



CENTERIS – International Conference on ENTERprise Information Systems / ProjMAN – International Conference on Project MANagement / HCist – International Conference on Health and Social Care Information Systems and Technologies 2023

The Multimodal Business Activity Model: A tool to classify business activities to support decision-making in digital transformation

Albert Sprokholt^{a,*}, Lotte Nieuwmeijer^a, Nico Brand^b, Inge van de Weerd^b

^aAnderson MacGyver, Kronenburgplantsoen 10, IJsselstein 3401BP, Netherlands

^bUtrecht University, Department of Information and Computing Sciences, Postbus 80125, 3508 TC Utrecht

Abstract

In this paper, we present the Multimodal Business Activity Model to guide digital transformation journeys. Research shows that there is a lack of suitable tools to support the strategic side of digital transformation. The MBAM is a strategic model that supports digital transformation by classifying business activities according to the degree of differentiation and exposure to the dynamics of its environment. The model helps decision-making on digital transformation and serves as a conversational tool to align all stakeholders involved. The MBAM has been developed in practice and through this research successfully evaluated in several workshops with practitioners working in the field of digital transformation.

© 2024 The Authors. Published by Elsevier B.V.

This is an open access article under the CC BY-NC-ND license (<https://creativecommons.org/licenses/by-nc-nd/4.0>)

Peer-review under responsibility of the scientific committee of the CENTERIS / ProjMAN / HCist 2023

Keywords: Digital Transformation, Activity-based Perspective, Strategy, Dynamics, Differentiation, Multimodal Business Activity.

1. Introduction

Digital technologies have revolutionized the way organizations operate, enabling better information sharing, faster access to data, improved service delivery, and enhanced decision-making. To get there, an organization needs to digitally transform, and that requires the integration of digital technologies with broader strategic perspectives to

* Corresponding author.

E-mail address: albert.sprokholt@me.com

improve organizational performance. Existing instruments focus either mainly on technical perspectives, with technical frameworks or on a business perspective, with business strategy models [5]. These perspectives have limited suitability for digital transformation initiatives, especially for decision-making. In digital transformation, we need to build a bridge between those two perspectives. Building that bridge requires a shared vision and language between business and technology stakeholders [8]. The Multimodal Business Activity Model (MBAM) is proposed as a model that supports organizations in their digital transformation decision-making by classifying business activities according to two concepts: differentiation and dynamics. This classification from a business point of view gives guidance for the digital transformation of business activities and consequences for governance and supporting technology and data. MBAM has been used successfully in consultancy projects and has been researched from different viewpoints. This paper introduces the MBAM, identifies limitations, and provides recommendations for future research.

2. Relevant literature

Two concepts are the foundation of the MBAM and will be further explained in this section: differentiation and dynamics. Moreover, we briefly describe the concept of digital transformation as we consider it required background information for applying the MBAM.

2.1. Digital transformation

Bharadwaj et al. [1] were one of the first academics who argued that business- and IT strategies should no longer exist separately but should be fused into one digital business strategy. This need for switching to a digital mindset has also been recognized by other academics such as Ismail et al. [5], who state that only the most adaptable, digitally mature companies will remain competitive nowadays. This digital transformation has shown enhanced competitive positioning if performed successfully. However, focusing solely on the technological perspective does not suffice. Digital transformation needs to be anchored in the entire company [5]. This means that digital transformation needs to be viewed from a broader strategic perspective than only the IT organization, namely:

- Externally: focusing on digitally enhancing the customer experience
- Internally: affecting business operations, decision-making, and the structure of the organization
- Holistically: affecting all business segments and functions, possibly leading to new business models.

To be able to make successful decisions on digital transformation, it is necessary to establish a common and clear vision across the organization [5]. The importance of a common vision is also acknowledged by Reijnen et al. [8] who emphasize the importance of creating a shared vision among business and technology managers as a basis for digital transformation. They propose a method for using an Operating Model Canvas (OMC) [8] to create a shared language and shared vision within an organization seeking digital transformation.

