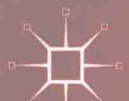




Dynamic Capabilities

How Organizational Structures Affect
Knowledge Processes

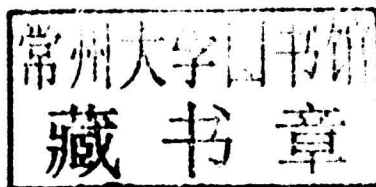
Philip Cordes-Berszinn



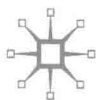
Dynamic Capabilities

How Organizational Structures Affect
Knowledge Processes

Philip Cordes-Berszinn



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Acknowledgements

The idea of this work was born out of numerous discussions with Professor Dr Michael Hülsmann, my mentor for the last four years. My initial plan was to follow my interest in and passion for music, and to investigate why the music industry was not able to adapt to its drastically changing environments. During our discussions, I recognized two things. First, I did not really want to look at my passion – music – from a solely economic perspective. Second, the underlying problem was relevant not only to the music industry but to many other organizations – from non-governmental bodies to small agencies, from huge companies even to entire states. In order to adapt to changing environments, organizations need to be able to change; they need dynamic capabilities.

While I was working on topics such as complex adaptive systems, self-organization and autonomous cooperation and control in logistics, I also had a personal interest in the effects of design options of organizational structures. What intrigues me is how organizational structures affect the evolvement of dynamic capabilities, not only in the music industry but in organizations in general. My hope is that what follows can give an impression of how complex the underlying research question really is.

My experiences in the systems management department at Jacobs University Bremen were formative in many respects, personally as well as academically. Working collaboratively on jointly written papers and interacting with colleagues and international students, as well as having the opportunity to travel to international conferences, were of inestimable value. My thanks go first and foremost to Professor Dr Hülsmann for facilitating this.

I would like to thank professors McKelvey and Windt for inspired discussions. Special thanks go to the team in our department, with whom I spent many hours in seminars receiving helpful feedback and inspiring impressions. Verena Brenner valiantly proofread my work and was a great discussion partner to chat about Remer's terminology of organizational structures. Linda Austerschulte was an excellent peer with whom to have countless helpful discussions about dynamic capabilities. In addition, I would like to thank my long-term companions, Benjamin Korsmeier, Christoph Illigen, Christoph Meyer and Richard Colmorn. Further thanks for proofreading go to Hanna Cordes.

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was difficult not to lose motivation. She took the load off me and covered my back, so that I could take all the time that was necessary to finish this work. Our two daughters, Charlotte and Pauline, who were born within the period of research, are the reason why I always looked tired but felt very, very lucky.

Philip Cordes-Berszinn

Foreword

This marvellous piece of research provided by Dr Philip Cordes-Berszinn constitutes a long-lasting research agenda in the field of strategic management with respect to the paradigm of dynamic capabilities. Why?

Since Teece and Pisano (1994) introduced the idea of dynamic capabilities as the foundation of competitive advantages, two major questions remain unanswered, or at least insufficiently answered. One is how dynamic capabilities can be measured; the other is how they can be managed. Both problems needed to be solved in order to have a profound and valid option to create, develop, shape, control and utilize dynamic capabilities so as to establish and maintain the competitive advantages of a company. Therefore, one needs to know the dimensions as well as the determinants of dynamic capabilities. This knowledge would allow one to form and to validate a structural equation model that comprehensively and reliably explains the existence, development and impact of such capabilities – especially that gives an answer to the question of what factors determine dynamic capabilities. If such an explanation exists, it will be possible to transform the identified cause–effect relations into managerial tools for the task described above.

In recent years, a lot of publications (e.g. Ambrosini, Bowman and Collier 2009, Eisenhardt and Martin 2000, Zollo and Winter 2002) have intended to answer these questions. Unfortunately, the setting of proposed explanations

- is incomplete;
- has not been integrated into an overarching paradigm;
- lacks empirical evidence;
- does not fulfil the requirements of the dominant ontological basic position of the critical rationalism and so on.

