Towards achieving competitive advantage through making the right operating model choices

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Abstract

Increasing turbulence of business environments provides entities with opportunities for innovation and transformation. A frequently used concept to organize for such environments and to make resource-driven decisions for innovation and transformation is an operating model (OM). Recent research has contributed to a better understanding of OM, but overall, we lack a comprehensive picture of the OM concept and more specifically, how entities can use the OM concept to configure digital resources (DR) and position the OM as an EA artifact in organizing for digital transformation and to support strategic decision making. In this PhD study, we aim to answer the research question how the fit between strategy and OM can lead to competitive move(s). We plan to answer our research question by undertaking three studies with each a unique methodology, both qualitative and quantitative, and therefore enforcing rigor in the design of the studies. We have combined the concept of an OM with the resource-based view (RBV) theory and will show its potential to become a powerful explanatory framework for decisions on orchestrating and leveraging resources in organizations. Especially when extending the boundaries of the OM to an ecosystem and focusing on digital resources, there is yet a lot left unexplored. This research should result in a research agenda to position the OM in academic research as an EA artifact to study decisions related to digital resources. For managers, this PhD should result in a framework to describe and discuss digital resource related decisions and guidelines for discussing governance and value of configuring digital resources.

Keywords

Operating Model, Digital Transformation, Digital Resources, Enterprise Architecture, Configuration Theory

1. Introduction

The environment in which firms operate is becoming increasingly turbulent [1]. Innovation and transformation offer numerous opportunities for companies to organize for turbulent business environments [2]. The concept of an operating model (OM) is frequently used by organizations when making resource driven decisions for innovation and transformation [3]. An OM can be defined as a "representation of a configuration of resources (e.g., organizational structure, business processes, technology) that show the transformation of an entity to an improved state for the customer" [3]. An OM can be classified as an artifact in the context of enterprise

Companion Proceedings of the 16th IFIP WG 8.1 Working Conference on the Practice of Enterprise Modeling and the 13th Enterprise Design and Engineering Working Conference, November 28 – December 1, 2023, Vienna, Austria
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architecture (EA) [4]. An EA artifact can be defined as a "distinct document describing a specific narrow aspect of an organization from the perspective of its Business and IT" [4]. A topic closely related to the OM concept is the business model (BM). To clearly distinguish the OM concept with the BM, we will adopt the definition of the BM as the design of organizational structures to enact a commercial opportunity [5]. In their paper, the authors fence the BM as a representation of a form of entrepreneurial opportunity creation explicitly initiated by market imperfections. This would position the BM more as a model to describe the composition of resources (i.e. creating new resources) whereas the OM would be positioned as a model to describe the orchestration of resources (i.e. leveraging existing resources). This is closer related to resource orchestration, which is defined as the comprehensive process of structuring, bundling, and leveraging the firm's resources with the purpose of creating value for customers and competitive advantages for the firm [6]. For the sake of conceptual clarity, we argue that the OM is an EA artifact to describe the representation of configuration(s) involving resource orchestration. In our view, having an explicit research stream on modeling the orchestration of resources would benefit both scholars and managers.

OM has emerged as a concept in academic literature, business literature and consultancy white papers. For example, based on a literature search in Google Scholar in November 2021, we observed 5,170 papers in peer-reviewed academic journals in which the concept of OM is used. References to OM in practitioner-related journals and in publications issued by major consultancy firms (e.g., McKinsey, Bain, Deloitte and PWC) are also considerable; with more than 4 million hits on Google. The interest seems to be growing, and with it the need for a solid understanding of the concept and its use.

Recent research has contributed to a better understanding of OM in the domains of innovation [7] [8], digital- and IT-enabled (business) transformation [9] [10], and enterprise architecture (EA) [11] [12]. The OM concept is tied to gaining control over resources [7] [13] [14] [15] [16]; within organizations [17, 18] [19], in supply chains [16] [20], and in broader ecosystems [21] [22] [14]. But overall, we lack a comprehensive picture of the OM concept and more specifically, how organizations can use the OM concept to configure digital resources (DR) and how entities can position the OM as an EA artifact in organizing for digital transformation and to support strategic decision making.