2.2. Differentiation

Strategy is a well-studied topic, mostly focusing on why certain organizations perform better than others. One pivotal study in the strategy literature is Porter's research [3]. He argues that an organization has two main options: cost leadership or differentiation. Cost leadership is not often mentioned as one of the drivers of digital transformation. Differentiation on the other hand is widely recognized as a means for organizations to create a competitive advantage. Hence, our focus will be on the latter approach – differentiation – as a pathway for organizations to create a competitive advantage. This relationship between an organization's differentiating capabilities and its performance has been extensively researched from different perspectives, resulting in theories such as the resource-based, knowledge-based, and dynamic capabilities perspectives [7]. They all emphasize that unique capabilities are specific to firms and enable them to gain a competitive position in the market. Hoskisson et al. [4] stress that capabilities, especially unique ones, will influence strategic decisions and directions. Furthermore, they argue that competitive advantage and market positions will mainly be strengthened by capabilities that are distinctive, costly, and time-consuming to replicate [3].

Sheehan [10] adds to that theory by suggesting that besides performing different value chain activities than rivals, an organization can also perform similar value chain activities but manipulate the drivers of activities differently.

2.3. Dynamics

The traditional strategy literature has largely overlooked the transformative impact of technology on business dynamics. The emergence of digital technologies has accelerated the speed of change in markets, resulting in more complexity, volatility, and uncertainty [12]. Due to the digitalization of our world economy, the economy is more and more characterized by globalization, dynamism, and intense competition [5]. Recognizing the potential of digital technologies, organizations are increasingly striving to leverage them for major business improvements, both internally and externally. It has become a race against the clock and all organizations try to stay ahead of their competition. To achieve this competitive advantage in a dynamic business environment, organizations must create strategic flexibility [2] and dynamic capabilities [12]. Organizations need to be flexible to make fast, customer-centric, and agile decisions as a response to their dynamic environment and changing customer needs [12]. In response, organizations need to put customers central and continuously find ways to optimize their products and services to customer needs and experiences [12]. This is a never-ending process of strategic renewal, which means that part of the organization is in constant change, trying to improve its value propositions [9, 12]. But flexibility comes at a cost, an aspect often overlooked [11]. Changes are costly and it involves sacrificing efficiency. Knowing when and to what extent flexibility is necessary has become a critical consideration [11]. This is also emphasized by Ross et al. [9] who state that distinguishing what can be considered relatively stable and what should be organized flexibly is the real art of digital business design. In stable business environments, it may be possible and more profitable to optimize operational efficiency at the cost of flexibility. These environments will be less disrupted by external forces, enabling organizations to optimize or even automate processes [11]. Conversely, more uncertain and dynamic parts of the organization may require frequent and rapid changes, requiring greater flexibility in activities. This balancing act between flexibility and stability is a trade-off that will persist [11].

Concluding, organizations in dynamic environments need dynamic capabilities. However, the challenge lies in determining which activities necessitate dynamic capabilities and to what extent they are needed.

3. The Multimodal Business Activity Model

In the previous section, we described that activities can be characterized based on their level of differentiation and dynamics. These two dimensions form a 2 x 2 model with four quadrants: Common, Adaptive, Specialized, and Distinct. The model serves as a framework to assess each business activity within an organization. The vertical axis is related to the discussion in paragraph 2.2 (differentiation) and assesses the specificity or uniqueness of the activity. The horizontal axis is related to the discussion in paragraph 2.3 (dynamics) and evaluates the extent to which an activity can adapt to a rapidly changing external environment. An organization can classify its business activities into one of the quadrants. The classification is performed from a business perspective and has consequences for how the business activity is organized regarding technology support, data demands, governance, etc. A deliberate choice has been made to focus on activities over processes because, on a strategic level, the discussion should be on the ‘what’ (activities) rather than the ‘how’ (processes). Processes become relevant later in the transformation when the activities are being designed and organized. Strategy is key in using the MBAM, with two important questions an organization should ask itself: “What activities differentiate us from competition?” and “Which activities need to be responsive to change?” As one of the interviewed experts stated: “In the MBAM, the characteristics of the business activity (differentiation and dynamics) are steering the organization and implementation of technology and data, not the IT department’s opinion”.

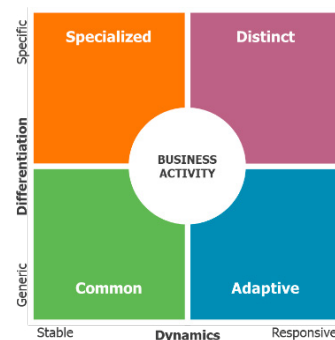


Fig. 1: The Multimodal Business Activity Model (MBAM)

We refer to the theory behind the MBAM as ‘multimodality’. First, we will define multimodality as it has been used in our research and this context. Then, we will give a concise overview of the four quadrants. Third, we will explain how this model is applied in practice.

