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The Importance of Local Context in Multidivisional Organizations:

Prospective sensemaking in an ambiguous change process guided by an envisioned future

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Abstract

Emerging technologies are becoming increasingly important in production processes and forces manufacturing organizations to transform in order not to fall behind. For the automotive industry does this entail a shift towards the envisioned future Industry 4.0 with smart factories and changing ways of working. This paper therefore examines how an envisioned future guided top executives in their attempts to generate a collective understanding of an ambiguous change process between leaders in four production divisions. A qualitative research where data was collected through 17 in-depth interviews, on-site observations and document analysis with the aim to gather information on how leaders made sense of and talked about the change towards an envisioned future. The theoretical framework is composed by the theories prospective sensemaking, a lens to understand how actors interpret and respond to a changing future, and sensegiving, a lens to derive how actors try to influence the meaning constructions of others towards a preferred state. The study revealed that leaders in the regional divisions struggled to make sense of the organizational wide and imprecise change strategy and translate it into regional change initiatives. The findings contribute with insights that the interplay between people and material artifacts develops a unique local context which impedes the forming of an organizational wide collective prospective sensemaking. The paper furthermore outlines a groundwork in categorizing the retrospective and prospective elements mutually occurring in the prospective sensemaking process.

Keywords

Sensemaking, Sensegiving, Retrospective, Prospective Sensemaking, Envisioned Future, Bricoleurs, Change Management, Leading in Change

Introduction

Making sense of the organization's ambiguous change process contains a considerable degree of uncertainty for its employees (Balogun, 2007). Leaders are therefore crucial in a change process as their role includes interpreting top management's vision and adopting it to their local context, which is a job encompassed with a lot of ambiguity (Balogun, Bartunek & Bo, 2015). A way of navigating through this uncertainty is to use imagined futures to make sense of what a potential future looks like. This could be in the form of an *envisioned future* that relates to an imprecise collective understanding, caused by uncertainty of the future, to be an interpretative

framework for a vision (Meyer, 2019). Envisioned futures are inherently vague, socially constructed, and dependent on actors reinforcing the picture as they make sense from different perspectives (ibid). The notion of an envisioned future is therefore naturally intertwined with sensemaking theory as individuals making sense of the future through their interpretations retrospectively, i.e. combining new interpretations with present understandings (Weick, 1993). For organizations aiming to reach an envisioned future, like Industry 4.0 with smart factories (Meyer, 2019), making sense retrospectively is not enough as the end-state is presently unknown (Corley & Gioia, 2011). Organizations would therefore benefit from adopting a prospective view of sensemaking, that is placing yourself in a desirable future and construct a way back to present, or conversely, a path forward (Patvardhan et al., 2018). This desirable but ill-defined state can help form a collective understanding to proceed through ambiguity (Gioia & Mehra, 1996) and aid leaders in collectively discerning a perceived fit towards this state, in order to undertake a change initiative (Konlechner et al., 2019). Furthermore, in order to better understand the dynamics of how top management try to influence subordinate leader's sensemaking, and how leaders act upon this communicated change strategy, it is also important to adopt the notion of sensegiving (Corley & Gioia, 2011), which is the process of influencing others of one's interpretations and opinions (Gioia & Chittipeddi, 1991).

Many management scholars have over the years focused on understanding how a deliberate change process toward a specific end-state is interpreted and made sense of in organizations, in order to discern how meaning constructions of people unfolds (e.g. Weick, Sutcliffe, & Obstfeld, 2005; Balogun, 2007). However, few studies within management or organizing have undertaken this through the lens of prospective sensemaking and sensegiving, nor in combination with the undefined end-state of an envisioned future. Stigliani and Ravasi (2012) made an ambitious groundwork in combining these two lenses into a process model of how collective prospective sensemaking is unfolded to aid researchers in their efforts of analyzing how organizations make sense of and try to identify the process forward through uncertainty. Konlechner et al. (2019) studied an organizational change implementation at a hospital through these lenses and derived that people's expectations of how well the undertaken change program answers the difference between current state and the future desirable state affect how they embrace and act. Additionally, Wright (2005) stressed, through his work, that transformational change mainly occurs in the periphery of the organization by self-propelled managers as they easier construct meaning in uncertainty and therefore perform inductive (unplanned) acts of strategizing. However, despite these findings, neither of these studies have been conducted in large multidivisional organizations, nor with the aim to derive how central leaders try to form a collective prospective sensemaking of an ambiguous change process through deliberate sensegiving attempts, towards an undefined end-state. As showcased by Balogun et al. (2015) it is difficult for leaders in multidivisional organizations to grasp an organizational wide change blueprint, embrace it and then apply it locally, as the meaning construction of the wider change differs significantly from that of the local contexts, thus creating two separate narratives for regional managers to maneuver.

Furthermore, the continuous introduction of new technologies and its growing prevalence in society have important managerial implications. It fundamentally affects organizations and

foremost the employees, which forces development and puts pressure on leaders to react (Brynjolfsson & McAfee, 2014). Hence, in order to initiate adequate change strategies leaders must first develop their perception of the future and then work towards it (Meyer, 2019). Therefore, to provide a better understanding of how leaders make sense of an ambiguous change process this study discerns how an international automotive manufacturer tried to generate collective prospective sensemaking of an organizational wide change strategy to reach an ill-defined envisioned future. The case company; AutoProd, is currently undergoing a great technological transformation in its manufacturing divisions, where several thousand employees are adapting and progressing in new technologies and ways of working. Leaders on multiple levels are encouraged to take on responsibility to drive the transformation towards the envisioned future of Industry 4.0. That comprises education, on-the-job training and extensive internal communication in order to get the transformation departed. Although, the spread of divisions yields local dependency as every production plant manages its own part of the production chain with different machinery, which forms a unique context. To grasp this uncertainty and to explore how AutoProd dealt with this ambiguity, a single case study was conducted through observations and interviews with leaders on different levels in four different production divisions in Sweden. The research was purposely delimited to focus specifically on AutoProd's technological change process.

Hence, this study provides additional insights to the emerging field of prospective sensemaking by answering the question 'how do leaders in multidivisional organizations utilize an envisioned future to support the process of forming collective prospective sensemaking?'. By analyzing our findings with the aid of Stigliani and Ravasi's (2012) prospective sensemaking process model and adjacent theoretical concepts this study revealed that organizations are unlikely to create a unitary collective prospective sensemaking across divisions and central functions as the local context plays an important role in how regional leaders sensemaking unfolds. In addition, the study outlines the nuances of how people unfold retrospective and prospective sense in a process of ambiguous change in order to create collective prospective sensemaking. The new insights to prospective sensemaking provided in this study answer Corley and Gioia's (2011) call to further direct our energies on the future of organizing, Balogun et al.'s (2015) wish to further extend embedded sensemaking in multiple managerial teams within the same organization, and Stigliani and Ravasi's (2012) request to perform a comparative replication on their collective prospective sensemaking model in a more traditional field.

The paper follows the structure of first introducing the theories of sensemaking and sensegiving. Followed by a presentation of the theoretical framework and how it was utilized in this study. Henceforth, the methodology chapter outlines the research process. The findings chapter presents important empirical findings in a thematic order. This is subsequently analyzed and discussed in combination with theory in the discussion part. The paper ends with conclusion and suggestions for further research.

Theoretical framework

Introducing sensemaking and sensegiving

A common way of understanding people's actions and thoughts have been through the lens of sensemaking. It is a theoretical perspective, through which people see and interpret the world (Sandberg & Tsoukas, 2015). Weick (1993) defines sensemaking as people's retrospective sense of a given situation. It is an ongoing process where actors continuously interpret and respond to situations (Weick, 1993). Put differently, "Sensemaking involves the ongoing retrospective development of plausible images that rationalize what people are doing." (Weick et al., 2005, p. 409) This retrospective understanding unfolds as a sequence where cues are labeled, codified and categorized in order to make sense of a given situation, as people enact in the various situations (Weick 1993; Weick, et al., 2005). Therefore, sensemaking is a social activity where narratives occur, are shared and engaged among and between actors (Weick, 1993). That includes processes of language, talk and communication, which are continuously ongoing and easily taken for granted as we perceive them as central to our human behavior (Weick, et al., 2005). Each individual's sensemaking is unique and formed by one's intrinsic mental map that constitutes our understanding of the world (Balogun, 2007).

A way of influencing others sensemaking and mental maps is by giving sense - *sensegiving*. That is the "process of attempting to influence the sensemaking and meaning construction of others toward a preferred redefinition of organizational reality", which can be done through communication and explanation (Gioia & Chittipeddi, 1991, p. 442).). This way of understanding a change process has proven to be a fruitful way to apply and couple with sensemaking in order to better understand organizational theories and interpret how organizations develop (Weick, et al., 2005; Gioia & Chittipeddi, 1991). This is further emphasized by Weick (1993) who argues that organizational sensemaking is pivotal for the firm's success. Although, to understand people's actions and thoughts in a given situation, sensegiving can be a powerful way for management teams to initiate a strategic change by fully understanding the employees' sensemaking and imply new sense through the process of sensegiving (Gioia & Chittipeddi, 1991). Various studies have been conducted on the important interplay between senior managers and middle managers usage of sensemaking and sensegiving (Balogun, 2003; Hope 2010). These studies mainly focused on how the shared cognition, perceptions and interpretations of change builds up through sensemaking and sensegiving between change initiators and change recipients (Hope, 2010). Those studies are, however, mainly based on retrospective change as a way of understanding what has already happened. We argue, together with many other progressive scholars, that sensemaking is as strong and suitable also to understand the change process to come, as well as how people make sense of the future; namely through prospective sensemaking (Patvardhan et al., 2018).