1.1. Research question

In this PhD, we want to zoom in on a subset of resources within the OM, DR. DR are a specific class of digital objects that are modular, encapsulate objects of value, and are accessible by way of a programmatic bitstring interface [23]. DR are a subset of the more general defined "resources", that are available and useful in detecting and responding to market opportunities or threats [24]. Example of digital resources are [23]:

- programmatically accessible data, that a firm owns or controls, for example a database that foursquare places exposes, with 105+ million geolocated locations/venues with descriptions, photos, ratings, and reviews.
- the capability by which Google AdWords enables users to programmatically control advertisement campaigns across Alphabet's own and partners' digital properties.

In our study, we aim to answer the following research question:

- How does the fit between strategy and OM lead to competitive moves?

Answering this research question is important, as there is limited knowledge on how OM choices on DR are made and the impact of these choices on competitive advantage. The importance of developing more insights on this subject is also confirmed in our pilot study *"In hindsight, I can certainly say that it would have helped us a lot if we would have understood the impact of the choices before we would have made the changes in the operating model, because we could have avoided quite some friction."* [25].

1.2. Study design

We plan to provide an answer to our research question by undertaking three studies with each a unique methodology and research questions, which are described in the section below. The first study is a literature review and aims at organizing and synthesizing insights from the body of knowledge across various disciplines on the intersection of OM and digital. Our second study will be a series of case studies to gain a better understanding of the usage and leveraging of DR. In our third study, we would like to empirically examine relationship between the configuration of DR in an OM and competitive moves. We propose to use a survey to collect data for this study and a potential methodology could be structural equation modelling (SEM) methodology. However, the completion of study 1 and 2 will provide more direction for the design of study 3.

Our planned contributions are twofold: 1) develop a research agenda to position the OM in academic research as an EA artifact to study decisions related to digital resources and 2) a framework to describe and discuss digital resource related decisions and guidelines for discussing governance and value of configuring digital resources.

2. Conceptual model

In our literature review, we have shown that the OM has three major properties: resources, configuration and transformation [3]. Furthermore, we have seen that the OM is used to implement business strategy or business model. However, we should also acknowledge that there is not one single configuration for a given business strategy (otherwise business facing similar challenges would all configure their resources in the same way). Therefore, we can add a fourth important property to our OM: the fact that an OM has configurational multiplicity. Configurational multiplicity refers to a situation where even within a particular theoretical perspective there may be different configurations of factors such that there is not one best way but in fact several effective ways to organize [26]. Our conceptual model, shown in Figure 1, captures those properties and puts them in a relationship. In this model, we can see that strategic type, as defined by Miles et al. [27], together with OM characteristics drive the OM fit with strategic type. This is the level on which the configuration happens. The fit is defined as a set of causal recipes explaining how causally relevant elements combine into configurations associated with outcomes of interest [26]. Causal recipes theoretically explain multiple configurations either a priori by a theory in a top-down deductive approach, or by an emergent theory in a bottom-up inductive approach, or in an abductive approach marked by "the dialogue of ideas and evidence" [28].