We define multimodality as the classification of business activities according to two dimensions which result in a business activity type, a modality. Insight into these modalities allows stakeholders in the organization to collaboratively determine the strategic focus of a business activity. The characteristics of the modality can be used to facilitate decision-making in digital transformations, especially in the areas of technological and organizational design of the activity. The four quadrants are described as follows:

Distinct activities are specific and highly responsive to the external environment. These activities play a central role in the development of products and services. Furthermore, they distinguish the organization by delivering products and services that the competition does not offer. Distinct activities make significant contributions to the organization's overall strategy. Examples of distinctive activities often involve innovative activities such as R&D and the pursuit of sustainable alternatives to existing products. The innovative and dynamic nature of these activities requires a short production cycle and an experimental attitude. Distinct activities are depicted in the color purple.

Specialized activities are characterized as activities that are specific but have low responsiveness to the external environment. Such activities are deemed stable due to either a more internal focus or a relatively stable environment. They are oriented to finding solutions in differentiated and complex environments and require specific knowledge, expertise, or unique resource utilization. Examples of these activities are engineering, integration activities, medical treatment, specialized regulatory services, etc. The capabilities for these activities are highly specific. Specialized activities are represented by the color orange.

Adaptive activities are generic and performed similarly across different organizations. The external environment to which they need to respond is highly dynamic and asks for frequent changes and adaptations. These activities are characterized by staying competitive and meeting customer expectations. Dynamics in the environment result in uncertainty in the way of performing the business activity. Within this activity, customer needs and experience are put centrally. Because these activities are not organization-specific, they can often be supported by business solutions from the market. But, with the caveat that the set-up of the solution should be flexible and configurable. Examples of adaptive activities are sales and customer service activities. Adaptive activities are colored blue.

Common activities are generic and stable. This means that they are performed similarly across businesses whilst the execution of the activity remains stable over time. There is no need to adapt to highly dynamic environments, or the organization chooses not to adapt the activity to every change. Common activities are designed to provide reliable products and services with the aim of a good price-to-performance ratio. Because the activity mainly has a more stable environment, there often is a possibility to optimize efficiency or even automate parts of the process. The generic nature of the activity allows for the possibility of finding appropriate business solutions and best practices in the market or outsourcing to other organizations. Examples include administration, HR, procurement, or generic parts of primary activities on which companies do not differentiate themselves. Common activities are colored green.

In practice, an analysis using the MBAM is executed in combination with the Operating Model Canvas (OMC) [8]. The Operating Model Canvas serves as a visual representation of all business activities within an organization, with each modality being assigned a distinct color. The use of colors facilitates the discussions and simplifies the conversation. The MBAM helps to clarify that there are multiple ways to perform those activities. The word ‘multimodality’ is also used in other contexts such as transport to identify different ways to transport goods: by plane, boat, truck, train, or car. In linguistics, multimodality refers to the different ways to deliver a message: by text, speech, visuals, etc.[6]. In the context of this paper and the MBAM, multimodality means that each business activity has different characteristics, thereby requiring a different approach to its execution and support. According to one of the experts: “Knowing what modality an activity has, helps you translate the business strategy into the organization of technology and data. It also focuses stakeholders on what is important and on prioritizing.” For the practitioners, the MBAM is a tool for understanding the organization and assessing the contribution of each business activity to business continuity and strategy. It provides a solid basis for the development of digital transformation initiatives.

4. Research Method

The Multimodal Business Activity Model (MBAM) was originally developed in 2013 in a practical assignment of a consultancy firm. The assignment focused on a detailed analysis of an IT application landscape to reduce the number of applications in the landscape, not from technology, but from a business perspective. Therefore, a model was developed to be able to map the application portfolio on the business activities performed by that firm. This was done by classifying the business activities into one of four quadrants, called modalities. The deliberate choice was made to focus on business activities, rather than business processes. The consultants argued that the focus should be on what is done in a company (activities), before looking at how it is executed (processes). After the project, the model was used in multiple assignments and appreciated by stakeholders.

In 2020, the consultancy firm decided to conduct research into the theoretical substantiation of the model, which resulted in this paper. A literature review was executed, expert interviews were conducted, a multiple-case study was performed, and the model was validated outside of the consultancy firm to reduce bias.

We executed a systematic literature review, in which we collected 63 papers that discuss digital transformation. 20 of these papers were used as input for the relevant literature section in this paper. The topics included in the literature review provide the necessary information to understand the background and theoretical foundation of the model.

