in order to discern between 'espoused theory' and 'theory in use' [26]. Quantitative data will be analyzed through descriptive and inferential statistical methods using e.g. SPSS statistics software. The analysis is strengthened by triangulation of data methods and sources.

5.5. Research ethics

An informed consent process will be performed, and it will start by creating a contract with all three organizations regulating confidentiality and publishing issues, and the department leaders need to be informed of the ethical requirements for participation. All participants that will have an active role will be provided written information by e-mail but also oral information when meeting the researchers. The information includes information about the study, conditions for participations and ethical issues like voluntariness, right to withdrawal and confidentiality. The informed consent process for the interviews begin by each person receiving an e-mail with information, which is repeated in the face-to-face interviews. Verbal consent is obtained from the participants after the information was given at the interview. They consent to that the data will be used for research purpose and informed that all data would be treated confidentiality.

6. KNOWLEDGE DEVELOPMENT

Knowledge gaps in the roles and work of FLMs have been identified by several authors, although the literature regarding leadership and management is rich. Tengblad [2] stressed the importance of further research on *how* management practices are performed in every day management and what their outcomes are. He compiles how future researchers can use the practice perspective on management as illustrated in Table 2.

According to Tengblad [2], there is no question that Type A management work practice firmly dominates both textbooks, management education and research. Type B management work practice is primarily developed in the area of quality- and improvement management in which more formal methods for problem-solving and error reduction are used. Type C and D management work practice are often viewed negatively since they usually are learned through work experiences. Tengblad also points out that this kind of 'managing the unexpected' is scarcely a key element in the curriculum of management education. Nevertheless, these two types are the ones that focus on the actual work practices and work behaviour. Through these perspectives researchers have the potential

to get behind evaluation of management techniques according to internal logic to rules-of thumb and behavioural patterns which enhances the possibilities to study what actually happens in real life FLM settings.

Yukl [50] also pointed out that more research is needed where managers' behaviours can be related to the situation in which they are relevant - e.g., timing and amount. Moreover, leader development occurs as individuals expand their capacity to be effective in roles, and more research is needed on the conditions and support for this [51].

Table 2: Four types of management work practices [2, pp. 348]

	Work with intentionally driven activities (deliberate)	**Work with activities that arise from unintended events** (reactive)
Formalized work behavior (systematic)	A: Classic management Strategy formulation, planning, budgeting, forecasting, formal decision-making, leadership, Human Resource Management, etc.	B: Disturbances and crisis management Systematic work with customer complaints, deviations from economic planning, grievance handling, etc.
'Unformalized' work behavior (habitual)	C: 'Muddling-through-management' Habitual decision-making, networking, politicking, dialogue-based information exchanges	D: Management of ambiguity and constant disturbances Dealing with organizational problems are urgent, complex, unforeseen, and/or ambiguous

The literature that explicitly focus on FLMs is not that large and there is little written primarily focusing on FLMs' action strategies and how they can be developed towards more resilience in daily work. To summarize, we have identified three major knowledge gaps where the third is directly linked to the previous two:

1. The FLM role and daily work in today's industrial context.
2. Dynamic resilient strategies enacted at operational level by FLMs.
3. How FLMs can develop their daily action strategies into even more resilience.

Figure 2: The identified knowledge gaps relating to research focus.

This project shall fill these knowledge gaps and develop both scientific and practice oriented knowledge on how the role of first-line managers (FLMs) is enacted and can be improved in daily work and how FLMs can develop resilient action strategies.

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