Making Sense in Ambiguity with Prospective Sensemaking

In recent decades, and more prominently in recent years, voices have been raised by organizational sensemaking scholars to further explore and explain a prospective view of sensemaking, i.e. studying forward looking and future-oriented actions by managers and organizations (Corley & Gioia, 2011; Patvardhan et al., 2018). Corley and Gioia (2011)

highlights in their seminal work what they label *theoretical prescience*, which involves anticipating and influencing managerial knowledge both in academia and in practice. Theoretical prescience is "the process of discerning what we need to know and influencing the intellectual framing of what we need to know to enlighten both academic and reflective practitioner domains" (Corley & Gioia, p. 23). It is not intended to predict the future, but rather draw attention to and illuminate important areas for consideration that have relevance (ibid). This could e.g. be through *envisioned futures* like Industry 4.0 (Meyer, 2019) as the progression of different types of artificial intelligence will yield an impact on organizational planning and workforce decisions (Corley & Gioia, 2011). Envisioned futures relate to the collective understanding, caused by uncertainty about the future, to be an interpretative framework for a future vision (Meyer, 2019). It is not linked to detailed facts of a potential future, but an interpretation of how to make sense of what the future will hold. The process of creating an envisioned future is socially constructed and is dependent on actors reinforcing this picture of the future (ibid). Meyer (2019, p.130) further claims that "to be able to enroll a wide range of organizations, envisioned futures have to be inherently vague to allow and enable sensemaking from very different perspectives". The process reduces uncertainty about the future and builds on actors' sensemaking of what the future might look like (Meyer, 2019).

From being purely retrospective, Weick (1995) extended the concept of sensemaking to include a prospective view of events that have not yet occurred, which is described as placing yourself in the future and imagine that a specific event has taken place, thus making sense of that event. Arguably, his extension of the concept served as a springboard for future oriented sensemaking scholars to extend the field (Patvardhan et al., 2018). In opposition to early research on sensemaking that focused on crises (e.g. Gephart, Steier & Lawrence, 1990; Weick 1993), studies within prospective sensemaking focuses on micro-processes that slowly develop one's sensemaking through a continuous flux of information and received sensegiving (Stigliani & Ravasi, 2012). Prominent sensemaking scholar Maitlis describe prospective sensemaking in an interview as "While sensemaking can be understood as a retrospective process of meaning making, prospective sensemaking involves envisioning a possible future and then constructing a plausible path back to the present in order to make sense of it" (Patvardhan et al., 2018, p. 9). This path back, or conversely the path forward from present, is shaped by the individual as s/he anticipates and enact towards realizing the future, e.g. strategy work (ibid). Gioia and Mehra (1996) describe this planned future as a desirable but ill-defined state that is formed, individually or collectively, to proceed forward through ambiguity. Understanding prospective sensemaking is especially important when initiating transformation and change strategies, as relying solely on past events will likely misguide the organization's efforts (Brown, Colville & Pye, 2015). Gioia, Corley and Fabbri (2002) suggest that it is the strategic leaders' task to envision the future as it would have already taken place and form an idealized future for the organization to pursue based upon that envision. Scenarios, such as that, serve as adequate prospective sensemaking devices that stimulate the envisioned future and are therefore important to consider when planning transformational change (Wright, 2005). Scenarios can furthermore aid leaders on multiple levels in forming organizational sensemaking of the proposed change (Wright, 2005; Maitlis, 2005). This will enable leaders to retrospectively understand the plausible path and take actions (Gioia et al., 2002).

Furthermore, meaning constructions are continuously influenced by both retrospective and prospective elements (Stigliani & Ravasi, 2012). Konlechner et al. (2019) applied the theories of sensegiving and prospective sensemaking to the implementation of an organizational change initiative at a large hospital. They found that actors' sensemaking of the future is affected by the degree of perceived fit of the change initiative to be the perceived problem pressure. That is the interpreted difference between current state and the desired future state. The degree of perceived fit forms a person's expectations (or frames) of the change and thus how they embrace and enact on it, which is affected by encountered cues and experiences (ibid). Hence, these cues are processed and assigned meaning within one's intrinsic mental map (Balogun, 2007). Leaders therefore serve an important role in the change process as their sensegiving efforts aim to influence employees' frames of the future to form a strong degree of perceived fit of the change to the desirable future state (Konlechner et al. 2019). However, in large organizations there can be big differences between how a transformational change strategy is developed in the periphery in contrast to the corporate center (Wright, 2005).

It has been shown that regional managers in multidivisional organizations intrinsically create two sets, yet interwoven, of meaning constructions in the form of change narratives (Balogun, et al., 2015). One narrative based on the wider organizational change blueprint and one reactional response based on how to apply it to their local context. Hence, managers must first decipher, make sense of, the organization's wider change plan and then convert it to the local context (ibid). Furthermore, in the periphery transformational strategizing activities tend to be more intuitive and managers make sense of cues they encounter, whereas in the center actions are often thoroughly planned (Wright, 2005). Senior management naturally have access to a lot of information and thus have a more holistic perspective of a company's strategy than its other employees (Wright, 2005). Although, the importance of managers in the periphery should not be neglected (Wright, 2005; Balogun, 2007). Rouleau and Balogun (2011) argues that middle managers are crucial for a change initiative as they are carrying out the change and have better knowledge of the operational work. Organizations should therefore place emphasis on developing middle managers as they are important change intermediaries. (Balogun, 2003).

An additional way of supporting managers in their crucial role as change intermediaries is by continuously supporting them through sensegiving efforts (Balogun, 2003; Tsoukas and Chia, 2002). Still, managers in the periphery are often (implicitly) assigned the role as *bricoleurs*, who is a person that uses what s/he has at hand (i.e. available information) to create a meaningful reality and in this case strategic change work. The bricoleur relies on his/her skills, knowledge, instinct and perception to build this understanding as a consequence of being far from where strategic decisions are taken (Wright, 2005). Managers face these cues by proactively engaging in inductive acts (bricolage) with internal and external actors through formal and informal networks, such as trial and error acts, which makes them being seen as hands-on people (ibid). Inductive acts of strategizing make managers more flexible and more adaptive which is particularly useful in complex and uncertain environments (Wright, 2005). By making sense of the present and future, as well as engaging in sensegiving activities, managers in the organization are proven to be influential as they affect strategy work (Roleau

& Balogun, 2011). Doing so, not only downwards, but also upwards in the organization, influences the sensemaking of many internal stakeholders (ibid). The importance of both stakeholder and leadership engagement in sensegiving activities, should not be neglected, in order to drive organizational sensemaking (Maitlis, 2005). Maitlis therefore suggests that sensegiving activities in combination, limited or solely by these two actors create four different forms of organizational sensemaking (ibid).

Stakeholders and leaders either conduct in high or low levels of sensegiving activities, which combined create these four forms of organizational sensemaking (Maitlis, 2005). *Guided organizational sensemaking* refers to a high level of sensegiving activities, made by both leaders and stakeholders. Further characterized by high animation and high control where consistent formal meetings and consistent actions lead to unitary and a collective organizational sensemaking (ibid). *Fragmented organizational sensemaking* also based on a high level of sensegiving activities by stakeholders, although with low leader sensegiving. It is here prominent that stakeholders, such as middle managers, participate continuously in sensegiving activities, but are not supported, nor guided by central leaders. This results in high animation and low control creating multiple narrow accounts and inconsistency in actions (Maitlis, 2005). *Restricted organizational sensemaking* refers, in opposition, to low stakeholder sensegiving activities and high leader sensegiving, which mean central leaders neglect others' opinions and drive a unitary narrow account to express high control and initiate one-time actions. Lastly, *minimal organizational sensemaking* refers to the combination of low sensegiving activities by both leaders and stakeholders naturally leading to low animation and low control, and in best case to one-time actions (Maitlis, 2005). Furthermore, the level of organizational sensemaking can be connected to various levels of perceived problem pressures, discussed by Konlechner et al. (2019). Organizational actors make their own prospective sensemaking continuously based on encountered cues, which sensegiving activities are an example of (Maitlis, 2005).

Generating Collective Prospective Sensemaking

Stigliani and Ravasi (2012) describe how a group collectively formed shared sensemaking to proceed through ambiguity. They developed an ambitious process model of how prospective collective sensemaking is unfolded in a design consultancy firm, building on Weick et al.'s (2005) framework on organizational sensemaking, and how the interplay between conversational and material practices help support shared understandings of the future. This process unfolds on three different levels (individual level, group level and between group-level) through the iterative phases of noticing and bracketing, articulating, elaborating and influencing (Stigliani & Ravasi, 2012). These steps support the understanding of the cognitive process to gradually and through the use of social and material practices, form a future-oriented *collective prospective sensemaking* (ibid). By exploring these steps, one could study and understand how the iterative process looks, on its way to become an organizational prospective sensemaking.

Noticing and bracketing phase is the initial phase which refers to the process where an individual is exposed to various cues and signs (Weick et al., 2005; Stigliani & Ravasi, 2012).

These cues constitute every impression that an individual grasp, both intentionally and unintentionally (Weick et al., 2005). These cues are guided by an individual's mental models based on the individual's experience, education and training. Although, the cues have not yet been categorized, nor labeled. (ibid). It consists of bits and pieces and could be retrospectively recreated into abstract categories and form an individual's provisional understanding (Stigliani & Ravasi, 2012). Connected to Wright's (2005) argument are leaders in the periphery not as exposed nor have access to as much internal information (cues) as central leaders have, as well as leaders in the periphery are crucial for the change. Bricoleurs are characterized by their limited access to information, but perform bricolage based on what they have available at hand (Wright, 2005). This implies a great deal of responsibility, especially with the limited capability to create a mental model of what is going on (Balogun, 2007). Although, bricoleurs are argued to have come further in their sensemaking, as they have started to label and categorize cues (Wright, 2005).

In the *articulating* phase cues are being combined, assembled and categorized, as they evolve into a provisional and tentative understanding (Stigliani & Ravasi, 2012). The process can be supported by being articulated verbally or by combining unassigned cues with material artifacts (Weick et al., 2005). Combining unassigned cues with material artifacts, such as photographs, model images or machinery supports the process of forming one's provisional sensemaking (Stigliani & Ravasi, 2012). This can further be connected to Konlechner et al's (2019) arguments of perceived problem pressures as individuals make their own perception based on combining cues and signs into articulations on what problems exist to reach a future desired state, namely their perceived fit toward an envisioned future. The perception of the perceived fit is arguably based on the cues and signs that one is exposed to. Hence, continuing the argumentation above, bricoleurs anticipates a great deal of responsibility to drive change (Wright, 2005). They are expected to combine the scarce resources of available cues and information together with the material artifacts at hand (ibid). Consequently, creating their perceived fit closely connected to the combination of their interpreted cues and their materials at hand (Wright, 2005).

