Postprint

The Influence of Cultural Values on Organizational Agility

Completed Research

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Abstract

Organizational agility, a firm's ability to manage dynamic change, has become strategically important for companies in their innovation work. In this context cultural aspects are especially important, as they can both support and hamper organizational agility. Differences can generate innovation ability but they can also create conflicts between competing value systems, thus reducing the firm's ability to develop organizational agility to support innovation processes. We conducted a comparative study in incumbent firms and startups in the automotive industry to identify the influence of entrepreneurial cultural values on organizational agility. The Competing Values Framework was applied to identify the relationship between cultural values and organizational agility. The result shows that cultural differences affect the companies ability to develop organizational agility for innovation work. In particular incumbents struggled to enable a change towards organizational agility. We found that startups integrated Clan and Adhocracy into an agile culture, which enabled continuous innovation growth.

Keywords

Organizational Agility, Organizational Culture, Agile Culture, Continuous Innovation, Competing Values Framework

Introduction

The purpose of this study is to understand the influence of entrepreneurial cultural values on organizational agility in the automotive industry. The paper reports on a comparative study of new smaller startups and incumbent firms, both in the automotive industry, and how they work with enabling organizational agility. We applied the Competing Values Framework (CVF) by Cameron and Quinn (2011) as a theoretical lens to identify the influence of cultural values on organizational agility, to identify how and when tensions between values supported or hampered the organizations' ability to innovate. We define an incumbent firm as already having a position in a market, at least one or more products available and to a high extent financed through company generated revenue. A startup is in an early stage in the enterprise life cycle, with no or few products released, and typically financed through venture capital.

While the role of organizational agility has been approached from different academic strands since the beginning 1990s, the influence of cultural values on organizational agility and innovation capability in firms has recently gained attention. However, few qualitative studies have focused on how cultural values drive organizational innovation. In this study we are particularly interested in tensions between different cultural traits, that is how they compete. Cameron and Quinn (2011) argue that different cultural values can enhance organizations in their ability to act in a flexible and agile way, but when values compete it might lead to reduced efficiency. We propose that transformative companies, such as the ones found in contemporary automotive industry, are particularly relevant to study, as they need to transform cultures to meet the challenges of digitalization that demand organizational agility.

The automotive industry was chosen because of its maturity, with relatively few large international actors, but also because this industry recently has been challenged by newcomers with very different approaches to innovation. These companies are *born globals*, they create opportunities rapidly by co-creating with their network partners (Andersson 2011). Digitalization has changed prioritization for automotive industries, especially for industries organized in hierarchical structures supported by a culture that promotes vertical integration (Schimpf 2016). For example, when the Original Equipment Manufacturer (OEM) Tesla already in their startup phase challenged established car manufacturers with their innovation speed and capability, it spurred discussions on how new companies can take such a fast leap from a garage startup to a challenger of future transportation (The Green Optimistic 2017). Gradually, many European OEM premium brands have changed their focus regarding who their main competitor is (Consumer Reports 2019), which has lead to an interest in how small startups in just a few years can challenge the incumbent automotive OEMs' domination. This kind of reinvention of how companies do business to stay competitive indicates that an organization's capability to be agile, has increasingly become important for innovation among incumbent firms in the automotive industry. Organizational agility has therefore become a strategically important competence for these companies in their continuous innovation work (Yusuf et al. 1999). Felipe et al. (2017) have shown that organizations often go through a cultural transformation when implementing an efficient innovation process. However, while organizational culture is important in the process of enhancing organizational agility, culture can also hamper such transformational attempts, regardless of whether the company is an incumbent or a startup. Competing cultural values in the organization can reduce the ability for organizations to develop agility, and thereby reduce their ability to effectively support innovation processes (Felipe et al. 2017).

The study explores the influence of culture as an important key factor for the automotive companies' to enhance organizational agility by asking the following research question: How do cultural values shape organizational agility when incumbent firms and startups within the automotive industry explore digital innovation opportunities? The automotive industry is particularly suitable for investigating this question because of its long tradition of manufacturing products that is currently challenged by digital innovation.

