

2 Frameworks and Theories around Dynamic Capabilities

2.1 *Introduction to Organization and Strategic Management Theories around Dynamic Capabilities Addressing Adaptability or Sustainable Competitive Advantages*

In this dynamic and complex environment as introduced in Chapter 1.1, the essence of an organization as being to coordinate people's activities and to connect these activities to a meaningful whole is challenged, as although the fast-evolving environment requires fast coordination, it nonetheless still requires efficiency within the company as well (Kieser & Ebers, 2006). This also entails the constant monitoring of the environment, and a constant questioning of how to address requests resulting from environmental changes. Since companies are developing or acquiring knowledge and resources with increasing speed, the half-life of a competitive advantage like specialized knowledge is constantly decreasing. As companies gain the specialized knowledge they require to compete, the companies which previously had a monopoly on this knowledge now lose their lead. To take the Fortune 500 companies of 1970, for example, fewer than 40% of them still existed in their original form in 1991 (Lubit, 2001). In their article, Reeves and Deimler (2011: 137) also recognize that the uncertainty "poses a tremendous challenge for strategy making", pointing out further that "traditional approaches to strategy – though often seen as the answer to change and uncertainty – actually assume a relatively stable and predictable world", and "that sustainable competitive advantage no longer arises exclusively from position, scale, and capabilities in producing or delivering an offering because all those are essentially static".

The dynamic capabilities framework addresses the above requirements regarding adaptability, and the sustaining of competitive advantage. This framework thereby fits in with other theoretical approaches aiming to explain successful adaptation and change. In strategy and organization science, and in parts of economics and decision sciences, there is still a debate concerning adaptability and sustainable

competitive advantages which has not yet been resolved despite decades of research, and continues in the face of joint research efforts and the huge growth of knowledge in this area. The great amount of research and the persistence of this debate reflect the different theoretical approaches and empirical methods applied to increase knowledge in the adaptation process of companies. The nature and source of the debate are highlighted by a comparison of strategic management and organizational ecology theories. Organizational ecology theories focus on selection, variation, and retention processes to explain the evolution of populations of organizations, while strategic management theories focus on firm-level adaptation as a function of strategy and organization design. In addition, organizational ecology research, is mostly disconnected from adaptation at the level of the individual organizational unit, and is therefore often regarded as not being able to contribute directly to explaining firm-level adaptation. Moreover, according to Lewin and Volberda (1999: 519) “the weak comparability of empirical findings across strategic management studies derives from the many competing theoretical formulations, proliferation of model specifications, and the absence of shared definitions for variables and measures.”

Consequently, the debate on adaptability and sustainability of companies continues. To provide an overall picture, it is deemed necessary to address the organisation theories as well as the strategic management theories. An overview of the most prominent approaches which discuss adaptability or sustainable competitive advantages will be provided in Chapter 2.2. This overview has primarily been derived from Lewin and Volberda (1999), and Kieser and Ebers (2006). By introducing the frameworks or theories and their respective critical analysis, the intention is to provide some background information on the origin of the development of the dynamic capabilities framework and the reasons behind it, along with a general understanding of the necessity of addressing adaptability and sustainable competitive advantages. Some readers might therefore also expect absorptive capacity or the knowledge-based view to be listed, but as these concepts have been not defined as a general theory of the firm, but, as regards the absorptive capacity, more as a concrete dynamic capability (Reilly & Scott, 2010; Wang & Ahmed,

2007), and, as regards the knowledge-based view, more as a supplement to a theory (Foss, 1996; Phelan & Lewin, 2000), they will not be addressed here.

2.2 Prominent Organization Theories and Strategic Management Theories Addressing Sustainable Competitive Advantages and Adaptability

2.2.1 Prominent Organization Theories Addressing Adaptability

2.2.1.1 Behavioral Theory

Simon (1976: IX) describes the aim of behavioral theory as intending “to show how organizations can be understood in terms of their decision processes”, since “decision-making processes hold the key to the understanding of organizational phenomena” (Simon, 1976: XL). Applying this to the context of this study means that managerial decision-making is the driver for companies’ ability to adapt to changes. In the context of their behavioral theory of the firm, Cyert and March (1963) were among the first to question that companies possess a perfect knowledge base, strive for profit maximization, and do not suffer from internal resource allocation problems which existed beforehand. Here, they focused on a small number of key economic decisions which were made by the firm, and then developed process-oriented models of the firm. Their theory has been applied to internal resource allocations, competitive dynamics, and predictions regarding the behavior of other organizations. According to their theory, firms thrive more by satisficing rather than maximizing goals. This is rooted in Simon’s (1955) concept of bounded rationality, according to which individuals can only possess limited rationality because of the limitation of information, the cognitive limitations of their minds, and the restricted time for decisions to which everyone is exposed. Consequentially, individuals are only able to act as “satisficers” and not as “maximizers”, since a lack of information renders optimal solutions or maximization impossible.

