DOCTORAL CONSORTIUM

# CAPABILITIES AND COMPETENCES FOR STRATEGIC DECISION MAKING IN DIGITAL WORLD

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**Abstract** Technological and digital developments go fast and are interrelated causing the environment of organizations to change rapidly. Furthermore, consumer needs evolve and disruptive business models of new (unexpected) competitors take market share of incumbents. This makes it difficult to determine what the relevant contextual factors are that organizations need to take into account when formulating their strategy. At the same time, the digital possibilities for organizations to add value for their customers, is increasing in an unpredictable way. These substantial uncertainties for organizations, combined with the existential need for organizations to add value in a more effective and efficient way than their competitors, put them at great risk. In this perspective, it is also difficult for organizations to determine what capabilities and competences in the strategic decision unit are required to constitute a good strategy to adopt to digital developments. This paper describes a PhD research project with the objective to find a way for organizations to determine what capabilities and competences in the strategic decission unit are needed to formulate a future-proof strategy in a changing, complex and ambiguous context.

**Keywords:** digital readiness, digital maturity, digital transformation, digital strategy, organizational strategy, digital capabilities, competences, executive level.

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## 1 Introduction and some theoretical background

The context of organizations is changing ever faster under influence of a digital transition that is driven by a wide variety of digital technological developments. This transition changes people's behaviour and expectations (Karimi and Walter, 2015) creating new needs and demands among consumers and creating a new social context. Exponents of this society-wide process of change are the use of mobile phones, social media and the implementation of new regulation (Lemon and Verhoef, 2016).

Organizations that are able to adapt faster than their competitors to this digital transition have a competitive advantage as a consequence of the digital transition (Millar et al.; 2018; Karpunina, 2019). Organizations that do not adapt (in time) to new customer desires and social changes run the risk of creating insufficient value for their customers, which can lead to loss of turnover or even bankruptcy (Mazone, 2014; Karpunina, 2020). Therefore, the digital transition should be an important aspect of the organizational strategy.

Because of the digital transition, existing techniques and tools for strategic adaptation are no longer sufficient (Warner and Wäger, 2019; Subramaniam, 2019). Teece et al. (1997) state that this new reality requires organizations to increase their digital readiness and thereby to digitally transform.

In line with these insights scientific prove is found for the relationship between newly developed organizational capabilities and the succes of the organization to digitally transform and to achieve better results. Examples of this are: Fainschmidt et al. (2019) who stated that organiszations should develop a certain degree of environmental sensitivity, especially with regard to digital developments, and Ravesteijn and Ongena (2019) who showed a positive relationship between specific digital transformational leadership competencies within an organization and the extent to which the organization is ready to digitally transform.

A complicating matter when it comes to the timely adaptation of organizations to the digital transformation, is the alignment between business processes and IT processes (BITA). This challenge has been a thorny subject in practice since the start of automation and digitalisation, and is much discussed in literature (Luftman and

Brier, 1999, Bharadwaj et al., 2013, Kahre et al. 2017). One of the complicating reasons for problems with regard to BITA is that the implementation of new digital technologies often affect large parts of organizations, and even go beyond their borders, by impacting products, business processes, sales channels, and supply chains (Matt, et al., 2015). Various models have been developed over the years (Jonathan, 2018) to achieve this alignment.

### 1.1 Problem statement and research objective

As described above, organizations run strategic risks because of the digital transition, and they must anticipate in time to their unpredictable, complex changing context much faster than before. Traditional techniques and models for developing a strategy are therefore no longer sufficient for every organization in its context. There exist many theoretical and practical models that describe which capabilities are needed to be ready for the implementation of a digital transition (Vial, 2019, Schilke et al., 2018), models and methods that improve organizations digital readiness and maturity or that facilitate the digital transformation of organizations.

But still organizations face a challenge, because the amount of theories and models and the variety in approach, scope and content is so numerous, it is difficult for organizations to determine which theory, model or technique fits best in their situation and their context. Therefore:

*The objective of the research proposal presented in this paper is to help organizations by determining which capabilities and which competences in the strategic decision unit they have to develop, to construct a future-proof strategy in a digital transforming world.*

### 1.2 Definitions

Awaiting the results of the structured literature review, this paragraph holds some provisional definitions and discussion of the main concepts used in this research design.

