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How does Digitalization Affect Change Management: Empirical Research at an Innovative Industrial Group

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Abstract
Digitalization plays an important role in transformation processes of manufacturing companies. Technology driven projects are heavily initiated, many of them, however, fail to institutionalize change. The technological change is often not integrated within the organizational strategy, structure, behavior, and in consequence, such digitalization projects fail to deliver the expected performance outcomes, as well.We used qualitative research methods to explore how digitalization affects change management within a multinational industrial group that provides innovative manufacturing services to automotive original equipment manufacturers. The industrial group had been undertaking a transformation process towards digitalization and they had been implementing significant innovations regarding their core businesses.We identified the parallel presence of three key competencies of digitalization project team members: ICT management, project management, and change management competencies. These competencies proved to be main characteristics of projects that bring change into an organization by introducing new technologies.Three critical change drivers have also been identified: leadership, communication and stakeholder management. These proved to be essential competencies in order to deliver successful digitalization initiatives.Moreover, institutionalization of the digitalization initiatives has resulted in strategic changes within the critical organizational characteristics of the industrial group: a direct impact on corporate strategy, structural change and behavioral change has also been identified.All the above-mentioned factors have contributed to an increased operational and organizational effectiveness, improved workflows and cross-departmental communications.
Keywords:change management, organizational changes, digitalization, transformation, innovation, manufacturing, project management, ICT management

1. Introduction

1.1 Organizational changes and digitalization: transforming manufacturing companies

Many manufacturing companies are moving from being product manufacturers to becoming innovative solution providers along a defined transformation path (Gebauer et al. 2005; Gebauer 2004; Zavarkó et al. 2017). Researchers have identified several stages of such transformation process (Gebauer et al. 2008; Matthyssens and Vandenbempt 2008; Matthyssens and Vandenbempt 2010; More 2001; Oliva and Kallenberg 2003; Penttinen and Palmer 2007) that will result significant competitive advantage for the manufacturing company that would undertake such transformation (Brady et al. 2005; Boyt and Harvey 1997; Hortoványi 2016; Szabó and Csontos 2016).

Digitalization plays and important role in each of the stages of the transformation process (Lerch and Gotsch 2014), and has immense implications to change management, demanding new capabilities, opening up opportunities to simplify, accelerate, or optimize processes and create new forms of customer integration (Schuh and Fabry 2014).

The changing external environment and the new trends in digitalization result in significant challenges for large manufacturing companies too. Following the logic of the contingency theory - situation theory (Lawrence – Lorsch, 1967; Pugh et al., 1969) the new needs and conditions require new organizational solutions and business activities.

Manufacturing companies deal with these issues in different ways. In almost all scenarios identified by researchers, information and communication technology (ICT) plays a major role in future strategies to cope with the aforementioned challenges (Peters et al 2016). If implemented in a sustainable way, ICT could boost the path to more efficient production of variants by utilizing smart manufacturing approaches.

Analyzing the role of digitalization, researchers argue that a more developed service orientation with more complex service offerings leads to even a greater need for digital solutions (Lerch and Gotsch 2014). Moreover, the integration of ICT systems into products opens up new avenues for providing innovative services.

1.2. The contingency approach of change and the key role of technology driven change projects

In-line with the contingency approach of organizational theory (Kieser and Kubicek 1983) there is no one universal organizational structure or transformation process or cultural context that is always accurate at any circumstances. This is applicable for the transformation process driven by new digitalization and technology initiatives.

Digitalization affects the different elements of the organization e.g. strategy, structure, behavior and performance (Csedő 2006). Therefore, these organizational elements have to react by aligning to the new conditions in order to result in an optimal organizational performance. In other words, strategy, structure and behavior can be the subjects of change, and if they are changed in the right way, then it could result in the desired organizational performance under the new circumstances.

According to research, new, innovative, technology driven projects are often used as vehicles for driving and implementing change (Lundin and Steinthórsson, 2003, Csedő 2006; Sára 2014). Many companies shifted their operations towards being project driven in order to keep the pace with the changing business environment (Jarocki 2011; Turner 2009). Technology projects are great tools to provide flexibility and adaptability to the organization in this constantly changing environment (Parker et al. 2012).

According to this approach, while aiming for a change, it is essential to establish a formal project including project scope, budget, timeframe, planning and analyses (risk- and stakeholder analyses), then the action plan has to be executed according to the earlier defined plans, structure and budget (Andersen 2008; Larsen & Eskerod 2015).

Such a project is perceived as a temporary organization (Lundin and Söderholm 1995) that interacts with the base organization (that initiated the project), in order to accomplish the desired outcome of change. Therefore, in this perspective, the focus is shifted from the project itself onto the interactions and cooperation between the project and the base organization. This approach is aimed at dividing the responsibilities between the project and the base organization in the most suitable way in order to ensure the successful delivery of the desired outcome of the project (Andersen 2008; Larsen and Eskerod 2015).