The third phase consists of communicating the articulation and engaging in interactive talk as one *elaborates* one's provisional understanding (Stigliani & Ravasi, 2012). The elaborating phase is characterized by the collective sensemaking process, where multiple individuals share their understanding and together ultimately form a plausible collective sensemaking. The process represents all the activities where mental models and mental content are shared in discussions and argumentations, such as meetings, conferences, conversations and presentations (Ibid). Connected to Konlechner et al's (2019) arguments is the perceived fit toward the envisioned future in this stage discussed and shared, in order to create a collective prospective sensemaking. People share their perceived fit and argue for why that is the appropriate way to go about to reach the envisioned future. Although, as this perceived fit is discussed between several persons, it changes and forms over time to a collective sensemaking (Konlechner et al., 2019) Meaning that the process of articulation and elaborating is iterative as one's sensemaking continuously adapts, including noticing and bracketing as one continuously exposes oneself of new cues (Stigliani & Ravasi, 2012). Moreover, bricoleurs and

middle managers often engage in such work as they often elaborate based on information and tools at hand to create something valuable and make their preferable way ahead (Wright, 2005; Balogun, 2007). Furthermore, in connection toward organizational sensemaking, argued by Maitlis (2005), can the elaborating phase be connected to the various sensegiving work between leaders and stakeholders in order to create the collective organizational sensemaking. These discussions are crucial for an organization to share and discuss and eventually agree on a common way ahead (Maitlis, 2005).

The final phase, *influencing*, shifts previous phases of sensemaking to sensegiving activities. The elaboration phase evolves a collective prospective sensemaking by a group of people, which subsequently are sensegived onto other persons for them to reconsider their sensemaking (Stigliani & Ravasi, 2012; Gioia & Chittipeddi, 1991). The process of influencing is iterative as individuals' sensemaking is challenged by others' sensegiving and forces one to reconsider and go over some, or all, of the previous phases (Stigliani & Ravasi, 2012). Sensegiving activities are further essential in an organizational change study, such as in Maitlis (2005) study, where she discusses the level of engagement in sensegiving activities made by leaders and stakeholders. These sensegiving activities could arguably be linked to the process of influencing, where leaders or stakeholders want to influence other employees in a business, in order to create a collective organizational sensemaking (Stigliani & Ravasi, 2012; Maitlis, 2005). This influencing process occurs by both central leaders trying to push out their predefined change blueprint in the organization and middle managers that act as bricoleurs influencing their coworkers through their proactive 'hands-on' actions (Wright, 2005; Balogun, 2007). Sensegiving activities are likely based on individual's perceived problem pressures, and leaders consequently want to share their opinions and convince their employees to make similar sense (Konlechner et al., 2019) of the process towards the envisioned future (Meyer, 2019).

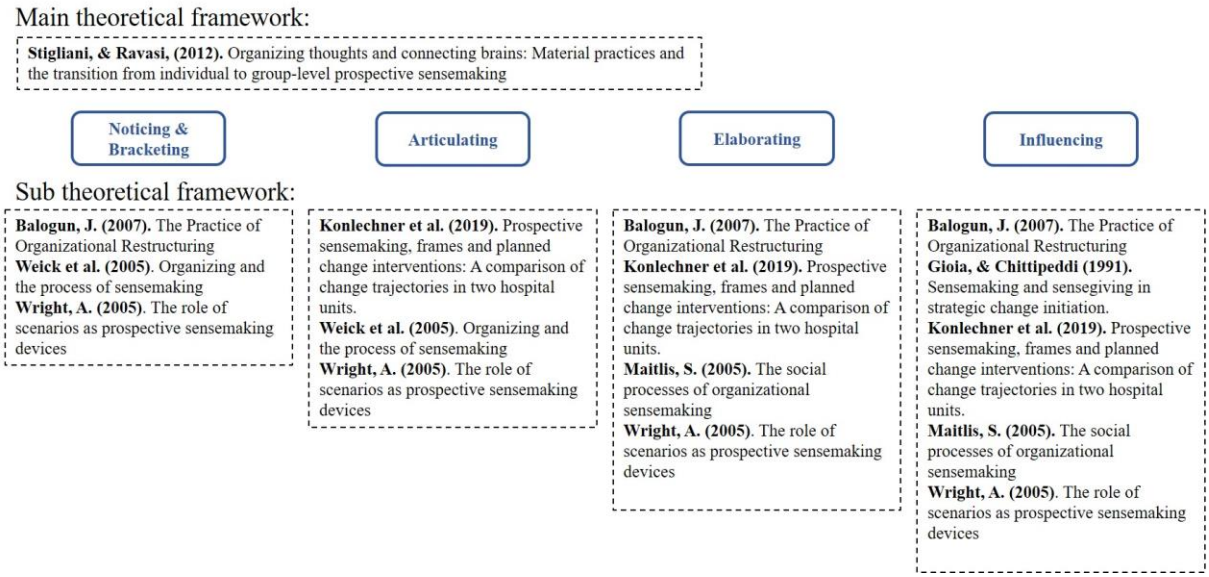

Figure 1. Theoretical framework

In summary, individuals iteratively pass through these four stages of sensemaking in order to combine single cues, to articulate these into an individual prospective sensemaking, which

subsequently is elaborated with co-workers in order to gain a collective prospective sensemaking, and finally going through sensegiving activities by influencing others to believe the same (Stigliani & Ravasi, 2012). We further argue and combine the work that bricoleurs and middle managers conduct in the periphery, to be important in this process (Wright, 2005; Balogun, 2007). Furthermore, Konlechner et al's (2019) insights into the continuous work of making sense of individuals perceived problem pressures towards change, as well as communicating these preferred ways, provide important nuances when analyzing the prospective sensemaking process. In turn, Maitlis (2005) implications on how sensegiving influences organizational sensemaking provides a fruitful way of understanding AutoProd's change from a holistic perspective.

Methodology

Introducing the case company AutoProd

AutoProd is a subsidiary of AutoCorp, one of Sweden's largest automotive groups. AutoCorp was founded nearly a hundred years ago and is world renowned for their high-quality vehicles in different segments. They have become an integral part of the West of Sweden's automotive cluster where the headquarters are located. AutoProd is the production subsidiary comprising factories and warehouses located in many countries and continents with several thousand employees making them the largest organization within AutoCorp. Their mission is to produce and manufacture vehicles. The employee base consists of both blue collar production workers and white collar office workers. The automotive industry, and thus AutoCorp, are currently undergoing a significant technological transformation following the society wide digitalization. For this study's case company AutoProd does this implicates an ongoing shift towards what is described as Industry 4.0 with smart factories based on emerging technologies such as automation, robotization, connectivity, big data and changing ways of working. AutoCorp's presidents have responded to this change with formulating a business strategy to meet the shift, including transforming AutoProd's factories towards Industry 4.0. The research focus on four AutoProd factories in Sweden and serve as a good case to study how meaning constructions of an ambiguous and imprecise change towards Industry 4.0 unfolded in different divisions.

AutoProd is a decentralized organization where the production plants have a lot of independence. AutoProd's headquarters consist of an executive management team with central executives and a principal executive vice president reporting directly to AutoCorp's CEO. Apart from the management team, AutoProd consists of several different support functions such as human resources, finance, quality, marketing and communication, to mention a few. This research includes leaders from four studied factories, central support functions and the executive management team. Furthermore, AutoCorp has a hierarchical structured organization with many levels of leaders which are all categorized. The CEO is categorized as N. The direct reports are N-1, and the ones reporting to N-1 are referred to as N-2 and so forth. In this study, N-2, N-4 and N-6 leaders participated, with additional insights from central HR functions, to provide us with the best possible information between top management and all the way down to the lowest leadership level with personnel responsibility.

Research Design

The research is based on a qualitative single-case study. The case study helped us gather a deeper understanding of the studied phenomenon (Flyvbjerg, 2006). A qualitative approach further enabled us, through several research methods, to gather detailed insights (Silverman, 2013) to how leaders at different levels at AutoProd made sense of and gave sense in an organizational change using prospective sensemaking to guide the process. We argue in line with Flyvbjerg (2013) that carefully performed case studies can be used as examples to generalize. To best extract this type of information we conducted interviews that focused on individual experiences and perceptions, which provided us with an in-depth understanding. A qualitative approach is very suitable to seize insights of how people perceive things (Silverman, 2013). Furthermore, fieldwork is a technique of gathering data through one 's body, beliefs, personality, emotions and cognition to fully understand actions in a particular social setting (Van Maanen, 2011). Obtaining additional information was enabled as we were invited to spend time writing, reading documents and observing at AutoProd, both at the central offices and in one factory, during a certain time of the study period. Hence, combining data collection methods improved the strength of our findings and are in line with the ethnographic research framework (Watson, 2011).

We initially carried out a pre-study for two weeks where we conducted several meetings with representatives at AutoProd, from where the core of our research was based. These meetings enabled us to understand AutoProd's situation and challenges in the ongoing organizational transformation coming along with emerging technologies included in the era of industry 4.0. Our reflections from the initial phase are similar to what Brynjolfsson and McAfee (2014) discuss, where many companies are affected by the wave of newly introduced technologies, which influence various parts of companies, not least; the employees. This guided our choice of utilizing a qualitative research approach in favor of a quantitative one. After the initial pre-study our scope and research method were established. We then spent approximately two months conducting interviews, reading documents, and observing to gather the deepest possible understanding of the research phenomenon. The final two months were dedicated to turning, twisting and analyzing the information and subsequently writing the research paper.

Data collection

The data we aimed to seize were the leaders' perception and understanding of the transformation towards the envisioned future, Industry 4.0. We therefore believed, in line with Silverman's (2013) arguments that interviews are the most suitable methodology to seize appropriate information. Furthermore, open-ended questions have been asked through a semi-structured way, in order to not lead the respondent into specific answers, but to understand their perception and how they reason (ibid). The open-ended questions have enabled the respondent to talk freely and descriptively, as well as providing us with the structure needed to keep within the relevant topic (Silverman, 2013; Bell, Bryman & Harley, 2018). Doing so, we seized the respondents' perception and understanding (sensemaking) of their role in the current transformation towards industry 4.0. In line with our ambition to gather comprehensive information about the transformation and learn about potential discrepancies between levels

and in different contexts, were leaders on three different levels interviewed, as well as some central support functions. There were at least two respondents from each participating division (production plant) and unit. Hence, this resulted in four interviews with N-6's, seven interviews with N-4's, two interviews with N-2's, and four interviews with leaders from central support functions engaged in the transformation. Additionally, secondhand data was collected through document analysis in order to attain information of how AutoCorp's presidents and HR support functions talked about and communicated the envisioned future that trickled down the AutoProd organization.