Hence there are still research gaps and questions that demand an appropriate answer. One of these refers to the question of how the organizational structure affects the evolvement of dynamic capabilities. Therefore this opus is based on the eligible and legitimate intention to develop a 'map' of hypotheses about the directed causal interrelation of organizational structures and (according to Burmann 2002, knowledge-based) dynamic capabilities. This is achieved by:

- providing an integrated descriptive model (according to Burmann 2002, Remer 1989, 2004, 2005) that allows one to characterize, classify and

- compare both phenomena (i.e. dynamic capabilities and organizational structures) based on a common terminological and taxonomical system;
- developing a logic system of 131,072 combinatorial possibilities between the variables of organizational structures and the variables of dynamic capabilities;
 - identifying and interpreting already existing and tested hypotheses from studies (i.e. Argyres and Silverman 2004, Bunderson and Baumgarden 2010, Foss and Rodger 2011, Hansen and Lovas 2004, Leiponen and Helfat 2010, Lin 2010, Meeus, Oerlemann and Hage 2001, Puranam and Srikanth 2007, Tsai 2002, and Zhang, Tsui and Wang 2011) that offer theoretically as well as empirically valid and reliable explanations for the directed effect of organizational structures on knowledge-based dynamic capabilities;
 - deducing own new hypotheses based on the findings and interpretation of the examined studies;
 - integrating all 160 hypotheses found in a reasonably consistent, terminologically precise and operationalized, partially empirically validated, and finally instructive causal model.

Summing up, this scientific work shows the results of an excellent piece of research. Its process, methodology and findings indicate the impeccable capability of the author. Finally, one can say that this work indicates precisely and reasons profoundly a research programme at least for the next decennium on both sides: on the side of organizational structures and their impacts, as well as on the side of dynamic capabilities and their determinants. With this unique, valuable and noteworthy contribution, Dr Philip Cordes-Berszinn noticeably and substantially enhances the fundamental understanding and explanation of dynamic capabilities – and therefore contributes to the establishment of a dynamic capabilities theory.

Prof. Dr Michael Hülsmann

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1

Introduction

1.1 Problem: Evolvment of dynamic capabilities through the configuration of organizational structures?

A common explanatory approach for organizational success or failure addresses the necessity for organizations to achieve and maintain a so-called 'system-environment fit'.¹ However, environments are changing – sometimes drastically and fast.² Hence, a variety of research streams argue that social systems such as organizations are required to adapt to these changes.³ Otherwise, a fit between the organization and the environment cannot be maintained and organizational performance fails to appear. For example, evolutionary theory-based implications for corporate management are, *inter alia*, that the first priority to strive for is not profit but adaptation and survivability.⁴ Building on this insight, Teece, Pisano and Shuen (1997) stated that the long-term prosperity of organizations can only be achieved if they are capable of proactively adapting to their changing environments through generating and exploiting internal as well as external firm-specific competences.⁵ Accordingly, organizations need dynamic capabilities.⁶

The dynamic capabilities approach picks up the main assumptions of the resource-based view⁷ and the competence-based view.⁸ These trace competitive advantages (as well as organizational performance) back to organizational resources and capabilities of using and combining these resources.⁹ With special consideration of the volatility and uncertainty of today's organizational environments, the dynamic capabilities approach shifts the focus from a static to a dynamic perspective.¹⁰ Therefore, in order to maintain the system-environment fit even in rapidly changing environments, organizations are required to develop such dynamic capabilities.¹¹ Consequently, it is of decisive importance for organizations to learn how the evolvment of dynamic capabilities can be explained in order to identify associated mechanisms that can be addressed by managerial decisions. Hence, an overarching research aim that needs to be fulfilled in order to

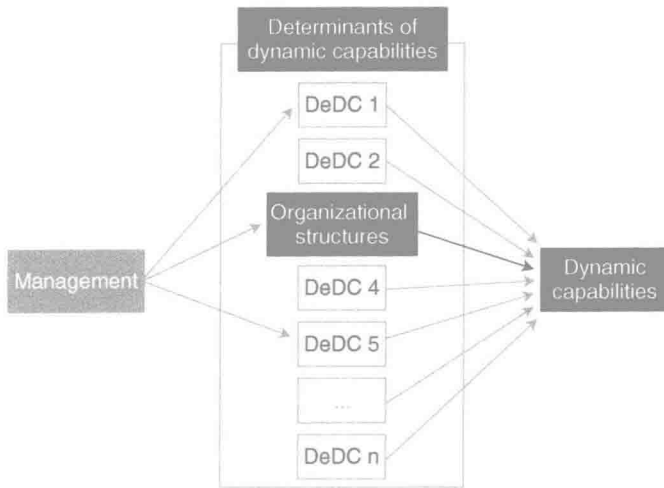
enable organizations to achieve and maintain system-environment fits in highly dynamic environments is the development of a holistic explanatory model of the evolution of dynamic capabilities.