Behavioral theory was one of the first theories to claim that uncertainty, which is caused by unpredictable events in the business environment or by unpredictable consequences of companies' actions, for instance, should be included in the management decision process. Due to uncertainty avoidance, most organizations in the past have tended to focus on verified data instead of uncertain estimates in order to protect themselves, and some organizations still do so today. As a result, the company follows standard procedures and a policy of reacting instead of being proactive, and hence becomes increasingly inert. This becomes visible in short-run focused actions rather than long-run actions like the future-oriented forecasting of the environment with an integrated consciousness of uncertainty (Mahoney & Rueschemeyer, 2003). This lack of awareness was addressed by Cyert and March (1963), resulting in the emergence of a new approach of adaptability or strategy for survival. Since uncertainty will always exist, companies need to integrate this issue in their decisions, and structure, which implies a continuous process of adaptation. Here, Cyert and March (1963) suggested dividing the adaptation process into three different phases within the decision process: adaptation of goals, adaptation in attention rules, and adaptation in search rules.

Critics have deemed highly questionable the virtual assembly of the firm, with the decision-making process as the unit. There has further been loud support for profit maximization rather than for satisficing behavior within companies, which is one of the core elements of behavioral theory (Ahuja, 2007). Furthermore, the adaptation process by Cyert and March has been criticized because it was primarily applied to a company's past experience (Mahoney & Rueschemeyer, 2003). Besides this criticism, some important aspects introduced by behavioral theory, like the consideration of uncertainty or the importance of the decision-making process, for instance, have found their way into the current literature on adaptability or handling environmental dynamics such as the dynamic capabilities framework.

2.2.1.2 *Organizational Learning Theory*

Organizational learning theory is a specific form of the behavioral decision-making theory. The work of organizational learning researchers like Peter Senge (1990) ties in with the capability-based theory, which will be described later. The assumption behind organizational learning theory (Argyris & Schön, 1978; Huber, 1991) is that organizations have some unique skills as regards learning based on past experience which allow them to align with their environment. This learning process is both reactive and proactive, and allows for the development of knowledge as well as for the association of the suitability of past actions and the potential usefulness of future actions. Under these conditions, companies remain vital by balancing local and expanded search in order to achieve their most important functions, and remain open to continuous reflection and monitoring at the same time in order to meet the challenges of external change and internal inertia (Lewin & Volberda, 1999).

The typical organizational learning circle is a reciprocal circle which starts with individual beliefs (about the environment or the way to solve problems, for example) influencing individual actions, and therefore also organizational actions, which again affects the environmental reactions and again, in turn, the individual beliefs. Therefore, different risks are involved, which result from the experience-based learning. This includes learning the wrong things or learning nothing because of individuals' distorted perceptions, which might be caused by their remembering the wrong things or drawing the wrong conclusions from past events or experiences. Organizations really struggle to interpret the past correctly because environmental developments are quite complex and uncertain, and often cannot be directly assigned to specific environmental events. In the case of an opaque past, individuals especially tend to interpret past experience in a way that is convenient and familiar (March, 1994). In addition to these issues, organizational learning might also fail if individuals within the organization do not communicate what they have learned, which, in turn, might be caused by fixed or constrained role structures within the company (Simon, 1991). Therefore, although the organizational learning theory has received a great deal of praise, it cannot be understood

as the ultimate way to survive. However, organizational theory can serve as a rough filter in order to eliminate practices which have a very strong negative impact on company performance (Denrell, 2002, 2004). Some of these considerations from organizational learning theory can also be found in the dynamic capabilities framework, as will be shown later.

2.2.1.3 Contingency Theory

The assumption behind Contingency Theory (Burns & Stalker, 1961; Lawrence & Lorsch, 1967) is that companies have to achieve a “fit” with the conditions provided by their environment. It further assumes that there is an ideal organizational structure or design for each situation, in contrast to earlier theories, which assumed that there are no universally valid organizational principles. A more static and more flexible organizational design, for instance, would be better suited to a more stable or dynamic environment (Burns & Stalker, 1961). Furthermore, according to the contingency theory, the company size, the business model, or the manufacturing method also play a relevant role in assessing the organizational structure (Kieser & Ebers, 2006).