Location	Manager	Respondents
Central functions	Central executives (N-2)	2
	Competence Transformation Team (support function)	2
	Central HR managers (support function)	2
Regional divisions (operations)	Regional directors (N-4)	7
	Production Leaders (N-6)	4

Table 1. Interview respondents

Furthermore, observations were conducted through office participation, training sessions and department meetings, in order to grasp a thorough understanding of the leader's thoughts and opinions of the transformation. This is in line with ethnographic studies which emphasize the importance of observations and involvement within the social settings where the action takes place (Neyland, 2008). Additionally, it supports the understanding of how the context influences the actions of the employees (ibid). There are two main advantages with ethnographic studies, which are the importance of examining the activity in its context, as well as it encourages the researchers to examine the progress closely (Watson, 2011). In order to fully understand and investigate a phenomenon, multiple methods need to be used, which all should take place in the studied person's natural settings to minimize the risk of abnormal behavior (Watson, 2011; Neyland, 2008). We therefore argue in line with Watson (2011) and Neyland (2008) that observations are a valuable source of information, not the least to understand the context better. We have been flexible for other methods which could in any way contribute to our understanding of our phenomenon or its context, along the way.

Although, limitations and ethical aspects exist and it is important to acknowledge them (Silverman, 2013). We took the potential power asymmetry that can occur between the respondent and interviewer into consideration and tried to minimize it (Kvale, 2006). An interview is not an ordinary conversation where both parts converse equally but is dependent on the respondent to open up and share one's experiences. Everyone might not be equally comfortable with sharing their experiences to the interviewer, especially not if the information can harm oneself in any way (Kvale, 2006). The Covid-19 pandemic and AutoProd's subsequent temporary layoffs left us forced to conduct some of the interviews digitally. To decrease the limitations of conducting interviews through e.g. Skype, we put extra emphasis

on small talk before each interview started to make sure that the respondent felt comfortable. That goes in line with the ethnographic methodology we are utilizing where observations and involvement is essential (Watson, 2011). Additionally, the Covid-19 situation resulted in some interview cancellations upon the temporary lay-offs. However, we interviewed representatives at all locations in Sweden and on all requested levels which, together with observations and document analysis, gave us sufficient data to continue with our analysis. Moreover, in the cases where additional data was considered needed, we were able to get in contact with respondents after the temporary lay-offs changed to part-time lay-offs during the final month of our research.

Data analysis

The empirical findings were compared and analyzed continuously from the point of where it was gathered. In order to do so we took inspiration from Gioia, Corley and Hamilton's (2012) strategy of analyzing qualitative material based on grounded theory (e.g. Martin & Turner, 1986). Our aim was to understand our studied phenomenon through rich and detailed accounts (Gioia et al., 2012). Hence, the data analysis was structured in three main phases. Firstly, we transcribed the interviews and observations, re-read the transcriptions and studied documents, and coded the material. Transcription of material was done immediately after each interview/observation and this process occurred throughout the data collection period. After a handful of interviews, we started to identify patterns and after re-reading the material several times during the data collection period more patterns became further evidential. We then started coding the material with the initial research focus, understanding leaders' perceptions of an ambiguous change process, in mind which resulted in an abundance (several dozens) of detailed first order category codes (Gioia et al., 2012), e.g. uncertainty, reflection, retrospect, future beliefs, training, etcetera. Secondly, we analyzed these codes for differences and similarities and grouped them under descriptive labels in order to keep track of their belonging. These labels enabled us to interpret the findings in a holistic manner, which helped us derive approximately ten-twelve second order themes based on the theoretical dimensions of sensemaking (ibid), e.g. perceived risks, perceived responsibilities, perceived resistance and uncertainty, self-reflection of leading in change, talk about the change process, perception of new technologies, etcetera. This is similar to the methodology Silverman (2013) describes, where he re-read the transcripts multiple times and extracted behavioral information, which subsequently are analyzed systematically in different categories. In the third and final phase we undertook a second order aggregate of dimensions (Gioia et al., 2012) with the aim to further refine the themes in conjunction with the theoretical dimensions. These themes serve as the structure of the empirical findings section and contain clear tendencies and trends of answers that we found from the respondents. It demanded us to re-read our material several times and hold continuous discussions and reflections, before we decided on themes. Hence, the final themes were deemed satisfactory and with the strength to explain the studied phenomenon in detail to the reader.

This way of systematically categorizing information has supported our analysis and was our way of interpreting the gathered data. The process of analyzing interviews and observational

data is extensive and requires a great deal of headwork, as Van Maanen (2011) put it. He further argues that headwork is essential in order to develop concepts, theories and frameworks that fit into the specific studied situation. Multiple sources of information need to be handled and analyzed, in order to find a methodology which best fits to explain the reality which has been examined (Van Maanen, 2011). Moreover, our work with the empirical data was analyzed through the lens of sensemaking and sensegiving theory. During our headwork with the empirical section, sensemaking grew as an insightful perspective to enhance our understanding of the phenomenon. Although, we did not stop there. In line with Van Maanen's (2011) line of argument one should not be too deterministic about the choice of theory. Hence, we dug deeper into sensemaking and found two well-suiting sub theories of sensemaking namely; prospective sensemaking and sensegiving. The way that prospective sensemaking emphasizes the future and change to come, supported our analysis and understanding of the data and subsequently enabled our contribution to science and management research. This was done partially with the aid of Stigliani and Ravasi's (2012) process model of forming a collective prospective sensemaking, where we analyzed important events and interpretations that took place in AutoProd's change process. The cognitive steps in this process model consist of four phases presented in such order in the discussion chapter, which demonstrate the phases individuals go through to make sense of an unclear future and how that is elaborated between actors. We argue that this process model, together with adjacent theoretical concepts, provided us with a thorough understanding of the leaders' prospective sensemaking of the change process at AutoProd. The empirical findings further gave us insight into the applicability of the process model for multidivisional organizations. Furthermore, when analyzing our findings, we further undertook a groundwork to categorize the retrospective and prospective elements that occur in the prospective sensemaking process.

Furthermore, context is essential to understand people's actions (Van Maanen, 2011). We therefore sought to understand and describe the context to the best of our abilities. Worth bearing in mind is that this is a single-case study and that contexts can differ between organizations, industries and countries. Although, in line with Flyvbjerg (2006) can even a single-case study be used generalized as the force of example is important and many of the underlying assumptions might be similar in different settings.

Findings

Urge to develop AutoProd's competencies

AutoCorp's presidents' plan their work based on a scenario they call *The Great Shift* which assumes that in year 2030 there will be 8 billion people living side-by-side with technology in a highly connected world. AutoCorp's strategy to enter this shift is called *Perform to Transform* meaning that they need to continue delivering strong results in order to invest in emerging technologies and transform the organization (Corporate internal document, 2020a). AutoProd which is AutoCorp's largest subsidiary, located in several continents, is the part of the company that comprises all manufacturing plants, quality engineers and production support functions transitioning towards the envisioned future, Industry 4.0. This pressure the employees of AutoProd to develop and adapt to new technologies as well as new ways of working. AutoCorp

is investing heavily into emerging technologies, which includes upgrading the competency requirements for the employees as the future industrial environment will be both challenging and provide a lot of opportunities (Corporate internal document, 2020b). In an internal news article where AutoCorp CEO is interviewed, it can be read that disruptive and future technologies will impact the employees in many ways. To handle these changes, it is communicated that multiple learning sections will be prioritized and executed by the employees. Furthermore, recurring discussions and ongoing dialogues are of importance to keep everyone up to date (Corporate internal document, 2020b). This is summed up in a quote from the CEO who puts strong emphasis both on evolving as well as strengthening the importance of being able to deliver steadily (Corporate internal document, 2020c).

> We must be able to deliver today and prepare for changes in the future. Perform and transform at the same time. That is why we are reviewing costs and reducing production rate but at the same time investing in R&D.
>
> *AutoCorp CEO*

As a part of the AutoCorp executive management team is the AutoProd principal and executive vice president, EVP. In an internal interview with the EVP he expressed great interest in AutoProd's development towards Industry 4.0 as well as emphasizing great importance for AutoProd's employees to strive towards adapting more technologies to better meet Industry 4.0. He further stressed the importance of employee's initiatives and development of new technologies. It is crucial that everyone is evolving as well as keeping the important knowledge that the employees hold today. He shares an example of employees changing work tasks within AutoProd, as well as opening for the possibility to hire new personnel with knowledge for new technologies. He also states that AutoProd has several ongoing initiatives concerning new technologies within the organization (Corporate webpage, 2019).

> Right now, our imagination is the only thing setting the limits. New technologies are adding value and have enormous potential. [..] This is an entirely new culture and we aren't used to this way of working. But developments are taking place at lightning speed and we are finding new opportunities every month, therefore it's better to divide the work into smaller projects.
>
> *AutoProd EVP*

> We need to strike a balance in the transfer of skills – this is the key to success, he explains. [..] Old and new production technology will need to exist side by side for many years if we are to stay competitive.
>
> *AutoProd EVP*

An initiative from AutoCorp's presidents was to appoint a steering committee with responsibility to drive employees' competence development towards AutoCorp's perceived great shift, namely the Competence Transformation Team. The purpose is to raise awareness of what the great shift contains and upgrade knowledge and skills of the employees to better utilize emerging technologies and incorporate them in the operations. An initial focus for the team was to set up training sessions for AutoProd employees connected to Industry 4.0 provided by AutoCorp's internal university, AutoCorp Group University (AGU). AGU is an

independent function of AutoCorp that offers training and education for the organization's all employees related to their working tasks. This initial focus got additional speed because of a co-finance opportunity by the European Social Fund (ESF), where AutoCorp received supporting funding to accelerate the process and execute this program in a larger scale than initially planned. The ESF's goal is to support organizations to educate and develop their employees in order to enhance their employability, both internally and externally (ESF, 2020). AutoCorp's project application presented to ESF stressed, among other things, the importance of a broad competence transformation of the AutoProd leaders and workers in order to stay competitive in the future (Internal ESF application). The plan to create new and transfer existing skills within the organization is based on a four-step process; awareness, understanding, buy-in and action.