For the expert interviews, we interviewed six consultants that worked with the MBAM for multiple years. The interviews were semi-structured interviews in which the questions in the interview varied from a general explanation of the axes of the model to how consultants work with the model. The interviews were used together with the multiple-case study to create a rich overview of the model and its different application areas.

For the multiple-case study, we used purposive sampling to select seven projects that all included an MBAM analysis during the execution of the project. We selected these seven projects for two main reasons. First, they were finalized by the time this study took place and their lead consultant was available. Second, we wanted to include a broad range of different application areas for the model. Therefore, we selected projects in all areas where the model is used: technological design projects, organizational design projects, and strategy projects. For the seven projects, we interviewed the project leads and asked questions related to the project (e.g. to what extent the model had influenced the outcome of the project, why did the project team decide to conduct an MBAM analysis). Furthermore, we conducted a comparative analysis on the case study projects, identifying the commonalities between business activities and their differences, to eventually conclude on the intentions of all the four quadrants in the MBAM. Three of the seven projects will be presented in the next section of this paper to show the application of the model. These cases were selected because they show the application of the MBAM in three different areas. The first case will present a project in which the MBAM was used for the technological redesign of an application landscape. The second case presents an application of the model for organizational design, e.g. the international set-up for IT-teams and IT-departments. The third case shows an application of the model for defining a sourcing strategy.

To reduce the bias in the study, we have also interviewed four experts in the field of Enterprise Architecture and Digital Transformation outside of the consultancy firm. The experts were not related to the consulting firm. All experts were invited to an individual session in which the model and its application were explained. Furthermore, a workshop was conducted in which the experts could apply the model themselves. Afterwards, a questionnaire was sent to the experts to ask for their opinion on the model regarding its effectiveness, ease of use, understandability, and usefulness. The main feedback highlighted that the model was a useful and effective tool for facilitating conversation during the initial stages of a digital transformation. Experts acknowledged that, on the surface, the model appears easy to use and understand. However, they emphasized that to successfully apply the model in practice, one needs to have background knowledge and know about its nuances.

5. Illustrative cases

To provide insight into the practical application and impact of the MBAM, several case studies have been performed. For three case studies, the problem, method, and result will be presented in the next sections.

5.1 Case 1: Multi-technical service provider for energy and telecom

Problem

This multi-technical service organization, part of an international group, consists of multiple divisions with operating companies in The Netherlands. They design, implement, run, and maintain network systems, energy systems, infrastructure, buildings, and installations for industry. The organization has a robust growth ambition through acquisitions and consists of multiple smaller companies. They employ around 4.500 people locally and 47,200 globally. The Dutch company is organized into divisions, each equipped with its own software solutions and their application landscape consists of different implementations of ERP systems at varying stages of maturity, hindering their ability to support future business propositions. Consequently, the company desired one ERP solution instead of running multiple ERP systems. Furthermore, they wanted to restructure their IT organization to facilitate the sharing of capabilities, best practices, and operating cost reduction across the Dutch operations.

Method

To this end, a review of the business activities for each division was conducted, which was presented on an Operating Model Canvas (OMC) [8]. The MBAM was used to classify each activity in terms of differentiation and dynamics. An OMC was created, and a multimodal analysis has been conducted using interviews and workshops. The aim was to identify the business activities that are low on differentiation (generic and stable), the activities that are specific, and the activities characterized by high business dynamics and interaction with customers.

Result

The MBAM contributed to reaching a consensus about the characteristics of each business activity, from where commonality exists to where the divisions differ or distinguish themselves from the market. It also solved the issue that some divisions had never spoken to each other before. After the analysis they understood each other's business model better, offering common ground for future endeavors. Based on the analysis, consensus was reached on where the divisions differed but also, they found common ground for future IT solutions. Special attention was given to business activities characterized as highly dynamic. The outcome of the MBAM analysis drove the decisions on technical solutions and the organization of IT within the divisions and at the group level. For 'Common' activities they decided to buy solutions from the market (ERP software) without further customizing but by adjusting internal processes. This contributed to their strategic objective of sharing capabilities across the company, aligning common processes, and lower operating costs. In the case of 'Adaptive' activities, the decision was made to acquire market solutions with the ability to modify or adjust parameters based on the business needs of the relevant division, providing the necessary flexibility to respond to market changes and specific customer demands. For 'Distinct' activities, the choice was made to work in agile teams consisting of business and IT professionals. For 'Specialized' activities, each division retained its own IT staff to provide support.