*Digital readiness* is defined as the degree to which and the speed with which an organization can develop innovative capabilities and apply new technologies, that

better enable the organization to achieve its goals and lead to better results (Walzuch et al., 2007).

*Digital transformation* refers to the process through which an organization responds to environmental changes by using digital technologies such as mobile computing, artificial intelligence, cloud computing, and the Internet of Things (IoT) to change its value-creation processes." (Vial, 2019)

In this research design the term capability refers to an organizational ability and the term competency is used to refer to an individual ability. In scientific literature this distinction is sometimes made differently.

*Competency* is the capability of applying or using knowledge, skills, abilities, behaviors, and personal characteristics to successfully perform critical work tasks, specific functions, or operate in a given role or position (Ennis, 2008) *Capability (referring to organizations)* is defined as a capacity of an organization to deploy its resources, tangible or intangible, to perform a task or activity to improve performance (among others Teece et al., 1997).

In the research process the *'future-proofness of strategy'* will be evaluated by the techniques found in scientific literature as done by Punt et al. (2016). For the readability we define future-proofness of strategy in this research design based on the definition of Rich (2014) as the strategy that enables the organization to anticipate to future developments, minimizing the effects of shocks and stresses of future events (robust in multiple scenarios).

*The strategic decision unit of the organization* consists of those people who make the decision about the strategy of the organization.

### 1.3 Preliminary Research

To further determine the problem in practice an explorative study was undertaken in which eight experts from strategic development units of organizations participated. The objective of the preliminary research was to determine possible solutions for the outlined challenge of the research project in order to provide direction for continuation and scoping of the following research phases. The

preliminary research consisted of three focus group sessions with the same eight participants of eight different organizations (Morsch, 2021). The main research questions discussed were:

- How do organizations ensure that they are digital ready?
- What risk (chance and impact) do organizations run, not being (fully) digital ready?
- What organizational capabilities and competences will increase their digital readiness (risks)?

There were two reasons this research was spread over three sessions. First, the sessions were intensive and the attention of the participants was limited. Second, the assumption was made that the mutual exchange of insights and ideas would inspire participants and, after returning to their workplace, they would come indepth new insights by reflection. This indeed turned out to be the case and even a fourth session is planned after requests of participants.

### 1.3.1 Results of the preliminary Research

The analyses of the data collected through the focus groups sessions provided the following results:

- The risk for organizations of a rapidly changing context was recognized and acknowledged. Some participants were able to draw on their own experience;
- Digital transformation without a direct strategic reason was not experienced as useful. A digital transformation process is only wise when the necessity thereof is the outcome of a strategy development process;
- An important cause of slow response to changing circumstances, is the dysfunction of the central strategic decision unit as a result of blind spots.
- Examples of blind spots in the strategic decision unit that are counterproductive when it comes to adaptivity:
    - Too much trust in the old revenue model;
    - The decision making management of the organization is almost always in charge of departments that are responsible for the traditional business model. Innovation could cannabilize on their business units and as a consequence they

might lose influence because of the innovation. This sometimes leads to perverse steering mechanisms;

- Participants stated that an adequate way to increase the digital readiness of an organization is to increase the innovativeness of the organsiation.
- Some suggestions the participants made to increase the innovative capability of an organization were:
    - Delete or solve the blind spots:
    - Reward innitiatives that are innovative;
    - Make innovation power a goal in itself, and make it important to all the coworkers (honour the inventors);
    - Create space for innovations by keeping the innovative initiatives out of the 'normal planning and control' cycle.

The two main findings from this prelimanary study:

- look at the disablers as well as at the enablers when it comes to making a future-proof strategy;
- innovativeness could be a trigger to develop capabilities needed to built a future-proof strategy.

### 1.4 Gap in scientific literature and research question

In scientific literature, little research is found on the integral process what concrete measures and capabilities will enable the ability in organizations to develop a future-proof strategy (Korachi and Bounabat 2019, Teichert 2019).