> The steering group's role is to guide, take decisions and market the initiative internally in the different divisions and organizations.
>
> *Vice President Competence Transformation Team*

> This transformation was about to happen anyway as it has been a strategy of AutoCorp for a while, but the co-financing accelerates this transformation.
>
> *Project Leader Competence Transformation Team*

AutoProd's central executives (hereafter referred to as central executives) shares the perspective that AutoProd is about to undergo a competence shift towards emerging technologies. They especially interpret external factors to be influencing. They therefore frequently attended international fairs and conferences that focused on emerging technologies and Industry 4.0. Furthermore, it is important that the central executives create a feeling of urgency to change and infuse this to the divisional manufacturing operations (hereafter referred to as operations). Respondents from the central functions stressed that employees should feel that the company is changing and AutoProd better stay updated on the emerging trends. Coherently, external factors are something that many of the regional directors also expressed as a stressing factor to why AutoProd should develop their competencies. The regional directors further expressed concern that the organization is far from as technically mature as wished for. The competence to know what technologies to look for, what opportunities there are and what to do with the data is limited and must be developed.

> My main goal is to get the organization ready to use the data, make them understand how to handle the data, how to act on it if we get warnings and what competencies you need available on all shifts. I want to be clear on that part that before we implement too much technology, there must exist an understanding - receiving - part that knows what to do with the gathered data.
>
> *Regional Director 1*

Production leaders in the operations did not speak particularly about receiving further training as a pressing urge, they rather highlighted that technical skills and technological awareness many times is connected to the production workers age. Younger people tend to be more eager to learn and oftentimes already possess a good understanding of technological developments, whereas older workers have a harder time to apprehend changes in work. As a response to this, some production leaders took their own initiatives to help their workers become more flexible

and technical by rotating them within their team's different stations and learning them handling new machineries. Also, some production leaders seemed to possess a greater individual interest and therefore read articles and news to educate oneself based on their individual drive to learn more. These people seemed to initiate more innovation and development projects, where they combined their individual learnings with what they do at work. Although, the production leaders had not heard about AutoProd's initiative to undertake a large-scale development program and rather expressed hands-on 'learn-by-doing' as the type of training they preferred to undertake and did not regard classroom training as very contributing in general. Summarizing the impressions of AutoProd's urge to develop competencies. Leaders in the central functions expressed that developing the employees to better meet the envisioned future as an important pillar of the change process, which the regional directors agreed to by stating that the organization is not technically mature. Production leaders on the other hand were not aware of the development initiative and regarded on-the-job training as being more rewarding in opposition to classroom training.

Different Understandings of the Change Initiative

AutoCorp's presidents have recognized three challenges they need to overcome to succeed with the perform and transform strategy entering *The Great Shift.* (1) Adequate training that helps prepare the employees, (2) planned discussions and ongoing dialogues to build trust, and (3) align messages and priorities throughout the organization as they have realized that the employees receive mixed messages (Corporate internal document, 2020b). The AutoProd EVP anticipates significant changes in terms of technology and ways of working (Corporate internal document, 2020d). The EVP and central executives regarded the transformation as a step-by-step change process where everyone in AutoProd is shaping the transformation together, through e.g. cross-functional projects and pilot projects. There is an extra emphasis on test-and-learn in order to quickly discard an initiative if it does not add value to the production. In order to prosper throughout the change process, they deem it imperative to transfer skills within the organizational units to be able to handle emerging technologies.

> It's a creative, future-oriented workplace in an ultra-modern company that uses high-tech, smart systems […] What's more, we are doing this cross-functionally. All the roles and areas of responsibility are taking part and are driving technology development."
>
> *AutoProd EVP*

Central executives talked about the technological transformation with a broad and holistic approach and stressed that there indeed is a strategy on how to conduct the transformation. They further admitted that running a large organization with several thousand employees creates tensions and distances between the headquarter (central functions) and the operations. Mostly because the plants do not understand why certain decisions are taken. Therefore, central executives strive to continuously visit and communicate with the plant management teams. This was said to be especially important because AutoProd is too big for central leaders to simply decide on a specific technology and implement it cross-divisionally. Therefore, central executives showed humbleness that leaders closer to the production are more knowledgeable and better suited to come up with ideas of improvement, as they know the processes better.

One executive also highlighted that it is up to the operations to be proactive in finding out and sharing knowledge about new technologies between cross-functional networks, which will help the networks define new initiatives. However, one of the regional directors did not perceive the central leadership to be engaging and visiting the operations enough, even suggesting a need to provoke them sometimes. The director admits that this distance is partly created because they are not asking for help and inviting the central functions to visit them.

> I think that we have been straightforward on an AutoProd level. […] Then it's about asking for help from the networks we have if you don't believe you know enough. Of course, there are functions and networks pushing forward with for example AI, which is new for us all. There we have identified and said that within AutoProd that we have a network with representatives from all functions. Their mission is to share knowledge but also to raise and define new initiatives.
>
> *Central Executive 1*

> I think that there is a fear from the central functions to go out to the factories. I believe that the problem many times lies in that we are not inviting them adequately. On this path we are not building a future together. We must be able to ask for help and they must be able to come here and listen, in order to develop what we need […] Often we have to provoke the organization to come and help us.
>
> *Regional Director 2*

The main forum for communicating and informing the operations about the process are meetings and conversations, formal and informal, and AutoProd management conferences. Additionally, the regional leaders testified that they were not well accustomed to the organization's internal communication channel and did not use it often. Instead, most managers in the operations appear to rely on linear communication from their direct reports. Consequently, the flow of information was insufficient and many leaders within the operations did not have a clear view of where the transformation is heading. They expressed a desire to receive more thorough explanations of how the change process is structured and the ongoing actions in the organization. Therefore, regional directors urged to receive clearer guidelines from the central functions in what direction AutoProd is heading in terms of emerging technologies, solutions the organization should focus on, and the machinery and equipment that needs to be updated in their plants respectively. Many of the regional directors expressed inadequate knowledge about the strategy and could therefore not align their work towards a common goal.

> There is an awareness of us transforming, but how we are changing and how we will do it I don't think we fully know. Although we are all eager to hear how, and also the plan we have to support each other to succeed […] In my case, I get to know a little bit more during the factory management team conventions once or twice a year, where speakers are invited along with engineers from R&D within the firm.
>
> *Regional Director 3*

> We want to receive the possibilities about new technologies explained to us, including the potential they possess. There are functions within the organization that scans the market and it's important that they bring the new technologies out to the plants as we are the ones procuring equipment and machinery. This for us to purchase the right things and prepare for the right technology.
>
> *Regional Director 4*

Consequently, production leaders had not received information about the strategy for implementing new technologies and changing ways of working in the production and felt in the dark about strategic initiatives and communication. Another common theme that emerged during the interviews was the lack of cross-divisional sharing of knowledge. Regional directors and production leaders both expressed a desire to improve cross-plant sharing of knowledge and experiences to improve their own work and find innovative solutions to challenges they are facing. Several respondents stated that they barely ever communicate with their peers at other plants in terms of discussing challenges and exchanging best practices on how to utilize and implement technology. Accordingly, they stressed the important value exchanging practices would have and urged the central functions to set-up and coordinate networks.

> In my department, or towards me, the only communication I receive is when we have our manager meetings. An information hour once a month. It's for all us production leaders at this plant. The plant manager runs them.
>
> *Production Leader 1*

> As I perceive it there is no operations data management project run centrally. I have no communication with my peers at other plants, and no communication about how we should handle all the data we will gather ahead. I work locally with my managers trying to comprehend it (data) and create an organization for this.
>
> *Regional Director 1*

In summary, the different interpretations of AutoProd's change process can be derived from the ambiguous nature of the transformation towards industry 4.0 where no one has the answer to what the future of manufacturing will entail and the changes that need to be made in each respective plant. Hence, this resulted in incomprehensive information of the change process constituent parts. This therefore influenced the interpretation of one's responsibilities in the change process.

Ambiguity on Responsibility to Drive Regional Change

AutoCorp's presidents focus on communicating an open culture with delegated responsibilities (Corporate internal document, 2020b). The Competence Transformation Team added to this by stressing the important role leaders have in understanding and embracing emerging technologies and ways of working in order to foster engagement and an environment to develop innovations (Internal ESF application). AutoProd's central executives share the vision of delegating responsibilities and are encouraging managers to take their own initiatives. Their preferred way of managing the change process is by discussing and communicating AutoProd's principles with the managers and thus handing over the decision making to the operations. The reason behind this 'change' philosophy is to foster personal development and a willingness to learn through responsibility. Although, the absence of a clearly communicated change process created ambiguity among leaders in the operations on where their responsibilities lie in the transformation process. Respondents from the operations further expressed an unawareness of who carries ownership of these types of projects with answers ranging from technicians and pilot teams to the headquarter. However, all respondents were aware that a transformation is

ongoing towards incorporating new technologies in the operations. Accordingly, this affected the managerial perception of having agency to drive change.

> Essentially, I very much believe in a delegated responsibility. I think that one of the pieces to create the right conditions for this delegated responsibility is to spend time talking about principles and how we think so that the organization feels confident in how we reason […] It's about creating an environment where people want to learn. Because foundationally this is a competence journey, and how do we foster a willingness to learn? When you start taking responsibility you learn new things. Hence, the strategy for the whole organization is about a delegated responsibility.
>
> *Central Executive 2*

Furthermore, central leaders stressed the importance of challenging leaders and workers by delegating prioritized assignments, via e.g. the Industry 4.0 board. However, the communication from the Industry 4.0 board seems to further establish an ambiguous nature of responsibility and ownership in relation to the transformation. A decision to focus on specific solutions or technologies had not been taken and there were equivocal expectations from where these innovations and solutions should hail from within the organization.