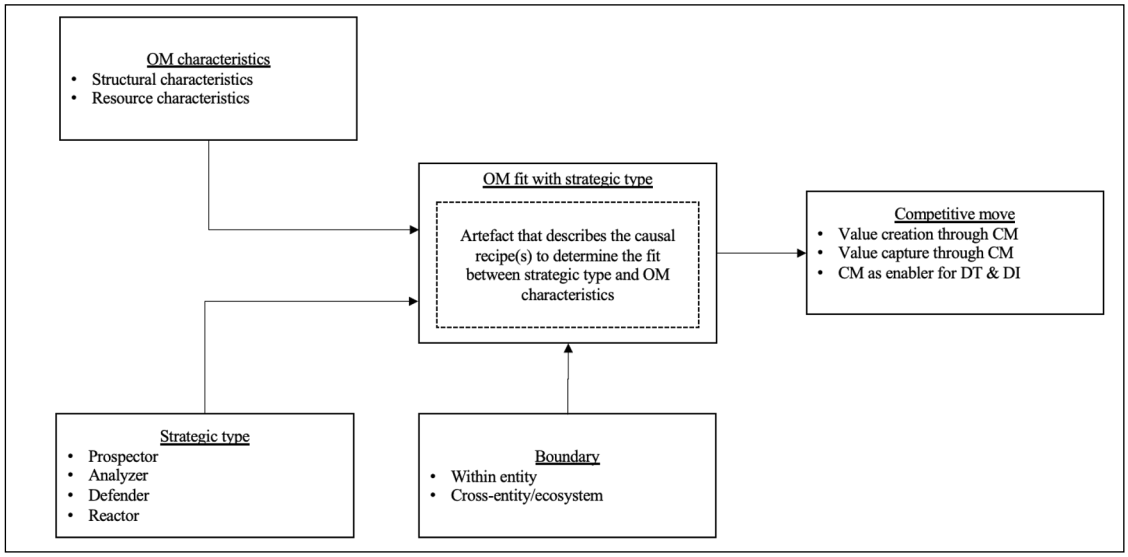

Figure 1: Conceptual Model

2.1. Operating model characteristics

The OM characteristics consist of two types: 1) structural characteristics and 2) resource characteristics. Structural characteristics are derived from the organizational theory and are 1) centralization, 2) formalization and 3) specialization [29]. Structural characteristics are important because they describe how the strategy is implemented in terms of being bureaucratic versus organic.

Resource characteristics can be broken down in three (measurable) components: 1) resource interdependence [30], 2) transformational capability [31] and 3) resource fluidity [32]. Resource interdependence means the extent to which an entity depends on other entities for resources to accomplish tasks [30] and can be subdivided in pooled, sequential, and reciprocal [33]. When looking at it from the unit of analysis of an entity and the effect on the boundary [3], we could argue that pooled interdependence is linked to our *within entity* boundary, meaning that the OM configuration is for resources within the entity, the sequential interdependence is matched to the *value chain* boundary as being a sequence of inputs and outputs between dependent firms and the reciprocal interdependence links to the *ecosystem* interdependence, which means that the configuration of resources is made to participate in an ecosystem. Transformational capability is the ability of an entity to transform organizational and IT resources into digital resources [31]. From the RBV theory [34], we know that an entity is composed of resources and capabilities. In order to transform an organizational or IT resource into a digital resource, it needs to encapsulate the value and make it accessible through a bitstring interface [31]. Resource fluidity means the ability to reconfigure capabilities and redeploy resources effectively rapidly [32]. The inertia of existing structures, processes and beliefs throughout the organization and the evolving complexity of its existing business strategy often make change particularly difficult. Resource fluidity can help with allocating resources where they contribute most value [35]. Different resource fluidity strategies are decoupling, modularizing, dissociating, switching and grafting [35].

Next to the configurational elements derived from the theory, we have identified the following elements for configuring the fit from our case study project (project 2) in which we are analyzing two distinct cases of configuring DR, a setting where a large pharmaceutical company created an algorithm for image recognition by using artificial intelligence that is leveraged by a start-up (case A) and a large financial services company that is providing DR in the domain of PSD2 and open banking that are leveraged in an ecosystem to fuel innovation (case B):

1. Value Capture – where the value of the resource is captured (either within core or extending the core).
2. Leverage – how the resource is used in a configuration (either one to one or one to many).
3. Creation path – determining what triggered the creation of the resource (which can be internal versus external).
4. Rationale – explaining why the resource was created (which can be organic, commercial, or collaborative).
5. Knowledge sharing – describing how knowledge sharing was organized (can be formal or informal).
6. Value – denoting where the value capturing is done (can be intrinsic or extraneous).
7. Governance – containing how governance is organized for the DR in scope (can be formal or informal).

As these elements need to be further derived from the case studies, we have not yet included them in our conceptual model.