The paper is organized in the following way: first we review previous research on organizational agility and entrepreneurial culture followed by a presentation of the theoretical lens the CVF. After that, the methods section describes the empirical study involving both incumbent and startup companies in the automotive industry, data collection and data analysis. The result section places the data in context and analyzes the result using the CVF lens. We end with concluding discussion, limitations of the study and future research.

Literature Review

The influence of cultural values for organizational agility is a growing field of interest within information systems research. As noted by Crocitto et al. (2003) research has primarily focused on the technological and/or quantitative side of organizational agility. We have chosen a qualitative study for a deeper understanding of how cultural values impact organizational agility and enables innovation. The following section gives an overview of literature on organizational agility and introduces the CVF framework.

Organizational Agility

Organizational agility is a firm's capability to manage expeditious, persistent, and uncertain change to prosper in competitive environments of continually and unpredictably changing circumstances (Dove 2001; Teece et al. 2016). Agility is dynamic, context-specific, aggressively change-embracing and growth-oriented (Goldman et al. 1995), it goes beyond speed, requires massive structural and infrastructural changes (Youssef 1994). Organizational agility is regarded as crucial for organizations' innovation and competitive performance in contemporary business (Sambamurthy et al. 2003; Tallon and Pinsonneault 2011). In the digital world organizations are increasingly relying on information technologies, knowledge processes, and communication technologies that enhance their agile ability (Sambamurthy et al. 2003). Agility is dependent on leadership at all levels to promote agility as an organizational value, and to create an agile vision and mission (Crocitto et al. 2003). Leaders need to create an innovation supported culture, diffusion of information, teamwork efficiency, and employee learnings and rewards for agile employees (Crocitto et al. 2003). There are four core concepts in organizational agility; virtual organization, capability for reconfiguration, core competence and management, and knowledge driven enterprise (Yusuf et al. 1999). These concepts enable the organization to become agile, act proactively, with fast

decision making, and to maximize its knowledge utilization, meaning being able to use the competence where it is most needed in order to rapidly re-configure and re-align the business to serve a particular purpose as the window of opportunity opens up.

Although the term "agility" was coined already in 1991 by a committee at the Iaccocca Institute Leigh University (PA), to study the US industry's lack of international competitiveness (Yusuf et al. 1999), agility has become a paradigm for how organizations should prepare for digital innovation that puts speed and efficiency in focus. To achieve organizational agility companies tend to promote a culture of change and development that enables continuous innovation (Brettel et al. 2012).

Entrepreneurial Culture

An agile organization not only requires physical structural resources, it also depends on an innovation- and risk oriented culture (Breu et al. 2002; Crocitto et al. 2003). Management in an agile company nurtures an entrepreneurial organization culture that leverages the impact of people and information on operations (Goldman et al. 1995). Steiber and Alänge (2016) identified that an important difference between "traditional" incumbents and innovative firms, was the overarching orientation of the company that rippled through the system, affecting both the behavior of the employees and the ultimate growth and profit or loss of the company. Steiber and Alänge (2013) conclude that, a strong innovation-oriented culture together with creative smart employees with passion to transform, generated a strong drive towards continuous innovation. Therefore, involving people that support the company's entrepreneurial culture and acknowledge accountability (Goldman et al. 1995), enables innovation growth and competitiveness (Steiber and Alänge 2016). Culture is the foundation for any innovative ecosystem (Hwang and Horowitt 2012) as well as a key differentiator; it defines the identity of a company. According to Steiber & Alänge (2016), Silicon Valley companies compete with culture as away to attract and retain talents.