> My role is very important in terms of encouraging and challenging […] We have a forum that we call Industry 4.0 board, which I manage. There we are raising questions, prioritizing and taking decisions on what needs to be done. For example, if we realize that we need to take special action on AI, a decision is taken that we start a project focusing on this and we hand over an assignment to a group of people to bring this forth […] We haven't really wanted to say that a certain technology is important for us, we rather highlight a few areas in which we have stronger belief going forward, and perhaps our expectations are that it will come from somewhere in the middle (levels), not from the bottom perhaps.
>
> *Central Executive 1*

At regional director level the delegation strategy was apparent as well. The regional directors' ambition was described in many cases as encouraging curiosity and contributing to an open culture with autonomous work teams. However, there were different understandings on their own responsibility to drive transformation and take related initiatives. Questions directly related to what responsibilities regional directors have in the change process generated different responses with many stating complete unawareness. Many regional directors expressed an understanding of their obligations and liability in ongoing projects but did not perceive to have any outspoken responsibility in the transformation towards the Industry 4.0 factory, which made them uncertain to take initiatives for new projects related to emerging technologies. Observations from one plant management team's change management seminar further revealed a lack of designated responsibility regarding the change process towards Industry 4.0. One exercise was to individually rate the clarity in who or whom is the sponsor, change leader and project manager for their plant's "master plan" based on ten questions (rating 1-3), thereafter tally the questions in the same category to a total where the maximum score was 30. According to the seminar leader everything below 20 is considered inadequate. The scores for the clarity in who was the change manager for the project equaled varied scores between 10-12, the project leader around 15 and the sponsor around 20-23. The following discussion revealed that the

principal plant manager was considered the sponsor, and the team agreed that work needed to be done in order to assign and clarify roles within the plant's master plan.

On production leader level (N-6) interviews suggested that they did not perceive to have any outspoken responsibility in implementing emerging and future technologies in the operations either, based on the same questions given to the regional directors. They felt that it was up to them to proactively gather an understanding of the change process and gather technological information individually. However, many of the production leaders had several employees reporting to them, sometimes up to 35 workers in their teams, and they prioritized preparing them to become more flexible to work in several stations as well as becoming more technically aware. In doing so many production leaders had been proactive in aiding their workers becoming more flexible through rotations in different workstations to learn handling new tasks and machinery. Furthermore, the production leaders expressed an implicit responsibility upon them to be up to speed about emerging technologies through self-studies in order to succeed with this. And the production leaders that had extra interest in emerging technologies generally took this responsibility further and initiated many initiatives and functioned as a driving force for more innovation locally. Although, the initiatives and the projects which needed investments were production leaders instructed to send a formal request to the plant management team. Investments related to the transformation had thus far been modest, based on this scarcity of communication between levels.

> No, not any stated area of responsibility, but I have taken it upon myself. I have taken a few steps to help my co-workers.
>
> *Production leader 2*

> No, not within this. You mean with the new? (Industry 4.0 transformation). I have nothing outspoken in the new right now anyway […] If I need something, I write a formal request and escalate it upwards to be reviewed by the factory management team. Put frankly, the go-ahead response has been very modest.
>
> *Production Leader 1*

These statements together with additional findings gathered from the interviews and observations provided an ambiguous view on who is responsible for taking decisions and initiatives to drive the technological transformation and implement emerging technologies in the operations. Central executives suggested a delegated responsibility and proposed middle levels to come up with technological solutions to foster the transformation. Whereas the regional directors were seeking clarification and guidelines on where AutoProd is heading. In the plants the production leaders run their autonomous teams but do not perceive to be heard enough when it comes to the technological transformation.

Regional Initiatives Leading the Way Forward

Central executives argued for various critical activities in order to prepare and conduct the competence development toward Industry 4.0, where the education program promoted by the Competence Transformation Team and conducted by AGU is a crucial part of it. These training's main objective is to create curiosity and increase the level of awareness of emerging

technologies for all leaders within the AutoCorp organization. The product of this curiosity is subsequently that leaders take individual initiatives to improve and develop their areas related to emerging technologies and changing ways of working. These initiatives are expected to come from, not necessarily bottom up, but more likely from middle up. Consequently, providing training sessions as a catalyst in order to receive more initiatives from people further down the organization. This is important because central executives are unable and unfit to take decisions on the technologies to implement, as they are located far from production. Leaders and workers closer to the production should evaluate their learnings and apply these to the tasks they perform in order to apply the most fitting technology. In order to support this evolvement, the AutoProd headquarter is a self-proclaimed "proud support organization" toward the operations. Doing so, they hope to make it easier for all leaders to take initiatives and support them in their development toward the use of emerging technologies. Dialogues with lower level leaders is additionally an important task that they saw themselves have in this transformation. To emphasize a line of reasoning in order to help leaders to know how to reason, without giving any orders or strict decisions.

> They (trainings) should create curiosity, I believe that is the most important. To create a general understanding and curiosity. I don't believe that these trainings will give answers on how to apply them. No training will give us that. But to create curiosity and the drive to dare to try, I believe is super important
>
> *Central Executive 1*

> I see myself as part of a "proud support organization". Why do I say that? Because in order to understand what (technology) is needed, you need to understand what happens at the operational level. They need to understand what is good for them. We cannot just say – you need this technology
>
> *Central Executive 1*

Regional directors and production leaders did not emphasize the importance of theoretical training as much as the central functions, although they emphasized on-the-job training. They argued for the importance of letting operators and production leaders experiment with emerging technologies in combination with their machinery and by doing so come up with improvement initiatives. Many of the regional leaders also argued for the importance of having both specialists and generalists. Specialists with expertise in a certain technology and in specific processes and generalists that see the bigger picture and the many processes at the production plant. By having both specialists and generalists working together it is argued that creative and good initiatives will appear. One way of supporting the teamwork from the regional directors was to give operational leaders (on different levels and in different functions) the mandate to experiment in a designated working environment, where a failure or a mistake would not be crucial for the continuous production. If a test of a new technological solution is successful, it can later be implemented. These experiments and successful implementations were also argued to be of great importance to be shared with colleagues, both within and between plants. Experience and knowledge sharing between plants would contribute great value and act as a source of inspiration as they can learn from each other, which would further help scaling up successful experimentations and pilot projects. However, knowledge sharing between plants was infrequent.

> Then we learn a lot in a controlled environment until we feel that it is ready to be implemented live in production. Then we just put it there. I believe that is a great way of working with Industry 4.0 technologies, to try in a safe and controlled environment and then after implementing it. This can subsequently be used as a "go and see" place, where colleagues can visit and become inspired.
>
> *Regional Director 5*

> I believe that we need inspiration by people that have come further. To understand and see our opportunities. It is important to find a way to spread the information within the company and between plants. To share what has been done successfully, so everyone can learn from that.
>
> *Regional Director 6*

However, there was one example of a successful cross-functional pilot project. This was the 'future industrial worker' pilot comprising participants on different levels and from different areas of each plant. Part of the shared envisioned future within AutoProd was the mutual consent that roles and responsibilities for production leaders and operators will change to become more autonomous and technical. Hence, production leaders and their teams will be forced to rely on solving problems independently and manage innovative improvements. The pilot was structured with regional projects teams, central support groups and a cross-divisional pilot network including participants from all functions and plants to share local progressions and learnings. It was sponsored by AutoCorp's presidents and AutoProd's executives that followed the progression closely. A few autonomous pilot teams were established at carefully chosen plants that included production leaders and their operators who received technical training, became autonomous by managing their own work and schedules, as well as being assigned a wider range of responsibilities than normal work teams. The aim was to broaden these teams' competencies and technical skills to in the future offload quality and maintenance engineers' easier duties. Hence, this would help AutoProd's production teams to incrementally evolve towards Industry 4.0. The pilot eventually became so successful that its results had spillover effects to production teams outside the pilot before its completion. As progression and results were communicated between plants through the pilot networks and upwards to the central functions, central executives and central support functions shared their interpretations further to the operations which were absorbed by production teams outside the pilot and adapted to their local context.

Summary of findings

The empirical findings provided in this chapter presented AutoCorp presidents ambition to enter their perceived great shift by initiating a wide change strategy, *perform to transform*, that included to develop competencies, align messages and build trust. For the studied organization, the manufacturing subsidiary AutoProd, the great shift entailed a shared envisioned future of Industry 4.0 with highly technological factories and changing ways of working. The imagined future included a technological transformation with a corresponding development program for AutoProd's leaders and workers to succeed in transforming. The interviews and observations conducted at AutoProd revealed that the central executives tried to establish a mutual understanding of the change process by communicating AutoProd's principles constituting the change and providing guidelines to regional directors to initiate local change activities.

However, the ambiguity of what the change entailed puzzled regional directors that could not comprehend the change process and subsequently their responsibilities to drive regional change. This ambiguity spilled over to the production leaders in the plants that in many cases were unaware of the change strategy and their responsibilities within it, and thus in some cases had already undertaken their own initiatives. In contrast, the findings further shed some light in the tunnel of multidivisional change initiatives. The success of the cross-functional and small-scale pilot project future industrial worker helped to align messages for those involved and the results and learnings had started to spread and been adopted across production teams.

Discussion

The findings suggest that there are many different factors affecting how actors make sense of a change process to enter an envisioned future. As from where and how they receive information about emerging technologies, their position, where they are situated, and how they interpret the communication are some factors shaping an individual's mental map and thus the development of prospective sensemaking of change (Konlechner et al., 2019). In order to delve deeper into the prospective sensemaking process and discern how different factors and phases affect actors meaning constructions, Stigliani and Ravasi's (2012) process model is utilized in conjunction with adjacent theoretical concepts of sensemaking and sensegiving. Analyzing how individuals and groups develop their understanding of a change process towards an imprecise future in a multidivisional organization through prospective sensemaking provide valuable insights to practitioners undertaking such initiatives and researchers seeking to explore the field further.

Noticing and Bracketing Change Related Cues

The phase of noticing and bracketing is where one simply acknowledges cues, without categorizing or labelling them yet (Weick, 2005; Stigliani & Ravasi, 2012). Leaders at different levels were exposed to different amounts of cues, as central leaders visited several fairs, conferences and industrial meetings where they interacted with scientists, developers, competitors and start-ups connected to Industry 4.0. Hence, they are actively engaging in gathering cues related to their prospective view of the envisioned future. This results in an asymmetry of information and consequently are regional leaders exposed to fewer cues related to the envisioned future, which limit their provisional understanding (Stigliani & Ravasi, 2012). The situation where senior leaders in the center have access to more information than managers in the periphery is not rare, rather common (Wright, 2005). Central leaders are more often exposed to information and possess a more holistic perspective than other subordinate managers, hence, they often have a deeper and clearer understanding of the strategy (Wright, 2005). Regional leaders are therefore mainly influenced by internal cues such as communication from superior leaders and internal news and updates, often as a product from these fairs, conferences and meetings. Moreover, information from the headquarter is often communicated to the regional divisions through town hall meetings where central executives communicate their prospective sensemaking toward the envisioned future. Hence, production leaders were heavily influenced by this storytelling as they receive cues that may initiate a re-processing of their understanding (Balogun, 2007).