Accordingly, by using the contingency theory of the firm, adaptability would be set equal to organizational adaptation, which refers to the ability of managers to adapt the organizational design or structure appropriately to the situation, that is, the external conditions and the company’s current situation (Lewin & Volberda, 1999). The emphasis in the contingency theory of the firm lies primarily on the reactive adaptation to circumstances rather than on the proactive handling or influencing of the environment, which, by contrast, is part of the dynamic capabilities framework.

2.2.1.4 *Strategic Choice Theory*

As opposed to the contingency theory, the strategic choice or managerial choice perspective (Child, 1972, 1997; Miles & Snow, 1994) argues that organizations are not just reactive recipients of environmental influence but also have the power and opportunity to shape the environment. According to claims by Hrebiniak and Joyce (1985), or Mintzberg (1979), or many other proponents of the strategic choice approach, adaptation is a dynamic process that is subject to both environmental forces and managerial action. Strategic choice theories for firm strategy imply that management should consider the many ways in which an organization interacts with its environment through the process of reciprocal adaptation between the organization and its environmental domain (Lewin & Volberda, 1999). This idea will be found again in the concept of dynamic capabilities.

2.2.1.5 *Population Ecology Theory*

Along with evolutionary management theory, population ecology theory (Hannan & Freeman, 1977) is one of the two most common forms of the evolutionary theory of the firm in the management literature. Population ecology theory is especially used to explain companies' processes of adjustments, with the central idea being that the environment drives the selection of organizations. This selection happens through competition and resource scarcity. In this concept the intention or the action of the management has almost no impact on adaptation (Lewin & Volberda, 1999). This selection process is analyzed at the population level of organizations, as the object of interest is the distribution of fitness across the population of organizations rather than the fitness of any individual organization. Moreover, organizational attempts at restructuring and transformation are seen as being useless, and as even reducing a company's chances of survival. A firm's inability to adapt is a direct outcome of structural inertia. Like the concept of fitness, that of structural inertia refers to a fit between the adaptive behavioral capabilities of organizations and their particular environments (Hannan & Freeman, 1984). According to the population ecology theory, "organizations accumulate structural and

procedural baggage as a result of retention processes” (Lewin & Volberda, 1999: 520), and their ability to respond to changes in their environment directly causes the build-up of structural inertia. In population ecology theory, companies survive according to their high reliability and specialization. However, the selection of companies increases as environmental rates of change surpass firm rates of change. As regards strategy, the extreme implications from the population ecology theory are that management makes no difference and the best that companies can do is to focus on their specialization in a niche, and hope that this works out. If one takes this theory further, if new entrants come into a market and define a new environment, the existing players in its specific market segments or niches are threatened, and after a certain time often selected out (Miller, 1990; Lewin & Volberda, 1999). This kind of fatalistic approach has not found its way into current management theories – on the contrary, companies’ proactive shaping of the market has become more and more dominant in literature and management practice, as the dynamic capabilities framework shows. However, the population ecology theory makes it clear that the fitness between the environment and the organization plays a central role in survival.

2.2.1.6 Evolutionary Management Theory

According to Malik and Probst (1981), evolutionary management needs to avoid active intervention within the company. The management is hence obliged to cultivate prerequisites, and to serve as a catalyst in order to enable the development of specific desirable results and events for the company. The management does not work on rigid processes or routines but on a learning-by-doing approach, meaning that problem-solution trials are continuously driving the structure and the processes within the company. Evolutionary management means that the management is fully aware of the temporary nature of the organizational structure or processes. No clear or generalizable “how-to-do” principles are used here, and no details are determined (Probst, 1987). It is more about building a context or framework which allows the structure, relationships, or system to find their own shape

(Probst, 1987). Consequently, evolutionary management theory is more concerned with the right attitude than the right processes, guidelines, or routines. This leads to a very high flexibility of companies. In contrast to the contingency approach, evolutionary management cannot destroy the adaptability of the company but instead reflects a high adaptability because it destroys or avoids complexity, and misuses the system (Malik & Probst, 1981). However, although this destruction or avoidance of complexity and principles might lead to a high adaptability, it does not necessarily lead to good company performance. Aspects like efficiency or effectiveness do not feature at all in this theory, which makes it hard for a company to survive, especially in today's highly competitive environment. This makes clear that adaptability does not just mean flexibility, because a company that is flexible but unable to make a profit over time will fail sooner or later (Kieser & Ebers, 2006).