Competing Values Framework

We chose the CVF as the analytic lens for this study. This framework, as shown in Figure 1, works as a holistic navigator helping us understand the different case companies in this study regarding their corporate culture and orientation towards innovation. The CVF helps understanding how and why tensions arise in organizations and how the organization can cope with such tensions. According to Cameron & Quinn (Cameron et al. 2014) tensions arise between different logics that coexist in organizations. Each quadrant in the framework (Figure 1) describes a logic. An organization is not locked within a certain quadrant, however they cannot fully focus on all logics at the same time. Companies typically tend to move their focus between the different quadrants and when doing so tensions are generated within the organization because of the multiple logics present at the same time.
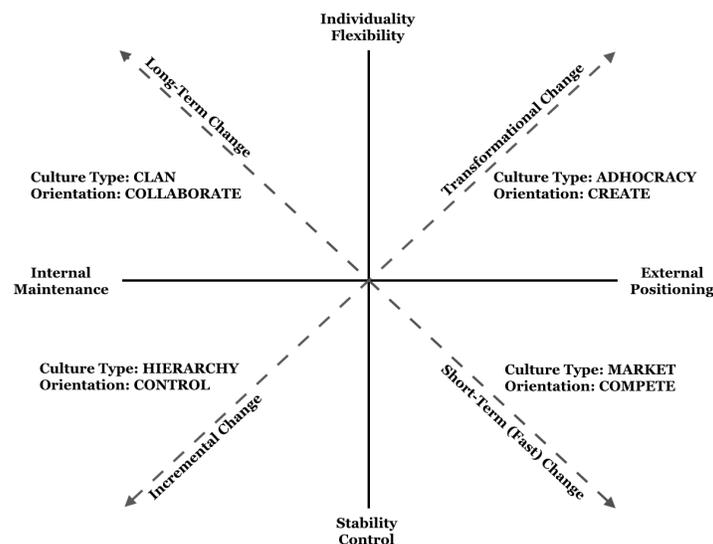

Figure 1. Competing Values Framework (Cameron et al. 2014)

CVF emerged from studies of factors that account for highly effective organizational performance. The x-axis captures competing value logics between internal (maintenance) and external (positioning) focus. A typical question asked internally is; what is important for us, and how do we want to work? The right on the x-axis describes the external focus; what is important for the outside world, our clients and the market? The y-axis captures competing values ranging between individuality and flexibility (top) and stability and control (bottom). This creates four approaches to culture:

Clan culture: environment similar to a large family, where there is a great involvement, teamwork, and participation; emphasis on continuous learning, and bonding to colleagues by morals; executives are mentors or father figures that value needs of the clients and caring for their people. *Adhocracy* culture: dynamic and creative environment; leaders are innovators, entrepreneurial, visionary and risk takers; focus on experiments and innovation; value drivers are innovative outputs, transformation and agility; success factors are availability of new products or services; organizations promote individual initiative and freedom. *Market* culture: focus on results, finishing work and getting things done; people are competitive and focused on goals; leaders are ambidextrous, hard drivers, producers, have high expectations, promote winning; reputation and success are important. *Hierarchy* culture: formalized and structured work environment, formal rules and policy keeps the organization together; leaders organize around command and control; success factors are trustful delivery, smooth planning and low cost.

The CVF has been identified as one of an important framework for identifying the role of cultural values for business efficiency (Yu et al. 2009). It helps organization identify the criteria of effectiveness that must be pursued by organizations when it comes to what leadership and managerial competencies that are most effective in the underlying organizational culture. The framework describes the core approaches of how to think when designing an organization depending on what the organization should emphasis; innovation, creativity, entrepreneurship, collaboration, teamwork, or controlling, goal achievement, assessing and measuring.

Settings & Methods

Research Approach

To identify the influence of cultural values on organizational agility in the context of digital innovation in the automotive industry, we choose a qualitative research approach and conducted semi-structured qualitative interviews. We chose five international automotive companies because of their active approach to digital service innovation, since this is generally driving innovation in this domain today (Lyytinen et al. 2016). The selection of the incumbent companies was based on their ambition to master the new digital service market. The two startups were chosen because of their disruptive innovation capability. The three incumbents and one startup were located in Sweden and one startup in the USA.

We interviewed individuals with management and strategic positions in the companies to understand how the company's board and top management lead their company, how the company structure and culture supported or hindered innovation and new business opportunities and business models, what major challenges they were facing for the upcoming one to five years, and how they tackled these challenges. Another theme in the interviews aimed at capturing how the companies worked with business models for their products/services and if they considered changing models to new business opportunities.