Some of the regional leaders expressed a sincere interest in emerging technologies and therefore by their own interest and in their own spare time read articles about new and emerging technologies. These leaders consequently had a more elaborate understanding of industry 4.0 and ideas of how the preferable way of coming there looks like. This is related to what Wright (2005) discussed as the importance of bricoleurs who create meaningful action and work, based on the information available, as well as the importance of middle managers as change agents to carry out the superior's blueprints of the change (Balogun, 2007). This further indicates that these leaders possess a more detailed prospective sensemaking, than the ones with less interest who fully rely on the information received through internal communications. Although, even the less interested leaders knew that the future would constitute of much more advanced technologies than is used today but had not spent time thinking about it. This process of active and inactive search for cues is what Wright (2005) and Stigliani and Ravasi (2012) refer to as browsing and collecting cues. These cues are not yet labelled or categorized, which consequently only consist of bits and pieces and have not yet provided a full prospective sensemaking of what is needed in the future (Weick et al., 2005). This indicates the importance for organizations to actively expose leaders on all levels to external cues related to the envisioned future. If not, organizations risk creating asymmetry of information which ultimately creates distances between central functions and regional divisions.

Articulating the change

Articulating is referring to the process of assembling cues and combining them into provisional and tentative understandings (Stigliani & Ravasi, 2012). These interpretations can then be articulated verbally as the combination of cues prolongs and becomes categorized based on one's present understandings (Weick, 1995). Another way of making sense of cues is by combining them with material artifacts, e.g. machines, systems or models (Stigliani & Ravasi, 2012). That supports the process of sensemaking from individual cues, which combined with material artifacts, enables one to articulate a provisional prospective understanding (ibid). A prominent example of the intention of articulating and trying to combine several cues was the idea to form support functions. These initiatives made by the central leaders are interpreted as a way of central leaders combining their received cues to form a specific focus area for the future in order to prepare the company for Industry 4.0. They did this by imagining themselves, prospectively, in a desirable future state for the organization and subsequently interpreted their preferred way of reaching the envisioned future (Konlechner et al., 2019). It is therefore argued that competence development aid and support functions were a perceived fit to help reach the envisioned future, according to central leaders. Thus, their way of initiating regional leaders to articulate their provisional prospective sensemaking toward the envisioned future.

Although, regional leaders' perceived fit differed significantly to central leaders. They perceived on-the-job training and small-scale innovation projects on current machinery as more important, in order to reach such a future. A reason for that could be explained by how regional leaders apply their cues of information with the material artifacts related to their work tasks, creating their prospective sensemaking closer related to smaller development ideas, which in turn will lead the company towards the envisioned future. These material artifacts further differ

between production plants, as they constitute different parts of the production chain. This implies various plant unique machinery and processes, in turn forming unique problem pressures that require local initiatives. The leaders most prominent in combining cues with material artifacts were the regional bricoleurs (Wright, 2005). These were production leaders with an individual interest in emerging technologies and consequently articulated to a higher degree their suggestions of innovations and improvements, than the others. They actively categorize received cues and label them, together with tasks that are within their responsibility and create individual provisional understandings on what the perceived fit toward the envisioned future should look like (Stigliani & Ravasi, 2012). As cues are continuously labelled and categorized, the prospective sensemaking grows stronger and every leader develops their intrinsic perceived problem pressure (Konlechner et al., 2019), which in this case often consists of improvement or smaller developments of current ways of working.

Moreover, the discrepancy between central and regional leaders' perceived fit of the change process, creates distances between central and regional divisions, enforced by inadequate communication. In turn, creating a significant dependency on regional bricoleurs to gather information oneself, individually combine those cues with the material artifacts at hand, and later articulate initiatives. Furthermore, regional unique artifacts demand regional initiatives, which further implies a distance between plants as well. Regional bricoleurs perceive different problem pressures, based on their situation towards the envisioned future. In turn, indicating that Stigliani and Ravasi's (2012) process model to create a collective prospective sensemaking is difficult in multidivisional organizations since the meaning construction of the local context is often different from the wider change initiative (Balogun et al., 2015).

Elaborating the change process

Elaborating sensemaking activities are those where individuals share their provisional understanding to the group and engage in active discussions to ultimately form a collective prospective sensemaking of the path forward, i.e. sharing mental and material content and connecting brains (Stigliani & Ravasi, 2012). In these discussions, participants are also sharing knowledge and work experiences, relatable to one's retrospective sense (ibid). The research showed that successful elaborating processes, those that end up with a collective prospective sensemaking, mostly occurred among members on top levels within the organization. Management meetings, internal labor analyses, leadership conferences and (in)formal conversations with leaders in the operations served as valuable inputs for central functions to re-articulate their provisional understanding of the change process and ultimately, by 'connecting their brains', form a collective understanding of how to structure the transformation (Stigliani & Ravasi, 2012). This resulted in the corporate management team's decision to establish the Competence Transformation Team, the Industry 4.0 board and support the cross-divisional pilot future industrial worker. Furthermore, deciding on a delegated responsibility to innovate and distribute guidelines out to the organization were also considered to be part of the deliberate change process. This structure of the transformation is arguably the central function perceived fit to the perceived problem pressure as the gap between the present and the future desirable state. (Konlechner et al., 2019). Additionally, their intention with the

change process can be connected to Maitlis (2005) categorization of guided organizational sensemaking where both leaders and stakeholders should engage in sensegiving activities leading to a unitary interpretation and the initiation of several interrelated and consistent actions.

Although, in the operations several unique activities occurred that can be deduced as part of the elaboration process. These activities sought to result in a local collective prospective sensemaking of the path forward, among those involved, to realize the envisioned future. Either in the form of experiments in protected environments (to not obstruct the production flow) or as cross-functional pilots involving several functions within the plant. As expressed by a regional director does protected testing environments, 'go and see places', serve as a great way to form a provisional understanding and subsequently share knowledge to elaborate and reach a collective prospective sensemaking (Stigliani & Ravasi, 2012) on how to proceed and/or implement this in production. Successfully exemplified with the future industrial worker pilot which results had spillover effects to the production teams before its completion. These activities can be likened with imaginable scenarios that serve as stimulating sensemaking devices of the future (Wright, 2005) and aid divisions within AutoProd to form a collective understanding of the path forward towards the envisioned future. Although, as the operational elaborating attempts were mostly regional and few attempts were made to coordinate cross-divisional networks to share guidelines and better practices between plants, multiple accounts of the change process existed within AutoProd which produced inconsistent actions that can be connected to fragmented organizational sensemaking (Maitlis, 2005) and thus incoherent prospective sensemaking.

Central support functions were consequently introduced, as it was perceived to be the central function's perceived fit toward the envisioned future. They had the objective to structure training and education programs in order to 'give interest', i.e. raise awareness of emergent technologies, and unfold a collective prospective sensemaking of the envisioned future's constituent parts. Leaders in the operations, who are situated in the core of the production, possess an up-to-date understanding of the operations with hands-on capabilities, are arguably better equipped to incorporate emergent technologies and innovate new ways of working. Central executives therefore rely on leaders in the operations to be bricoleurs that through their skills and understanding will innovate and find solutions to challenges linked to the transformation (Wright, 2005). Thus, undergoing carefully planned trainings will conceivably help regional leaders produce similar 'visual references' of the future and 'sort things out' ultimately leading to comparable provisional understandings of the perceived problem pressure (articulating) and thus grant a smoother elaboration process, hence, the creation of a collective prospective sensemaking (Stigliani & Ravasi, 2012). This was observed to be quite varied as not all regional leaders had the same provisional prospective understanding of their plants' change process.

The unclear and vague roadmaps made by the central leaders influenced regional directors' ability to embrace the superior's deliberate change process and translate it into practice (Balogun, 2007) in the operations. The discrepancy between the central functions view of the

change process and the regional directors' vague understanding affected the communication and initiation of elaborating activities for the production leaders within the plants. As mentioned, production leaders perceived to be somewhat unaware of the roadmap towards Industry 4.0, even though they share the notion of the envisioned future. Instead, they engaged in doing *bricolage* with the knowledge they had at hand (Wright, 2005) within their own teams to upgrade the team's competencies and agility, which they perceived supported the transformation. This, in turn, implies that different plants must not generate an identical organizational wide prospective sensemaking in order to innovate and develop itself. The divisions could fulfil their unique part of the firm's production chain, and still engage in development toward the envisioned future, even without detailed organizational wide road maps. Each division could benefit in forming a regional collective prospective sensemaking, built from their retrospective knowledge, (i.e. context, such as their current production processes), combined with their preferred way ahead, to transform their 'being' in the value chain towards an envisioned future. Providing insight that an envisioned future could support multidivisional organizations in organizing and directing regional innovations toward an undefined future state, without giving each division clear instructions on how to proceed in this ambiguity. Instead providing each division with centrally engaged support teams that can aid each division in their development.

Influencing Internal Stakeholders

Influencing refers to the sensegiving attempts aiming to influence or persuade stakeholders (Gioia & Chittipeddi, 1991) to embrace a group's collective prospective sensemaking of the proposed change process (Stigliani & Ravasi, 2012). It is perceived that the corporate presidents' message that emerging technologies will disrupt current ways of working and that employees are in need of upgrading their competencies (while continuing to perform during the transformation) was an initial attempt to convince the workforce to be curious and prone to change in order to initiate the transformation. And as the central functions identified the soon-to-come lack of awareness and expertise in emerging technologies as a major factor comprising the perceived problem pressure (Konlechner et al., 2019), the initiation of a competence development program was an important action as part of that perceived fit. Furthermore, included in the role of the Competence Transformation Team's principal was to engage, and convince regional directors to embrace the competence shift. For AutoProd to form a collective prospective sensemaking of the perceived fit, central executives have an important role communicating their understanding of the change process to leaders in the operations. Central executives preferred to 'talk' about the envisioned future directly with the regional directors, formally or informally, and guide them about AutoProd's principles of what the transformation entails. This served as the central functions attempt to align the understanding of the change process and form a guided organizational sensemaking towards the envisioned future (Maitlis, 2005).