5.2 Case 2: Utility service provider

The problem

The assignment of the utility provider was a redesign of the IT organization of their Belgian subsidiary to align with the IT organization of the head office in the Netherlands. The reason for using the MBAM in this project was to gain a deep understanding of which business activities, including activities in the IT domain, are specific or dynamic for business operations in the context of the Belgian market and which activities are comparable to business operations in the Netherlands.

Method

First, an Operating Model Canvas for Belgium was created together with key stakeholders from Belgium in several workshops. Next, the MBAM was used to determine the modality of each Belgian business activity. Then, the outcome of the analysis of the Belgian operation was compared with the analysis of the Dutch operation, which was available from previous assignments for this client. The outcome of this analysis was discussed with all stakeholders, including the CEO and COO of Belgium and the CIO of the Netherlands, and then used to design the new technology organization for both Belgium and The Netherlands.

Result

The use of the MBAM facilitated a transparent exercise demonstrating the similarities and differences between the business activities of the Belgian and Dutch operations. The analysis results provided crucial insight into optimizing the organization of business activities for Belgium and The Netherlands, considering factors like cost, adaptability, market, and product development. To accommodate regulatory differences (which are highly specific) between Belgium and The Netherlands, it was decided that the IT for all primary business activities remained local. Architecture, generic IT operations & services, enabling platforms including data, and security, risk & compliance were concentrated at the group level. The Belgian IT organization was structured as a local IT unit focused on generic business activities for Belgium, sourced from local IT partners, and two new units of business and IT personnel, focused on developments in Belgium. 'Specialized' and 'Dynamic' business activities were organized locally, close to business operations. 'Common' activities lend themselves to economies of scale, stronger coordination, and outsourcing. The results of the assignment were accepted by all stakeholders involved in the analysis, design, and decision-making. Consequently, departments were created based on the modalities of the business activities.

5.3 Case 3: Land Registry

The problem

The Land Registry (LR) registers the core data of all real estate in the Netherlands in Public Registers. The LR intended to establish strategic partnerships with suppliers of advisory and IT services, so they could focus solely on problem definition, while the suppliers provided software solutions. This was to be achieved by strategically defining lots for tendering. These lots were defined in collaboration with IT, procurement, and financial staff.

Method

To gain a good understanding of the business operations, the LR's business activities were mapped onto a Operating Model Canvas (OMC) [8]. This OMC was verified in two consecutive workshops with customer staff. Subsequently, an analysis was conducted to determine the modality of business activities based on the level of differentiation and dynamics. An inventory of all applications was then performed, including their operational costs and planned investments. The result of these steps was a map of activities and their IT applications, which was used to discuss and determine the strategic lots for an IT sourcing model.

Result

The OMC displayed the business activities, their modality, and their IT services and applications. The enhanced OMC served as a landscape map of the applications and their services in use by business activities, showing the colors of the multimodal analysis. The application of color coding in the MBAM analysis and the categorization of applications were used to define the strategic lots and sourcing strategy. The primary business activities of the LR were classified as 'Specialized' because these services are based on legislation for the registration of real estate, mortgages, and ships. Also, the use of geographic information for these activities is specific to this organization. Sourcing for these activities should primarily be based on the offering of specialized capabilities, whilst the LR maintains control over specifications and specific knowledge. The activity 'On demand services and advice', provided to government agencies like the Ministry of Defense, was classified as 'Distinct.' This service is highly specialized, confidential, and dynamic due to its political sensitivity. For these 'Distinct' activities the decision was made to restrict sourcing to the use of specific know-how on digital technology. The provision of LR record extracts to citizens and commercial parties were considered as 'Adaptive' due to the dynamic nature of customer demand and digital technology. Flexibility and competence are key and IT capability can be sourced from specialized suppliers. Supporting services and infrastructure services were qualified as 'Common' and can be outsourced to IT suppliers.

6. Discussion and future research

This paper presents a new perspective on organizations in the context of digital transformation through the introduction of the MBAM. The MBAM combines strategic and technological perspectives and focuses on one business activity or a set of related activities. It solves the shortcomings of existing models such as lacking practicality, usability, or too little focus on the business side. We argue that understanding the differences between business

activities can help organizations make better decisions regarding digital transformation. The practical contribution of the paper lies in providing a comprehensive overview of the MBAM, which can support organizations in their own digital transformation and decision-making processes.