Data Collection

We conducted 10 semi-structured interviews (see Table 1). For the Swedish companies we conducted all interviews at the company site. For the American company we conducted the interview via an interactive on-line dialogue.

The interviews took approximately 1-1.5 hours interview per person and followed a common set off 13 predefined open-ended questions. All interviews were recorded and later transcribed. Some of the companies offered a guided tour as an introduction to the company (basic historic information). Additional secondary data collection included white papers, web pages, YouTube films, and a literature survey.

Company	Size	Type	Roles
1	L	Incumbent	Vice President Consumer Connectivity Services Senior Director Strategy & Innovation Vehicle Software & Electronics
2	M	Incumbent	Delivery Manager
3	M	Incumbent	Director Product Innovation Research Affairs & Innovation Manager Strategy & Sustainability
4	S	Startup	Marketing Director Autonomous System Director Innovation Manager
5	M	Startup	CEO

Table 1. Sample for this study

Data Analysis Approach

First, we transcribed and coded the recorded interviews using a bottom up approach (Myers 2013). Second, we compared each recorded answer to the corresponding interview question to systematically identify similarities and differences between the companies approach to innovation. Our analysis of the interviews revealed four different recurring themes: company structure, company culture, external-actors and innovation. Due to limited space for this paper, we decided to present the analyzed results categorized according to CVF directly in Table 2. During our analysis it became evident that the cultural values were clustered two by two in Hierarchy/Market and Clan/Adhocracy.

Third, we applied a quasi-quantification of the original data to be able to plot the study data. A curved geometric shape (cubic polynomial) was then fitted to each company's four data points (colored areas in Figure 2). We identified related themes to the literature review and have structure the results by following the described culture quadrants in the CVF. The results are further elaborated in the result subsections.

Results: Organizational Culture Types & Orientation

The findings showed a focus towards Hierarchy and Market among incumbents but with an increasing awareness that market opportunities change fast and that they needed to be able to adapt faster than before. This required major changes for the incumbent firms at all levels in order to become more agile, attract and retain talents, get a better understanding of their customers' needs, and be able to prioritize in order to maintain competitiveness on the market. Four out of five companies mentioned that recruitment is one of the major challenges they are facing, in particular by the incumbent firms. The interviewed incumbents experienced a need to build dynamic capabilities to handle continuous change over time. Depending on company CVF focus, it clearly shows how their culture influenced how they explore digital service innovation. Table 2, summarizes the main results followed by a thoroughly description in the subsections below.

Component	Incumbents	Startups
Organization Type (Figure 1)	Culture: Hierarchy / Market Orientation: Control / Compete	Culture: Clan / Adhocracy Orientation: Collaboration / Create
Orientation	Hierarchy, organization complexity, well defined responsibilities. Driver: hybrid stage-gate model and SAFe (ongoing roll-out)	Flat structure enabling transparency, fast learning, quick decision making. Driver: social entrepreneurship, effectuation, born globals

Vision	Could have a challenging vision but still something that is achievable.	Social challenging big vision contributing to a greater influence to a more sustainable world.
Leaders	Competitor, organizer, coordinator but moving towards agile leadership. Hierarchy creates distance between top-leaders and people on the floor.	Leaders are very present, transparent, involving, sharing. Focus promoting the company's social challenging big vision inside and outside the company.
Culture	Mixed cultures with a focus on the hierarchy /market. Approaching agility using standardized rules and processes.	Strong entrepreneurial culture. Value driven, innovative and transparent. Able to fast sensing and seizing opportunities. Lifelong learning
People	Relying on role descriptions, focus on expertise domain and titles. Passion for cars and to drive them.	Empowered people, entrepreneurial mindset, fast learners, self-organized/driven. Make a greater contribution to a more sustainable world.
Innovation	Hybrid traditional innovation and open innovation.	Radical open innovation / disruptive. Transparency enabling increased resources and speed, with limited means.