Felch et al. (2019) state that little insight is known in scientific literature on the relationship between the process of making a future-proof strategy (and the required capabilities) and the specific context of the organization (Felch et al., 2019, Fainschmidt et al. al., 2019). Even less research analyzes what competences are necessary to fullfill the capabilities needed for digital readiness (Felch et al., 2019, Fainschmidt et al., 2019).

This proposal describes a research project that aims to construct a framework that organizations can use to develop the capabilities and competences in the decision making unit needed for the development of a future-proof strategy. Finally there is very little research in this scientific domains that provides scientific insights from

practice (Warner and Wäger, 2019; Liu, 2017), despite the long standing practical need for the insights studied in this research and the need for some practical evidence of the effectiveness of it.

Based on the above the main question that is formulated for this research project is:

*Which capabilities and competences are needed in the strategic decision unit of organizations to help to develop a future-proof strategy in a digitally transforming world?*

### 1.5 Scientific domains

Based on this the following three areas of science are paramount to this research:

- Strategy development: specific theories/methods that are investigated within the strategy determination are external analyses, scenario planning, capabilities (dynamic versus resource based) and competences of the strategic deceision unit of the organization.
- Information science: specific theories/methods that are investigated within information science are digital strategy, digital readiness, digital maturity, digital transformation, and BITA. For all of these the relation to the organizational capabilities and competences in the strategic deceision unit of the organization are studied.
- Human resources management: specific theory/methods that are explored within human resource management are capability management, competency management, blind spots management and in extension of the latter competency frameworks.

In the next section the overall research process is described followed by an in- depth discussion of the first phase in section 3. This paper ends with describing the contribution of this research to both science and practice.

## 2 Research Process in three phases

This research provides insights into the relationships between organizational capabilities, competences in the strategic decision unit of an organization, the contextual factors and the ability to formulate a future-proof strategy. To match the objective of this research the research question has to be answered:

*Which capabilities and competences are needed in the strategic decision unit of organizations to help to develop a future-proof strategy in a digitally transforming world?*

Three phases will be distinguished in this research project (besides the earlier mentioned preliminary phase). Phase 1 will provide the building blocks necessary to answer the research question. In phase 2 the building blocks will be put together to answer the research question. In phase 3 the construct will be validated and possible adjusted to make it a better fit with practice.

## 2.1 Definition phase

Exploring the domains described above from a theoretical as well as from an practical point of view:

- In a structured literature review, insights will also be collected about the relationships between the concepts in the research questions, in order to gain state-of-the-art insights into the integrated research field and the research direction for the follow-up of the research (Okoli, 2015).
- An explorative qualitative research will form a picture of the relationships between the different concepts in the research questions. This is done through semi-strauctured interviews (SSI) among a group of key experts (content experts in the domains of digital readiness and strategy development and practical experts responsible for the strategic direction of the organization). At the start eight interviews are planned with the content experts and sixteen interviews with strategic on the outcomes.

In the first phase of the research project the answers are investigated to following sub-questions:

From a theoretical perspective:

1. *Which capabilities and competences in the strategic decision unit can be derived from theory and methods that are intended to increase the digital readiness and digital maturity of organizations?*
2. *What are the relevant contextual factors in the process of strategy development?*

From a practical perspective:

3. *How do organizations develop their strategy and which capabilities and competences in the strategic decision unit of the organization do they deploy in this process?*
4. *Which contextual factors do organizations include in their process.*

## 2.2 Theory development phase

Construct a theory, framework or a model which describes the relations between the concepts in the sub-questions of phase one.

Grounded theory methodology matches the objective of the research projects because it is designed to enable the discovery of inductive theory. It "allows the researcher to develop a theoretical account of the general features of a topic while simultaneously grounding the account in empirical observations or data" (Martin and Turner, 1986). In 2017 Wiesche et al. examined studies in the information systems domain based on the grounded theory methodology and they classified the grounded theory methodology research contributions in information systems science as the development of theories, models, and rich descriptions.

The research question(s) and operationalization of the second phase will be determined after the execution of the first phase. This is done because the outcomes of phase one will influence the possible sollutions for the research as a whole and thus will influence the direction of the second phase, while maintaining the research objective.