2.2.1.7 Institutional Theory

The potential of institutional theory to explain adaptation is illustrated by Greenwood and Hinings (1996). One fundamental reason why organizations resist change is that they are embedded in their institutional context. But what does institutional context mean?

According to institutional theorists, regularized organizational behaviors are the product of ideas, values, and beliefs that originate in the institutional context (Meyer & Rowan, 1977; Meyer, Scott, & Deal, 1983). Organizations must take care of institutional expectations to survive, even though these expectations may have little to do with the idea of performance accomplishment (D'Aunno, Sutton, & Price, 1991; Scott, 1987). Here, Greenwood and Hinings (1996) quote the example of an accounting firm which is organized as a professional partnership because that form is defined as the right way of organizing an accounting company (institutional pressure), and not because it is the most effective or efficient way of managing the tasks. This example makes it quite clear that based on the institutional theory, an organization not only has to respond to market forces but also to

institutional pressures or demands, such as regulatory agency requirements, or general social expectations (Greenwood & Hinings, 1996). Hence, seeing adaptability from the standpoint of institutional theory would mean that the higher the structured institutional context was, the higher an organization's resistance to change would be. Applying this to the strategy of a company, institutional theories imply that adaptation and survival are achieved by staying in alignment with changing industry norms and shared logics. Firms should therefore adopt a fast follower strategy, which is assumed to be directly connected to long-term survival (Lewin & Volberda, 1999). Following this theory would therefore also imply that companies were more driven by the environment, or in this context, the institutional context, than driving the development of the environment themselves, and the survival of companies depends on their capability to adapt to institutional contexts.

After this provided overview of the organization theories, the following chapter will present the prominent strategic management theories addressing sustainable competitive advantages and adaptability, before the conclusion from all the presented frameworks and theories is given in Chapter 2.3.

2.2.2 Prominent Strategic Management Theories Addressing Sustainable Competitive Advantages and Adaptability

2.2.2.1 Porter's Market-Oriented Model

According to Porter's (1980) five forces model, firms can sustain competitive advantage by the industries they select and by the way they position themselves within an industry. Specifically, Porter suggests that companies position themselves in industries with weak suppliers and buyers, high entry barriers, few threats from substitutes, and limited rivalry. The forces of entry barriers, supplier power, buyer power, threat from substitutes and rivalry influence and form the attractiveness of the market (Porter, 1980). According to Porter, this framework is intended to be the basis for deriving a company's strategy and competitive positioning in order to gain or hold competitive advantages within the industry. The competitive

forces approach suggests that competitive advantage stems from valuable positioning within an industry, and also from the protection of this valuable position against new entrants and competitors (Porter, 1980, 1985).

Though the five forces model allows companies to estimate and identify opportunities and threats, because of its static and structural view, it can only be a snapshot of the current environment (Teece, 2007; D'Aveni, Dagnino, & Smith, 2010). How does the assessment of rivalry or buyer power work under conditions of change, especially when boundaries between industries might be blurred? D'Aveni, Dagnino, and Smith (2010) therefore provide the example of the U.S. cell phone industry, where firms like AT&T, Apple, or Google changed their business models in 2010, which begs the question of whether these companies should now be regarded as buyers, suppliers, or rivals? Especially in this fast-changing industry we have to ask ourselves how industry boundaries and structure are to be seen. To conclude, therefore, Porter's five forces model can be used to analyze a company's current environment, anticipate how this environment will evolve based on the current situation, and then derive a company's strategy, competitive advantage, and choice as to where to position itself. However, if there are strong and constant changes, a static assessment will not be of much help. It therefore says little about how to adapt the positioning or adapt to the competitive environment, which will be addressed in regard to the dynamic capabilities framework.

2.2.2.2 Resource-Based View

Resource-based concepts have been used to explain performance differences and competitive advantages of companies since 1970 (Rubin, 1973; Wernerfelt, 1984; Prahalad & Hamel, 1990; Barney, 1991). In contrast to the market-oriented approach of Porter, this concept considers internal resources to be a central aspect of a company's planning and strategic thinking. The resource-based view focuses on the exploitation of firm-specific assets, and regards firms as a collection of resources (Penrose, 1959). While the focus of the resource-based view has mostly

been clear, there have been different standpoints concerning the understanding of what resources mean and how they should be categorized.