However, the regional directors expressed rather inconsistent understandings of emergent technologies and the change process, suggesting that they only possess nominal accounts of the transformation and therefore initiated few actions and activities (Maitlis, 2005), which

resulted in fragmented understanding of the change process. One of the regional directors put it vividly by calling the ambiguous change process “a blind person leading another blind person”. As such, the discrepancy between central functions and the regional directors' prospective sensemaking of the change process led to few and inconsistent sensegiving attempts by regional directors towards the production leaders in the operations. Hence, leaders in the operations struggled to embrace the central functions proposed blueprint of the change process (Balogun 2007). Most of the interviewees were not aware of the competence development program, and in many cases perceived theoretical training to be redundant. Regional directors' sensegiving attempts were instead intended to promote curiosity, innovative freedom, test-and-learn pilots, experiments through factory leadership meetings (town hall) and discussions with middle level managers. Therefore, many of the regional directors did not have a comprehensive view of the change process’ perceived fit to reach the envisioned future (Konlechner et al., 2019). Mainly due to a lack of understanding of its constituent parts. This resulted in that many of the production leaders close to the production were unaware of the proposed change process and its purpose by corporate management. Hence, being in the periphery, far from the corporate center, forced some of the production leaders to become bricoleurs (Wright, 2005). Additionally, production leaders did to some extent engage in sensegiving activities upwards through sending requests to their plant’s management team, including suggestions of improvement and need to procure new machinery. This indicates that the production leaders were situated within Maitlis (2005) description of minimal organizational sensemaking, where they possessed little or no understanding of the central functions perceived fit and conducted rare compromising activities.

Although, not many tests and experiments are shared between plants as the lack of cross-divisional communication inhibits the opportunities of sharing better practices between production plants, and the opportunity to influence actions in other plants. Which consequently built a wall between production plants, as their primary source of information and communication is linear. These limited communication channels, in combination with each division's unique context (i.e. processes and artifacts) created a fragmented organizational sensemaking, and thus provided central leaders with multiple diverse initiatives, which must not be suitable for each division. Making it difficult for central leaders to engage in a unitary guided organizational sensemaking but require them to support single plants separately. This, in turn, provide empirical insights into how Stigliani and Ravasi’s (2012) model is limited to single division organizations, since separate divisions have their unique material artifacts that relates to the specific machinery at hand, its characteristics and its processes, whereas these together form the unique regional demand for innovation. Additionally, each division most likely has their own bricoleurs doing bricolage with the information and materials at hand (Wright, 2005). This further separates the divisions as they have access to different knowledge and levels of curiosity through their employees. Meaning that the degree of innovation is dependent on the level of knowledge and curiosity of the employees and can, consequently, be supported by training programs. Which, in turn, shed light on the importance of utilizing central support teams, who can aid regional bricoleurs and provide training programs specifically formed for the regional unique settings. Doing so, building a bridge with shorter communication channels to faster incentivize regional initiatives and extract better practices

and share those between divisions. This was exemplified with the success of the future industrial worker pilot in which learnings and work ways were spread from the initial pilot teams and became adopted by several production teams with the aid of cross-divisional support teams and networks.

Theoretical and Managerial implications to Prospective Sensemaking

The preceding discussion highlighted important aspects of the ambitious attempts of trying to form collective prospective sensemaking in a multidivisional organization, and vice versa, activities that hindered the process. This research thus provides valuable theoretical contributions and managerial implications to the field of management. Firstly, the analysis of an organization going through uncertain change towards an imprecise state but envisioned future, through Stigliani and Ravasi's (2012) process model, unfolded discernments of how retrospective and prospective elements of sensemaking mutually occur and are intertwined throughout the said process. These elements combined guide the individual through each phase and, subsequently, a group of people (e.g. a division or a team) to unfold a cohesive understanding of the desired future state and make sense of how to proceed onwards. Table 2 summarizes the intertwined elements, previously discussed in length, and provides sensemaking scholars and researchers with a guide to further develop in studies concerning ambiguous and imprecise change processes, e.g. towards an envisioned future. Understanding the retrospective versus prospective elements in the meaning construction of actors provide valuable knowledge that can aid researchers in delving deeper into the respondents meaning constructions' and help sort out how prospective sensemaking develops. It further affords practitioners with insight about the meaning construction of individuals in complex change and can aid communication efforts and thus help align change activities across functions and divisions.

	Phases			
Element	**Noticing & bracketing**	**Articulating**	**Elaborating**	**Influencing**
Retrospective	- knowledge affect how one notice cues	- label cues based on present sensemaking	- sharing/discussing knowledge and previous work experiences	- present, retrospective, understandings affect actor's responsiveness
Prospective	- actively searching for cues based on an imprecise future	- build a provisional understanding with the aid of material artifacts - 'placing yourself in the future'	- connecting brains by sharing one's provisional understanding of the future, and listening to others' understandings - bricoleurs performing bricolage in their local teams, based on what they perceive needs to be changed	- attempting to convince stakeholders of one's desirable future state - incentivize people to initiate activities aimed towards an imprecise future

Table 2. Retrospective and prospective elements in the collective prospective sensemaking process of an envisioned future

Secondly, distances are inevitable in complex multidivisional organizations as divisional leaders naturally possess a more advanced understanding of the regional context, shaped by the interdependency of its employees and material artifacts. Regional directors are situated with dual roles as change recipients making sense of the organization's wider initiative and as change agents giving sense locally (Balogun, 2003). They must first make sense of (decode) central executives change initiatives and then translate them (recode) into their division, even though the meaning construction of the wider change effort can be considerably different from that of the local context (Balogun et al., 2015). It is therefore highly unlikely that heterogeneous divisions within multidivisional organizations will attain a unitary collective prospective sensemaking of a complex process towards an undefined end-state, such as the technological transformation. The difficulty, proposedly, stems from the interplay between the divisional material artifacts (such as machines, tools, software's and work processes) and the tacit knowledge possessed by its employees forming a unique context. Transforming an organization constituting of heterogeneous divisions by upgrading and/or incorporating emerging technologies and digital tools include specific change processes for each division as one or several elements of material artifacts are contextual dependent and therefore requires skilled personnel (typically bricoleurs) to bring this to action. Within manufacturing this could typically be installing new machines and integrating connectivity between them in a specific production line, or in an office environment unique software program's in separate functions such as in mechanical engineering and marketing divisions.

Furthermore, we propose the importance in multidivisional organizations to utilize cross-divisional support teams encouraged centrally that act as intermediaries between central functions and regional leaders. This will proposedly support the prospective sensemaking process by encouraging divisional leaders to start combining cues with material artifacts in order to articulate ideas and elaborate local change activities. Cross-divisional support teams can interpret the unique perceived problem pressures in each division (Konlechner et al., 2019), and provide the support needed to change regionally. The envisioned future serves as the overarching shepherd guiding organizational leaders. Regional leaders interpret the envisioned future's constituent parts and headquarters guidelines to drive local change. Hence, cross-divisional support teams play an important intermediary role in supporting the prospective sensemaking process and align change activities in multidivisional organizations. Additionally, divisions sensegive their collective understanding, i.e. learnings and new ways of working, back to the central functions and other divisions to share knowledge and practices to support the transformation.

Conclusion

In recent years has the growing interest of further exploring and understanding future-oriented work, and how people make sense of change to come, attracted more attention in management science (Corley & Gioia, 2011; Patvardhan et al., 2018). Scholars have shown that studying future-oriented sensemaking provides unexplored insights into how people make sense and act, as simply relying on past experiences is not enough to create a full understanding of one's actions (Gioia et al., 2002; Brown et al., 2015; Patvardhan et al., 2018). An insightful

perspective to understand how individuals make sense of how to reach an imprecise future and how they collectively form such an understanding; namely collective prospective sensemaking, was developed by Stigliani and Ravasi (2012). This paper has therefore examined how leaders in a multidivisional organization make sense of an ambiguous organizational wide change effort with the purpose of answering the question 'how do leaders in multidivisional organizations utilize an envisioned future to support the process of forming collective prospective sensemaking?' through the lens of Stigliani and Ravasi's (2012) process model, with adjacent theoretical concepts within prospective sensemaking and sensegiving. This paper thus provides two valuable findings contributing to management research. Firstly, multidivisional organizations are unlikely to attain a collective prospective sensemaking of an ambiguous change process across all divisions. This is supported by the actuality that each division forms its unique context through the interplay between its people and material artifacts. The proposition is therefore for central functions to support the divisions in developing their unique prospective sensemaking of the change based on an envisioned future state. Secondly, an initial groundwork was undertaken that outlines the retrospective and prospective elements mutually occurring in the process of developing prospective sensemaking.

The contribution of this study enlightens the importance for organizations and managers to utilize and strengthen an envisioned future in order to align innovation and development cross-divisions. Which in turn, provide managerial implications into how multidivisional organizations can organize themselves by encompassing local context, local innovation and central engagement, through central support teams. Meaning that multidivisional organizations guided by an envisioned future can support local change initiatives with short communication channels and emphasize specifically on centrally supported training programs, that spurs local innovation. These findings further extend on previous research, not only by demonstrating the limits of Stigliani and Ravasi's (2012) process model in multidivisional organization, but also an enhanced way of understanding the processes of how people interweave retrospective and prospective elements, as well as providing an initial groundwork of what processes are characterized by those elements.

Moreover, the future-oriented studies which incorporate prospective sensemaking and envisioned futures are somewhat limited, and our analysis could therefore benefit from further research and contribution within the field of prospective sensemaking in order to explore the nuances in multidivisional organizations. It is, therefore, further argued by us, among many other scholars, that more studies should be conducted on how organizations utilize an envisioned future to align development, especially interesting would be to focus on another envisioned future, such as sustainability. Furthermore, more studies are needed in the field of prospective sensemaking where Stigliani and Ravasi's (2012) process model would benefit to be exposed to more contexts, as it is an emergent model.

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