Table 2. Identified cultural components and their influence on the studied companies

Incumbents - Hierarchy & Market

Orientation: The incumbent firms felt that their current organizational structure was an obstacle for enable innovation work to happen and to take their products and services fast to market. All incumbent firms had started an agile transformation journey by rolling out scaled agile framework for enterprise (SAFe). The reason to start an agile transformation journey on company level was mostly to gain new capabilities, eg speed, transparency, greater visualization enabling better prioritization regarding what needed to be done. A transformation success was seen as crucial to attract the needed talents and to accelerate innovation speed and reduce time to market with solutions that were not obsolete already when launched. Company #3 differed by mainly covering one culture (Hierarchy).

Vision: The incumbents had developed a challenging vision but still something that everyone would be able to achieve. Incumbent #3 had a vision that reminded of a startup, but they were not open regarding what the meaning of their vision was to them.

Leaders: According to company #1, agile transformation required an extensive mindset change. It was important that the first attempts were handled by management in a way that would not jeopardize the idea with agile transformation. Incumbents' top management supported the agile transformation but were not directly taking part or being present in the organization to motivate people why the changes were needed. Instead, they delegated to middle management who experienced lack of support, transparency, engagement and courage in communication and decisions. Even though top leaders wanted the agile efficiency and innovation growth, their way of leading had not changed.

Culture: The incumbent firms were aware that they had a culture within their company that was not optimal for a change towards agile working methods, and that it would be a struggle to move to a new more agile culture. However, there was differences between the studied companies. Company #2 was able to retain some degree of startup culture and practices from before they were acquired by the current owner. They explained that their culture actually still differed from the mother company units even though the same rules, values, etc., applied for all units.

People: Results show differences between incumbents in the way the organizational culture and orientation attracted talents. Company #2 pointed out that employees had different behavior depending on if they originally came from the startup or the new mother company. People from the mother company were seen as less driven, engaged and passionate compared to the ones originating from the startup firm. Much of the tension in this company was explained by these differences in internal organization and cultural values. All studied incumbents' agile transformation was challenged by different traditions

carried by the different domain groups, eg hardware, software, supply chain, for how to organize people around the new agile mindset.

Innovation: The automotive industry is going through four major challenges: autonomous drive, electrification, digitalization and increased degree of shared mobility. In order to increase innovation speed to reach market impact the studied incumbents were aware that they needed more open innovation and co-creation with external actors. This kind of co-creation was limited to joint ventures. Company #1 had several innovation centers, but it was hard to get new ideas approved by senior management. They realized that a broad innovation approach, with several forms of innovation strategies, was needed and that competitiveness was dependent on the ability to continuously learn, develop and deliver new products to the market. Another insight was that there is differences compared to the past with new types of partnership even outside the automotive sector and the companies' comfort zone, such as electronic retail companies, energy companies and the like. None of the studied companies had measurements in place for innovation growth and did not see the value in or need for this kind measurement.

Startups - Clan & Adhocracy

Orientation: The born global startups were comfortable with their current lean structure. This was also a necessity given their small margins. Agile meant that they had to be prepared for quick changes – completely if needed – regardless of it was due to internal or external reasons.

Vision: The studied startups were formed as answers to social challenges based on a vision about contributing to a more sustainable world.

Leaders: Managers were present and communicated the need for openness, sharing and promoting the company's vision both inside and outside the company. Leadership was personalized with focus on motivating people and support them. Company #4 explicitly applied social entrepreneurship.

Culture: The startup firms had explicit cultural values that were communicated both internally and externally as part of their identity. Culture was an important driver for the startups. Company #5 stated, "Culture is of huge importance, and cannot be underestimated. This goes back to be able to retain people." They were convinced that it was important to make employees feel that they are part of a team and that sharing the same values positively affected their will to stay in the company. The startups mentioned that they verified that everyone have the same goals and made sure that they worked closely with their colleagues regardless of where they were located globally. For company #4, cultural values such as the need for innovation and transparency was carried by the company founder. The company had monthly status reports on YouTube to keep people outside the company updated about their latest progress and engaged open source communities in product development. Collaborating with larger incumbents could force them to step back on their openness.