- Using grounded theory a study will be conducted, aimed at obtaining a deeper insight into the different concepts of phase one. More precise on the basis of the answers to the sub-questions in phase one, the patterns between contextual factors and necessary capabilities and competences in the strategic decision unit of organizations are constructed.

## 2.3 Validation phase

Definition and validation of the found patterns in phase 2.

- In phase 3, the answers found to the sub-questions are individually and integrally validated in practice with a quantitative survey research. Based on

statistical analysis it is tested whether the developed theory is valid and significant with regard to the relationships between organizational capabilities, competences of the strategic decision unit of an organisation, contextual factors and future-proof strategy. As applies for phase 2, the precise research question(s) and operationalization of this phase depends on the results found earlier.

In the next section the methods used in phase 1 are discussed. The methods for phase 2 and 3 will be based on the results from phase 1 and therefore these methods are not determined yet.

## 3 Research Methods definition phase

In phase 1 a structured literature review is conducted parallel to a process of semi-structured interviews.

### 3.1 The structured literature review

The aim of this structured literature review is to answer the first and second sub-questions as defined in section three. For both structured literature reviews, we follow the protocol of Kitchenham (2004) and of Okoli and Schabram (2010). It is a rigorous approach to select, analyze and assess papers. Applied in a given domain, it allows identifying trends and gaps in research. The systematic literature review follows these following 6 steps, which we describe for both questions.

### 3.2 Digital readiness and digital maturity theory and models

In this SLR the subquestion to answer is:

*Which capabilities and competences in the strategic decision unit can be derived from theory and methods that are intended to increase the digital readiness and digital maturity of organizations?*

**Research identification**

The goal is to examine and evaluate research on digital readiness to create an overview of relevant theories and models in order to extract from these the capabilities and competences needed in the strategic decision unit of organizations in regards to digital transformation.

**Research strategy**

This SLR focuses on models and theories that are related to the terms: digital readiness, digital maturity, digital transformation and digital strategy.
Initially the first goal of the formulated queries is to withdraw other Structured Literature Reviews on the investigated models. The articles selected will provide a definition of the different terms, how to categorize them (purpose, assessment method) and give insights in further search procedures. The results will be used to formulate new queries together with a special focus on capabilities and competences in the strategic decision making unit of organizations.

**Study selection**

Together with a SLR expert in this domain of science and a short exploratory study, meta search terms for relevant digital readiness and digital maturity articles will be constructed and relevant databanks will be chosen. After the search results are retrieved, the duplicates are deleted. The search results are then assessed for relevance on title, abstract and keywords.

In order to minimize possible bias from researchers, this process is done by at least two researchers. Conflicting articles will be discussed with the aim of reaching consensus.

The inclusion criteria for this assessment are: no foreign language instead of Dutch, English and German, peer-reviewed journal/conference article or dissertation, and the article contributes to the answering of the research question.

The provisional list of databases to be used, are: Academic Search Complete, ACM Digital Library, AIS eLibrary, Elsevier, Google Scholar, IEEE, NARCIS, Science Direct, Springer, Web of Science, XpertHR.

**Quality criteria**

The planned evaluation in this phase requires the complete review of the paper. Based on the works of Nguyen-Duc et al. (2015) and Hauge et al. (2010) and slightly adjusted from the formulation of Henriette et al. 2015 the next criteria are taken into account: Is there an adequate description of the context in which the research was carried out? Is there a clear statement of research aims? Does the paper describe an explicit research question? Is the research design appropriate to address the research aims? Is the literature review adequate?

Is the collected data addressed to the research issue? Is the data analysis sufficiently rigorous? Is there a clear statement of findings? How is the value qualified? Does the paper discuss limitations or validity?
Each question has four possible ratings: (0) issue is missing, (1) just briefly mentioned, (2) more or less adequately addressed and (3) present and adequately described (Nguyen-Duc et al., 2015). All evaluations with an average outcome lower than 1 will be deleted. All evaluations with an average outcome between 1 and 1,8 will be submitted to a second opinion of an experienced researcher in this domain of science. When the evaluations differ more than 0,4 the paper is discussed. When the average score of the two evaluations together is 1,4 or higher the study is added to the selected papaers for this study.