2.2. Competitive moves

The outcome of the configuration, our dependent variable in our PhD study, should result in competitive move(s) (CM). A competitive move is defined as "any externally oriented, specific, observable action initiated by a firm to enhance its relative competitive position" [36]. Examples of competitive moves are given by Chen such as introducing a new product or entering a new market, that may lead to the firm's acquiring its rivals' market shares or reducing their anticipated return [37]. Ferrier [7] provides the following six categories of moves into the pricing actions, marketing actions, new product actions, capacity actions, service actions, and signaling actions.

3. Impact plan

The proposed PhD research should result in original contributions that satisfy the requirements of rigor, relevance, and reach. The way that we plan to make impact with this research is described in the sections below.

3.1. Rigor

This PhD study comprises a mixed-method approach, both qualitative and quantitative studies are undertaken. This combination of research methodologies will decrease the risk of drawing conclusions that are coincidental instead of structural. As part of the school's research

declaration, we strive to conduct research in a transparent way that is open to replication. For each study, we will create a protocol that is discussed with the supervisors that will describe the setup of the study and a justification for the different choices (e.g., the sampling technique and the data collection instruments). This protocol will be reflected in the final paper to ensure that readers of the paper can follow the reasoning and understand the choices made in the design.

3.1. Relevance

3.1.1. Academic relevance

This research explores the concept of an OM which is, as listed as one of the findings of the literature review, a subject which is still not entirely understood and defined. When combining the OM with the RBV theory, it can create a powerful explanatory framework for decisions on sharing resources in organizations. Especially when extending the boundaries of the OM to an ecosystem and focusing on DR, there is yet a lot left unexplored. This research should provide a research agenda to position the OM in academic research as an EA artifact to study DR related decisions.

3.1.2. Business or managerial relevance

For managers, we believe that this research should bring a framework that guides decisions on the management and sharing of DR in a more structural and explicit way. We also aim to develop an artifact to document these choices and create guidelines on who the stakeholders are in these discussions to address potential questions on governance and value.

3.2. Reach

The concept of an OM, positioned as an EA artefact describing a specific narrow aspect of an organization from the perspective of its Business and IT [4] has the ability to become an important link in the alignment of business and IT. The potential was already shown by Ross et al. in the book "Enterprise architecture as a strategy" where the OM was as part of a "foundation for business execution", which includes business strategy, enterprise architecture (EA) and an IT engagement model. OM was defined as "the desired state of business process integration and business process standardization for delivering goods and services to customers" [38]. We believe that by extending the focus from business process integration and standardization to resources the OM could be re-positioned as a topic in strategy, enterprise architecture and information systems domains as well as being a subject in management education and business schools. We will share the knowledge gathered in this PhD through publishing in academic journals. We also would like to contribute to management or business journals. Finally, we want to reach out to the community of CIO's by presenting in forums like CIONet (www.cionet.com) or MIT Club (www.mitclub.be).

4. Work plan

This PhD is divided in three studies, all with a specific focus on understanding one of several elements of the main research question of how the fit between strategy and OM can lead to competitive advantage? In Appendix I, an overview is shown of the different research studies,

the contribution aimed at with the study, the goals of the study, the research question(s) addressed in the study, potential literature findings, the methodology, the justification for undertaking this study, the impact foreseen with the study and the current status of the study with a preliminary timing for completing the study.

The first study is a literature review and aims at developing a conceptual understanding of OM and digital resources. The research question that we have defined for this study is "What are properties of digital resources in the context of an operating model?". The methodology that we will use for this study is a Systematic Literature Review (SLR) method as described in Kitchenham et al. [39]. This research will contribute to the ongoing research developments of the resource-based view (RBV) with a focus on the use of DR and identify properties of DR that are relevant to OM configurations. For this study, we have completed and published an initial literature review in June 2022. We plan to extend this literature review with the scope described above during December 2023 and June 2024 with the objective to have a publication ready in June 2024.