People: The startups were quite selective when hiring people, for them it was important that talents could fit into the cultural values they embraced, this for the "right" talents among engineers' and software developers with higher education. They looked for empowered people with an entrepreneurial mindset who were self-organized and driven by passion rather than titles. Employees were passionate about being part of a journey to make a contribution to a more sustainable world. Most of the startups' recruitment was based on networks and weak ties: people who knew the founders work and wanted to be part of the journey. For these companies it was important that employees had the right attitude, rather than having the right experience.

Innovation: Startups stated that innovation was something they did by necessity. Innovation processes had to be lean. Novel and innovative methods and processes were used during the engineering, manufacturing and production phases. The startups were competing with frontend technologies such as autonomous vehicles which forced them to be innovative since the solutions did not yet exist. As startups they saw it as advantageous that there was no preconceived ideas about how particular problems should be solved. They continually tried to reduce time to get their innovations to the market. According to the interviewed managers, success was dependent on a company culture of being open-minded, applying radical open innovation methodologies and fast feedback loops from target groups. Ideas for solutions could come from unexpected sources. This was motivated by the scarce resources that forced them to continually identify and evaluate new ideas and being prepared to team up with external partners to have a chance to succeed. Various strategies were used: with some partners the collaborative tool was a software or hardware platform, with others the collaboration was strategic with shared critical

information, keeping core technologies and strategies internal. Company #4 applied a "digital first" strategy, which meant that they first built a digital replica of the product that helped the developers in their design and manufacturing process. The startups viewed collaboration and partnership to get hold of experience and knowhow and gain speed as the approach to continue develop in the future.
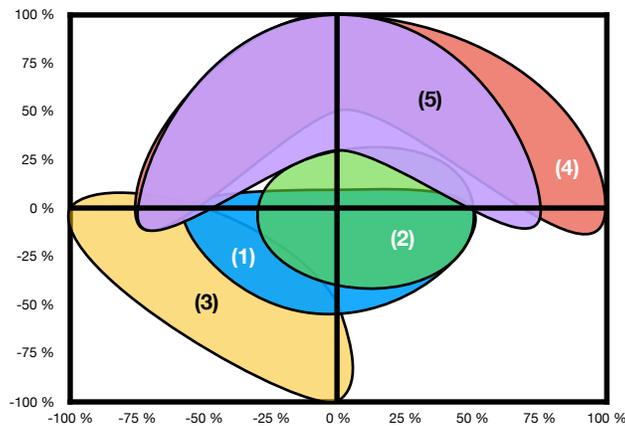

Figure 2: Culture focus for the different companies in this study, plotted on the CVF (Cameron, Quinn, DeGraff and Thakor 2014)

Discussions and Conclusion

The purpose of this study was to investigate how cultural values shape organizational agility in the automotive industry in the context of how these companies explore digital innovation opportunities. We compared different organizational approaches and value systems in automotive startups and incumbents and their ongoing work to develop organizational agility to increase their ability to innovate. Figure 2 shows the result plotted on the CVF matrix.

Cameron and Quinn (2011) found that innovativeness is often strong in companies characterized by an adhocracy culture. They also found that companies spanning several cultures likely will generate internal tensions due to competing value systems that can make them less efficient and thus hamper their ability to innovate. Surprisingly the studied startups showed a high degree of organizational agility while at the same time spanning two value logics – Clan and Adhocracy (Figure 2). The influence of these cultural values were seen as crucial for the studied companies to develop organizational agility as a dynamic capability to enable innovation growth (Steiber et al. 2013). The combination of Clan and Adhocracy culture generated a value system that supported a creative agile environment for both leaders and other employees. We could not identify a direct tension within this culture combination. Instead it blended into one culture, namely an agile culture. The Clan culture focused on caring for people, foster collaboration, enabling continuous learning to develop employees' skills and competence. The Adhocracy culture focused on creativity, innovation and some risk taking. The structure in these organizations were flat with little formal expression of hierarchy.