While Wernerfeldt (1984: 172) classified resources as “tangible and intangible assets which are tied semipermanently to the firm”, Barney used the resource categories “human”, “physical”, and “organizational” (Barney, 1991), and Penrose categorized the resources as “tangible” or “human” (Penrose, 2009). Penrose strongly influenced the understanding of resources within the resource-based view, and broadened the understanding of resources by defining resources as a collection of different functions. Penrose (2009: 22) further points out that “it is never resources themselves that are the ‘inputs’ in the production process, but only the services that the resources can render. ... The services yielded by resources are a function of the way in which they are used – exactly the same resource when used for different purposes or in different ways and in combination with different types or amounts of other resources provides a different service or set of services. The important distinction between resources and services is not their relative durability, rather it lies in the fact that resources consist of a bundle of potential services and can, for the most part, be defined independently of their use, while services cannot be so defined, the very word ‘service’ implying a function, an activity.” These considerations of Penrose, that resources should be regarded more as a source of functions or services than just as an asset, already show the first signs or maybe even the starting-point of the capability-based theory of the firm, which will be described in the next chapter, and which is fundamental to the dynamic capabilities framework.

Based on this understanding of resources, in his article on firm resources and sustained competitive advantage in 1991, Barney laid the foundations for the resource-based view of the company: namely that resources, which can either be acquired or developed, need to be valuable, rare, imperfectly imitable, and non-substitutable in order to have the potential to build a firm’s sustainable competitive advantage. Barney derived this insight from his assumptions that (1) companies within an industry are heterogeneous concerning the resources they control, and (2) these resources might not be completely mobile across firms (Barney, 1991).

Barney (1991: 102) goes on to say that based on these assumptions "... value creating strategy is not simultaneously being implemented by any current or potential competitors and when these other firms are unable to duplicate the benefits of this strategy" a sustainable competitive advantage can be achieved.

There is a tremendous research stream based on the resource-based view described above, whereby researchers have tried to identify resources which enable companies to gain or hold competitive advantages over time. Importantly, there have been a number of studies that connect the resource-oriented actions and responses in regard to organizational performance, and confirm that a resource portfolio consisting of valuable, rare, imperfectly imitable, and nonsubstitutable resources leads to good company performance (Derfus et al., 2008; Young, Smith, & Grimm, 1996). However, what applies under this concept if there are dramatic changes in resource value, uniqueness, and imitability, for instance if innovations lead to a constant disruption of current resources?

Various strategy researchers (D'Aveni, 1994; Eisenhardt & Martin, 2000) argue that in today's highly dynamic environments it is difficult, if not impossible, to achieve and sustain competitive advantage at the organizational level by using resources. It is easy to imitate or replace technological resources in many high tech industries, for example. Furthermore, resources are often rapidly diffused throughout an industry (Brown & Eisenhardt, 1998). Due to the fact that resources are copied, substituted, or made obsolete quickly, the only advantages which a company can look forward to are a series of temporary ones, as existing resources lose their value and new ones are required to replace the old ones (MacMillan, 1989; D'Aveni, 1994). In other words, the two fundamental assumptions of the resource-based view according to Barney (1991), namely (1) the heterogeneity of resources across firms, and (2) the imperfect mobility of resources, are certainly questionable. Taking a look at the loss of value, inimitability, nontradability, nonsubstitutability, or rarity of a resource, for example, puts a question mark on the static resource-based theory, and renders it more of a theory of temporary advantage (D'Aveni, 1994).

Despite some criticism, the resource-based view has been and still is quite a relevant theory for explaining a company's competitive advantage, although it needs to be extended if it is still to be relevant for creating or holding sustainable competitive advantages. This has been done by developing the dynamic capability approach (Kraaijenbrink, Spender, & Groen, 2010; Lockett, Thompson, & Morgenstern, 2009).