The MBAM has been used and improved in practice with a theoretical foundation. The way the MBAM has been used was sometimes up for discussion. Not all stakeholders agreed initially on the definitions used, and some organizations have their own ‘slang’. From this study, we have concluded that the model is a helpful tool in supporting the conversations between different stakeholders in organizations. Nevertheless, it has also become evident that the successful application of the model requires expert guidance. The model comes with a substantial amount of background information and nuances, necessitating accurate interpretation and implementation to effectively support decision-making in the context of digital transformation.

One of the future research possibilities is to define each modality to a further extent. Additionally, while the MBAM has aided stakeholders in decision-making for their digital transformation initiatives, the specific decision steps taken by the stakeholders have not been explicitly addressed. This elaboration of the decision process can make the use of MBAM more effective. A key feature of MBAM is defining the distinctive features of each modality. Initial progress has been made in defining and elaborating nine areas: strategy, process, leadership, culture, governance, output, sourcing, technology, and data. Future research will show if these areas are sufficient, and how they will be specified.

7. Conclusion

In this paper, we introduced the Multimodal Business Activity Model for classifying business activities. The model classifies business activities along two dimensions: which results in a business activity type, which is called a modality. The vertical dimension of the model is based on strategy literature, focusing on the concept of differentiation. This is combined with contemporary literature about digital transformations and the concept of dynamics in the horizontal dimension of the model. In practice, the model is often used in combination with a tool for visualizing business activities, an Operating Model Canvas [8]. The practical application of these two concepts together has proven a powerful method to create a shared vision in an organization as a basis for digital transformation. Visualizing the business activities using an OMC, creates a shared vision of an organization across cross-functional business units [8]. Classifying these visualized business activities into modalities using the MBAM, allows stakeholders in the organization to collaboratively determine the strategic focus of a business activity. Moreover, we argue that the modality has consequences for, and gives direction to, the organizational and technological design of the business activity. In our case studies, we showed examples of how the modalities can be used to support the organizational design of IT. We also demonstrated how the MBAM can inform decision-making regarding technology, such as the rationalization of an application landscape including the selection of technologies. Finally, we showed how the MBAM can guide the conversation regarding strategical themes, such as the question: which activities do we want to perform in-house for strategic reasons, and which activities are suitable for outsourcing?

References

- [1] Bharadwaj, Anandhi, Omar A. El Sawy, Paul A. Pavlou, and N. Venkatraman, N. V. (2013) “Digital business strategy: toward a next generation of insights.” *MIS quarterly* **37** (2): 471-482.
- [2] Cingöz, Ayşe, and A. Asuman Akdoğan (2013) “Strategic flexibility, environmental dynamism, and innovation performance: An empirical study.” *Procedia-Social and Behavioral Sciences* **99**: 582-589.
- [3] Ensign, Prescott C. (2001) “Value chain analysis and competitive advantage.” *Journal of General Management* **27** (1):18-42.
- [4] Hoskisson, Robert, Michael A. Hitt, and R. Duane Ireland (2004) “Strategic Leadership in Competing for Advantage.” Mason OH, Thompson.
- [5] Ismail, Mariam H., Mohamed Khater, and Mohamed Zaki (2017) “Digital business transformation and strategy: What do we know so far?” *Cambridge Service Alliance* **10** (1): 1-35.
- [6] Jewitt, Carey, Jeff Bezemer, and Kay O'Halloran (2016) “Introducing multimodality.” New York, Routledge.
- [7] O'Regan, Nicholas and Abby Ghobadian (2004) “The importance of capabilities for strategic direction and performance.” *Management decision* **42** (2): 292-313.
- [8] Reijnen, Crystal, Sietse Overbeek, Gerard Wijers, Albert Sprokholt, Fabian Haijenga, and Sjaak Brinkkemper (2018) "A shared vision for digital transformation: codification of the operating model canvas approach." *ECIS 2018 Research-in-Progress Papers* **7**.
- [9] Ross, Jeanne W., Cynthia M. Beath, and Martin Mocker (2019) “Designed for digital: How to architect your business for sustained success.” Cambridge MA, MIT Press.

- [10] Sheehan, Norman T. and Nicolai Juul Foss (2007) “Enhancing the prescriptiveness of the resource-based view through Porterian activity analysis.” *Management Decision* **45** (3): 450–461.
- [11] Teece, David, Margaret Peteraf, and Sohvi Leih, S. (2016) “Dynamic capabilities and organizational agility: Risk, uncertainty, and strategy in the innovation economy.” *California management review* **58** (4): 13-35.
- [12] Warner, Karl S. and Maximilian Wäger (2019) “Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal.” *Long range planning* **52** (3): 326-349.