The studied companies recognized the importance of what Yusuf et al. (1999) named the core concepts of an agile enterprise: virtual organization, capability for reconfiguration, core competence and management, and knowledge driven enterprise. This was especially evident in the incumbents' struggle to establish a culture that would let organizational agility permeate the whole work organization. The startups had this approach as a cultural premise for the entire organization. As Goldman et al. (1995) has argued, to succeed, companies need to tailor their approach to fit their organizational context so that everyone can embrace the vision. There is no generic receipt that fits all (Goldman et al. 1995). The incumbents in this study were all trying to organize their move around the Scaled Agile Framework, SAFe. This required both structural and cultural transformational change (Cameron et al. 2011). A culture move towards organizational agility also required that top management had a clear vision why the move was needed (Paasivaara et al. 2018). The incumbents identified the innovation capability fostered by the startups' new type of agile culture and realized that it put pressure on them to transform from an organization dominated by Hierarchy and Market culture, to an organization charged by Clan and Adhocracy culture. The study shows, however, that it was hard for the incumbents to involve all levels of

the company to embrace an agile approach to the organization because of the dominating waterfall regime. While the startups managed to fuse Clan and Adhocracy into a new agile culture, the acceleration of transformation towards organizational agility led to increased tensions between Hierarchy/Market culture and Clan/Adhocracy culture in the studied incumbents.

Felipe et al. (2017) concluded in their study on the relationship between competing values and organizational agility that Clan, Adhocracy and Hierarchy cultures are positively related to organizational agility, while Market culture is negatively related to organizational agility. Their findings suggest that agile companies might benefit from a certain degree of stability, order and control in times of crisis and uncertainty. It is noted by Felipe et al. (2007) that Hierarchy culture may lead to short-term success. However, our results show that short-term integration into a Hierarchy culture can have a negative impact on innovation capability. This was also an important reason why the three incumbents in our study transformed their organizations towards combining Clan and Adhocracy cultural values. All studied companies proposed that, in order to be able to create novel products and services and rapidly take them to the market they needed to collaborate with external actors in a more open and collaborative way than before. This required that they revalued criteria for effectiveness based on Clan and Adhocracy cultural values, such as present and committed leaders, flat organizations, and agile techniques and tools, such as empowerment, teamwork and innovation (Cameron et al. 2014). Given the challenges facing companies today, incumbents in particular, in order to attract and retain the necessary talents needed within the digital era, a transformation towards an agile environment can be a way of mitigating the challenge of attracting and retaining these needed talents. According to Lund (2003), job satisfaction is negatively related to Hierarchy and Market cultures, and positively related to Clan and Adhocracy cultures.

The literature argues that agility is associated with adhocracy (Iivari et al. 2011), and goes beyond speed. It progressively embraces change, growth and transformational change. We conclude that effectiveness in promoting organizational agility is gained when Clan and Adhocracy cultures are integrated. Adhocracy, as defined in the CVF does not support continuous learning, collaboration or teamwork, which are key criteria for an agile enterprise. Instead, they are supported in the Clan culture environment. As discussed, we suggest to call this combination of cultural values "agile culture".

The second conclusion is that, in contrast to what is argued by Felipe et al. (2017), the category Hierarchy does not seem to support the amalgamation of Adhocracy and Clan culture, which we refer to as agile culture. We also conclude that it is difficult for incumbents to gain organizational agility by incorporating a "startup culture" that has the desired combination of Clan and Adhocracy values. The incumbents hierarchical organization and Market culture tend to dominate and subdue the startup's organizational agility, as shown for company #2 (Figure 2).

Limitations and Future Research

There are some limitations to this study. The data collection is primarily from three large global Swedish automotive companies, except for one startup in Sweden and one startup in USA. Another limitation is that the data is from two startups from two different continents, and it would be interesting to look at further startups from other continents. Therefore, generalization of the results must be made with caution. Further research is needed to better understand the influence of culture on organizational agility in the context of open innovation. This includes understanding how companies co-create with external actors in ecosystems or networks, and the implications on continuous innovation growth.

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