Ahead of the original thought of a necessity to create a fit between organizations and their environments are several different approaches¹² that can be assigned to contingency theory.¹³ Accordingly, it is necessary to create a fit between the situation of an organization and its organizational structure,¹⁴ which is constituted by the interplay of instrumental variables for the (re)structuring of organizations such as degrees of decentralization, functionalization, delegation, participation, standardization or decomposition of organizational activities.¹⁵ Every organizational structure consists of parameter values of each of these variables on a continuum between 0 and 100 per cent, which reflects a continuum between absolute order and total chaos. The interplay of such variables in turn leads to an overall organizational order configuration. According to Remer (2005), the associated strength of organization determines the degree to which the behaviour of organization members is steered through organizational regulations.¹⁶ A fit between the organization's situation and the actual manifestations of these variables of organizational structures in turn leads according to contingency theory to organizational performance – for example, economic or social success.¹⁷

Consequently, if dynamic capabilities enable the maintenance of a fit between organizational configurations and their situations, and if the antecedents of dynamic capabilities can be found – beside others – somewhere in the organizations' structures,¹⁸ it stands to reason that organizational structures might influence the evolution of dynamic capabilities. Following this thought, organizational structures can be seen as a potential determinants of dynamic capabilities, which is additionally approachable by organizations' management through the configurations of the abovementioned variables of organizational structures.¹⁹ Whereas in contingency theory organizational structures are the dependent and the organizations' situations are the independent variables,²⁰ the above line of thought reverses this logic: organizational structures as the independent variable influence dynamic capabilities. By providing the foundations for competitive advantages,²¹ dynamic capabilities in turn influence the competitive situation to which competitors need to adapt in order to survive.

Therefore, the research focus of this work is the relation between organizational structures as one determinant of dynamic capabilities and the evolution of dynamic capabilities. Figure 1.1 provides a schematic illustration of influencing factors (determinants) of dynamic capabilities that are approachable by organizations' management, which reveals the associated management problem.

The overarching research question follows this research focus:



Key: DeDC 1-n: Determinants of dynamic capabilities

Figure 1.1 Schematic illustration of the research focus within the set of determinants of dynamic capabilities.

How do organizational structures between chaos and order affect the evolvement of dynamic capabilities?

However, it is neither unambiguously clear which variables organizational structures between chaos and order refer to, nor what exactly can be understood by dynamic capabilities. Due to this lack of a consistent terminological basis at this stage of the research, it is not even clear which areas of organizational realities are addressed and, hence, what exactly the context of discovery is.²² Hence in order to link both constructs – organizational structures and dynamic capabilities – with each other, it seems necessary to develop a consistent terminological system.

An extensive use of different understandings and hence different variables of dynamic capabilities exacerbates compiling the state of the art in research on their antecedents,²³ including organizational structures. Therefore, the first subquestion of this research is:

Which variables of dynamic capabilities reflect a terminological system that provides an operationalization that is as holistic as possible and that is consistent with determinants of dynamic capabilities?

The independent variable of this research – organizational structures – is subject to the same methodological problem: a multitude of individual

and sometimes eclectically selected variables, such as centralization or specialization, result necessarily in the risk of ignoring potentially important 'adjusting screws' of organizational structures. Therefore, the second subquestion is:

Which variables of organizational structures reflect a terminological system that provides an operationalization that is as holistic as possible and that is consistent with that of dynamic capabilities?

Having answered these two subquestions, both terminological systems have to be combined in order to reveal associated effects emanating from manifestations of variables of organizational structures between chaos and order on variables of dynamic capabilities. Hence, the third subquestion is:

How do the manifestations of the variables of organizational structures affect the manifestations of the variables of dynamic capabilities?

1.2 Relevance: Theoretical gaps of relations between organizational structures and dynamic capabilities

To show the theoretical relevance of the research question, according to Chmielewicz (1979), it is necessary to identify a research problem.²⁴ Therefore, a lack of scientific explanations regarding the respective causal interrelations has to be revealed in order to deliver the causal foundations that are necessary to solve the management problem raised in Section 1.1. Hence, it is necessary to show a lack of knowledge regarding the cause-and-effect chains between organizational structures and the evolvement of dynamic capabilities. The theoretical relevance of the research question is based mainly on two research gaps:

- the lack of a holistic understanding of knowledge-based dynamic capabilities;
- the lack of knowledge about the relations between holistic understandings of both organizational structures and knowledge-based dynamic capabilities.

These research gaps are closely intertwined with each other because the latter cannot be closed before addressing the former gap.

An overview of existing creation and development mechanisms of dynamic capabilities is given by Barreto (2010). Accordingly, the main commonality that has been drawn on to explain an evolvement of dynamic capabilities is organizational learning.²⁵ Organizational learning has in turn been analysed also from a variety of different perspectives.²⁶ However, there