The second study will zoom in on DR and will have as research questions: what do entities define as DR (1), how do entities leverage their most important DR within the context of an entity (organizational level) or ecosystem (supra-organizational level) (2), what criteria can be identified for make these choices (3) and how do entities determine value when it comes to leveraging DR (4). This study aims at empirically validate the use of DR and the level of sharing in entities. We plan to undertake a series of case studies that starts from a theoretical framework to test and iteratively develop an understanding of the use of DR by entities. As a sample, we have selected entities that are currently undergoing some sort of digital transformation (DT), have a somewhat mature enterprise architecture (EA) practice, are organized on a multi-country, multi-national or multi-organization (conglomerate) level and have an IT leader at exco/board level. We plan to run the research project during May 2023 and November 2023 and aim to finish a complete article draft by December 2023.

The third study aims to empirically validate the relationship between the configuration of DR in an OM and competitive advantage. The research question that we have defined for this study is "What drives competitive advantage when configuring DR in an OM?". In order to collect data to answer this research question, we believe that a survey might be useful. As methodology we are currently have identified Structural Equation Modelling based on the survey data to measuring performance of the OM configuration of DR on large scale. However, the output from study 1 and 2 might give further direction for the design and execution this study. We plan to run the research project between June 2024 and December 2024 and aim to have a complete article draft ready by December 2024.

Acknowledgements

I would like to express my sincere gratitude to my promotors, Prof. dr. Stijn Viaene and Prof. dr. Amy Van Looy, for their invaluable guidance, encouragement, and support throughout this PhD project. They have been instrumental in shaping my ideas, providing constructive feedback, and enhancing my skills.

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A. Work plan

In the table below, an overview of the overall research question with a breakdown in studies, contribution, goals of the study, specific study research questions, literature review findings, methodology, justification, impact and status are given.

How does the fit between strategy and OM lead to competitive advantage?			
Study	Study 1	Study 2	Study 3
Contribution	Theoretical	Empirical	Empirical
Goals of the study	Develop a conceptual understanding of OM and digital resources.	Empirically validate the use of DR and the level of sharing in entities.	Empirically validate the relationship between the configuration of DR in an OM and

			competitive advantage.
Research question(s)	What are properties of digital resources in the context of an operating model?	What do entities define as DR, how do entities leverage their most important DR within the context of an entity (organizational level) or ecosystem (supra-organizational level), what criteria can be identified for make these choices and how do entities determine value when it comes to leveraging DR?	What drives performance when configuring DR in an OM?
Literature review findings	• OM is not unambiguously defined; • Current OM configurations are limited to within entity boundary; • Current OM configurational axis are limited to standardization and integration.	• Digital resources in relation to configurations are understudied. • There is lack of understanding how entities position DR in ecosystems and how to determine value.	• Literature review will draw on findings from Study 1 and Study 2 and will further zoom on resource efficiency and effectiveness.
Methodology	Systematic Literature Review (SLR) [39]	Case Studies [40] [41]	Survey with Structural Equitation Modeling (SEM) [42]
Justification	Contributes to the ongoing research developments of the resource-based view (RBV) with a focus on the use of DR and identify properties of DR that are relevant to OM configurations.	Series of case studies that starts from a theoretical framework to test and iteratively develop an understanding of the use of DR by entities.	Quantitative approach to measuring performance on large scale, through a survey, of the OM configuration of DR.

Impact	• Literature review presented at Vlerick DBA Conference (2022) • Conference proceedings published and paper presented at IEEE CBI 2022 conference. • Final outcome should be an academic journal publication targeted at the European Journal of Information Systems.	• Pilot study presented at Vlerick DBA Conference (2023) • HICCS 2024 presentation • Academic Journal publication targeted at the Journal of Management Information Systems • Presentation at CIO forum	• Academic Journal publication targeted at MIS Quarterly • Management research outlet (e.g. MIT Sloan, HBR, …) • Presentation at CIO forum
Status	Initial literature review done (2022), full literature review for publication targeted for June 2024	• December 2023 Complete Draft	• December 2024 Complete Draft