**Data extraction**

For the extraction of data the procedures of Kitchenham (2004) will be followed. During the collection of the stored data (besides the trivial data, like name of the review, author, title, objective, date of extraction), the focus in the extraction process will be on all prescribed activities, procedures, capabilities and competences that are mentioned. all primary papers being assessed by at least two researchers. All extraction are done and discussed by at least two researchers. To ensure the extraction is done in a consistent manner, the extraction process is evaluated after the first ten articles with the help of a experienced third researcher. When several

articles are under suspicione of making use of the same study, the researchers will contact the writers of the articles to verify and if necessary combine and handle the insights from the different articles as if it was a single article.

**Data synthesis and analysis**

In the end, findings are formulated based on the extracted data. The data synthesis includes a descriptive analysis to provide a background about the included articles and an analysis of their findings in order to underline the future directions of research.

### 3.3 Relevant contextual factors

In this SLR the subquestion to answer is:

*What are the relevant contextual factors in the process of strategy development?*

For this sub-question a SLR is performed in which the same steps are conducted except for the research identification and the research strategy:

**Research identification**

The goal is to examine and evaluate research on relevant contextual factors in the process of strategy development.

**Research strategy**

This SLR focuses on different models and frameworks designed for the contextual analysis of organizations in the strategic development process. Especially those models and frameworks that focuses on the contextual analysis in the digital transforming world (queries involve keywords such as Industry 4.0, VUCA world etc.).

Initially the first goal of the formulated queries is to find other Structured Literature Reviews on the investigated models. The articles selected will provide a definition of

the different terms, how to categorize them (purpose, assessment method, etc.) and give a good view on further search procedures.

The found insights about characteristics in the selected articles will be used to formulate new queries.

### 3.4 Semi-structured interviews

The strategic development process can be described from many different perspectives and (Mintzberg 1998). Questions like: How is the process initiated? Who is involved? What information is gathered? How is the analysis done? How are decisions made? How to adress and debate differences in opinions?

This part of the research project will start with a brief literature review on the strategic development process to collect relevant angles for questions. Allthough these questions give a good impression on the major themes and how to adress the subjects to the participants, the diverity and complexity of the strategic development process makes it desirable to ask in-depth questions and clarification (Adams, 2015). The process of the semi-structured interviews the steps of Schmidt (2004) are executed. The participants are approached through different networks like, linked in, Dutch Network of Board members (NCD) and Researchgate (expert group).

Each interview is done by an experienced interviewer who has over ten years experience as a strategic consultant and is researcher. The analysis is done by two researchers, discuss the content and to evaluate and adjust the questions posponed.

After the process of transcription the following steps are taken as described by Schmidt (2015):

1. Material-oriented formation of analytical categories on the basis of the full and complete interview.
2. Assembly of the analytical categories into a guide for coding. The first draft of the categories is evaluated with two other researchers.
3. Coding of the material on the basis of the coding guide of each individual interview.
4. Quantifying surveys of material in clear presentation of results in tables.

5. Detailed case interpretations to arrive at new theoretical considerations and to draw conclusions.

## 4 Rationale/ Contribution / Value

### 4.1 Practical contribution

This research contributes to reducing the risks for organizations undertaking a digital transformation by creating guidance for organizations when it comes to the necessary capabilities and competences in the strategic decision unit of organizations. Outcomes of this study will lead to advice in regards to which capabilitites (context depended) need to be implemented and correspondingly which competences need to be developed.

### 4.2 Scientific contribution

The number of theories and methods that science offers to prepare the organization for strategic choices that are future-proof in a digitally transforming world are numerous across the domains of strategy, information sciences, and HRM. There multiple studies that performed a structured literature review within one of these domains determining the different theories, methods and models available. However, there is currently no research known that looks for similarities across all these domains and corresponding theories and methods.

Furthermore, a specific focus on the capabilities and competences that are required in the strategic decision unit of organizations and are needed for strategy development, is ommitted.

### 4.3 Conclusion

The ultimate goal of this research is to contribute to an practical and easy-to- execute analysis process with which organizations can analyse their internal organization and their context with which they gain insight into the capabilities and competences they need to set up to develop a future-proof strategy.

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