2.2.2.3 *Capability-Based Theory*

On considering what is distinctive about firms in order to generate sustainable competitive advantages, we come to the conclusion that capabilities might be distinctive. Capabilities cannot be easily replicated through markets (Teece, 1986; Kogut & Zander, 1992), since the distinctiveness of internal organizations is hard to copy. This also means that entrepreneurs are not able to simply imitate the unique organizational skills just by entering a market and assembling parts, since replication cannot be done overnight, especially the replication of best practice skills. According to Nelson and Winter (1982), capabilities show their true potential in the manifestation of competencies, which reflect developed capabilities with a specific purpose for business. So, an organization's capabilities cannot be understood just as a few items on a balance sheet, but more as "organizational structures and managerial processes which support productivity" (Teece & Pisano, 1994: 540). To sum this up, the capability-based view regards the company with its structure and boundaries as a conglomerate of individual and team capabilities, which are maintained and supported by that company. The first ideas of this view go way back to Adam Smith and Karl Marx, who saw an important role in the management and division of labor concerning the developments of skills, and providing a key competence for the company. The capability paradigm has found many followers, and became quite prominent in the literature on corporate strategy during the late 1980s and early 1990s (Pettigrew & Whipp, 1991; Prahalad & Hamel, 1990; Winter, 1987). According to Hodgson (1998), the key features of the typical capability-based approach are:

- (1) the emphasis on learning and growth, meaning that individuals themselves are always in a process of development and learning,
- (2) the recognition of the role of radical uncertainty toward the information and knowledge within the company, and
- (3) the acknowledgement of tacit knowledge within the company.

Looking at these aspects, one could come to the conclusion that in a capability-based perspective the company is more than just its cost and revenue curves, and should be understood as a form of organizing knowledge. As Teece and Pisano (1994: 552) put it, “Because of imperfect factor markets, or more precisely the non-tradability of “soft” assets like values, culture, and organizational experience, these capabilities generally cannot be bought – they must be built. This may take years – possibly decades.” Accordingly, strategic emphasis is put on learning and the growth of knowledge within the firm, and this might become “the most sustainable competitive advantage” (Stata, 1989: 64).

In contrast to Porter’s competitive strategy (1980), the orientation of the capability-based view is less on market evaluations and advantageous cost-revenue combinations and more on building up organizational routines and resources within the company.

According to Rumelt (1974), Teece and Pisano (1994), and Teece et al. (1994), capabilities have to be built and cannot just be bought. Teece and Pisano (1994: 552) further criticize the fact that the “capabilities approach accordingly sees definite limits on strategic options, at least in the short run. Competitive success occurs in part because of processes and structures already established and experience obtained in earlier periods.” Seeing these dangers in the capability-based approach, Teece and Pisano (1994) propose the “dynamic capabilities” framework which will be explained in detail in Chapter 3.2.

2.3 *Conclusion from the Frameworks and Theories Presented*

Therefore, as described in Chapter 2.2, it is not the capability to earn a living in the here and now but the capabilities which enable the company to create new resources and to renew existing capabilities and resources which are the source of sustainable competitive advantages and thereby adaptability over time (Danneels, 2002; Winter, 2003). To hold or create these advantages, companies need to be good at learning how to do new things instead of doing specific tasks (Danneels, 2002; Reeves & Deimler, 2011), because the typically well-known competitive advantages like specialized knowledge or company-owned technologies can only exist for a transient period. While Porter's market-oriented approach and the resource-based view still has its relevance, especially in gaining and explaining temporary competitive advantages, the capability-based approach has more a long-term perspective. In regard to the organization theories it can be concluded that some ideas from these theories are taken for granted nowadays, and are also integrated within the strategic management approaches, while some are obviously wrong. Cyert and March's (1963) imperfect knowledge base and Simon's (1955) concept of bounded rationality are good examples of considerations which are taken for granted nowadays. Due to the development, examination, and discussion of the above theories, these considerations evolved, as did the minds of researchers, and were integrated in the dynamic capabilities approach. This means that earlier thoughts were included and criticism of some earlier theories, such as the issue of the reciprocal approach of the organizational learning theory, meaning that old experiences shape new actions, was addressed. The dynamic capabilities framework finally aims at building sustainable competitive advantages to adapt the company's resources and capabilities to environmental changes where customer needs, competitors' actions, or technological developments constantly evolve. More details on the background, development, and composition of this framework are provided in Chapter 3.1 and 3.2 and below to offer a basic framework and a deeper understanding before the description of the sensing dimension begins in Chapter 3.3.



<http://www.springer.com/978-3-658-20156-2>

Adaptability Through Dynamic Capabilities
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Threats

Endres, H.

2018, XVII, 184 p. 12 illus., Softcover

ISBN: 978-3-658-20156-2