Undoubtedly, there is a growing interest in research to analyze projects with aspects to institutionalize organizational change. Research evidence (Hassner-Nahmias and Crawford 2008; Parker et al. 2012; Csedő 2006) further supports this aspect, as stating that it is crucial for businesses to use project-based initiatives as drivers of organizational change. Meanwhile other scholars noted as well, that there is an increasing number of business projects that contain change elements (Söderlund 2010).

2. Research methods

We used qualitative research methods to explore how digitalization affects change management within a multinational industrial group that provides innovative manufacturing services to automotive original equipment manufacturers. The industrial group had been undertaking a transformation process towards digitalization and significant innovations regarding their core businesses.

We performed participant observations, semi-structured interviews and focus groups in relation of the implementation of a new technology initiative throughout the organization (Britten, 1999; DeWalt and DeWalt 2002 Marshall and Rossman 1989). The research period started in August 2017 and it was finished in November 2017.

We have also attended multiple meetings of 12 different organizational subunits that resulted in having a deep overview on the involved stakeholders, and being able to observe the launch of the new technology from multiple perspectives.

3. Key research findings

3.1.The importance of a project that brings change into an organization by introducing a new technology

As stated before, there are specific types of projects that are rooted in project management, change management and information technology. Such type of project has been clearly identified during our research. We can define these types of projects as projects that bring change into an organization by introducing new technologies.

We have also identified that dedicated and multi-skilled project teams led such projects. These teams encompassed clearly defined roles, and had competencies in project management, change management and ICT project management. We clearly identified such characteristics throughout the whole new technology implementation: managers have set up better functioning project teams that were able to deliver the desired technology implementation targets by applying change management practices, as well.

3.2. Key drivers of change: leadership, communication and stakeholder management

The second pillar of our research findings is a summary of key change drivers that were proven to be crucial during the technology roll-out. We identified three critical change drivers within this digitalization project: leadership, communication and stakeholder management. The latter proved to be of uttermost importance, as the number of stakeholders were extremely high, which required significant resources on the management of many different expectations and opinions that the change project team faced over the course of the technology roll-out. These expectations could certainly be managed effectively with proper leadership and communication.

3.3. The role of organizational alignment: a technology change resulted in structural change

According to the scientific literature, technology implementation projects often incorporate change management aspects, and significantly influence critical organizational factors. The technology implementation project has been analyzed based on these critical organizational factors, and it has been found that the technology rollout required a significant organizational alignment.

While the technology has been introduced throughout the industrial group, strategic changes have been applied that resulted in changes of administration and work-flow processes, organizational structure, and several projects have been initiated that will target cultural changes within the company.

In order to successfully execute these necessary organizational alignments, the project team had to apply change management practices to a large extent. Moreover, we have found that change management skills proved to be more important than technology and engineering related skills during the whole rollout period.

4. Conclusion

Digitalization plays an important role in the transformation processes of manufacturing companies. Technology driven projects are heavily initiated, many of them, however, fail to institutionalize change. The technological change is often not integrated in organizational strategy, structure, behavior, and in consequence, such digitalization projects fail to deliver the expected performance outcomes, as well.

Research evidence suggests, that project management and change management roles can be matched, and along with this approach, a specific type of change projects can be launched that is highly relevant in the area of digitalization.

We identified the presence of three key competencies: ICT management, project management, change management, throughout the whole technology rollout – these proved to be the main characteristics of projects that bring change into an organization by introducing new technologies.

Three critical change drivers have also been identified: leadership, communication and stakeholder management. These proved to be essential competencies in order to deliver successful digitalization initiatives.

Moreover, the institutionalization of the digitalization initiatives has resulted in strategic changes within the critical characteristics of the industrial group: fine-tuning of the corporate strategy, structural change and behavioral change has also been identified.

All the above-mentioned factors have contributed to an increased operational and organizational effectiveness, improved workflows and cross-departmental communications.

5. Implications for future research

As one of the limitations of this research is that only a single major digitalization project of one company has been analyzed by the researchers of this paper, it is suggested to expand such observations involving more projects at different companies dealing with technology implementations, not only in the manufacturing sector but in other sectors, as well.

The four months research period can also be seen as too short in order to make strong arguments regarding the institutionalization of organizational changes. A longitudinal research can be useful to validate our short-term findings.

It would also be a great addition to our research to elaborate on the performance measurement approaches and to suggest KPIs for such heterogeneous teams to balance their ICT, change and project management skills in order to serve company wide operational performance and strategic alignment.

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