

2. Theoretical Underpinning

Part II provides an overview over the theoretical concepts and models which are relevant within this dissertation. As was explained in the previous part, this dissertation comprises two theoretical lenses: Firstly, it applies the service-dominant logic as a “*meta idea*” (Lusch & Vargo, 2014, p. 211) which provides a guiding view on economic exchange and value creation. Secondly, it employs the competence-based theory of the firm as a framework for the evaluation of the competence building and leveraging actions needed to achieve competitiveness through servitization.

In order to introduce the theoretical foundation of this dissertation, the following chapters are therefore structured as follows: Firstly, the service-dominant logic is introduced as a perspective on economic exchange (chapter 1). Secondly, the competence-based theory of the firm is outlined with an emphasis on one of its integral concepts, the open systems view (chapter 2). Finally, to ensure the theoretical fit of the two theoretical cornerstones, the axioms of service-dominant logic are cross-checked for their compatibility with the hard core elements of the competence-based theory of the firm (chapter 3).

2.1 The Service-dominant Logic

As a first theoretical lens, this dissertation employs a service-dominant logic (S-D logic) perspective on economic exchange. S-D logic views service, defined as “*the application of specialized competences (knowledge and skills) through deeds, processes, and performances for the benefit of another entity or the entity itself*” (Vargo & Lusch, 2004a, p. 2), as the fundamental basis of all economic activity, and therefore renders the distinction between manufacturers and service firms based on their units of output as obsolete³. This is important for the remainder of this dissertation, because it allows for the inclusion of service firms in research on servitization. While the definition of servitization from a service-dominant perspective will be outlined in part III, part II provides an overview of the service-dominant logic as a perspective on economic exchange, and introduces concepts which are relevant for this dissertation.

2.1.1 The Evolution of Service Perspectives on Economic Exchange

The traditional understanding of service not only conceptualized services to be distinctly different from goods, but did so via a residual definition (i.e. everything that is not goods), and confined their role to that of an aid in the production and an enhancement in the marketing of goods (Vargo & Lusch, 2004a). This understanding of service became also evident in the IHIP characteristics (Parasuraman, Zeithaml, & Berry, 1985; Regan, 1963), which are commonly used to distinguish services from goods: ‘Intangibility’ expresses that services lack the physical quality of goods; ‘heterogeneity’ alludes the relative inability to standardize services compared to goods; ‘inseparability’ refers to the simultaneousness of production and consumption; ‘perishability’ expresses the relative difficulty to inventory services in comparison to goods (Lusch & Vargo, 2014, p. 87). These characteristics of services, which were commonly regarded as disadvantages of services (Parasuraman et al., 1985), have been questioned by scholars and are considered to be inadequate for understanding and explaining the role of service in the creation of customer value. For example, Vargo and Lusch (2004b, p. 324) argue that the IHIP characteristics “(a) do not

³ Despite the fact that according to S-D logic “*all firms are service firms*” (Vargo & Lusch, 2006, p. 47), the term ‘service firms’ will still be used within the remainder of this dissertation as a means of identifying non-manufacturing firms.

distinguish services from goods, (b) only have meaning from a manufacturing perspective, and (c) imply inappropriate normative strategies”. Lovelock and Gummesson (2004) go even further by stating that many services do not hold one or more of the IHIP characteristics, exemplified by the fact that many services (e.g. car repair or financial services) are produced independent of the customer and thus contradict the characteristic of inseparability.

Due to the inadequacies of extant research, the call for services to separate from product marketing was formulated (Shostack, 1977). Subsequently, new concepts for understanding service and service marketing – such as service quality (Parasuraman et al., 1985), relationship marketing (Berry, 1983), and service management (Normann, 1988) were developed to enrich the understanding of service and service marketing. Lusch and Vargo (2014, p. 44) describe the contributions of these concepts to the development of S-D logic as follows:

“Service quality moved the focus of the firm from engineering specifications of goods production to the perceived evaluations of customer. Relationship marketing shifted the focus of exchange from the discrete transaction to ongoing interactivity. Service management shifted the focus from Taylor’s scientific management perspective – the highly structured standardization of economies of scale – to the teamwork, cross-functional collaboration and inter-organizational partnership perspective necessary for ‘service firms’.”

Lusch and Vargo (2014) conclude that the above conceptualizations subsequently formed a basis for understanding all ‘services’- as well as ‘goods’-exchanges, hence providing an innovative view of service as a marketing logic. Central to this view are the notions that service is to be seen as a perspective on value creation rather than interpreted as a category of offerings, and that value creation can only be fully understood by taking a customer perspective, based on the definition and experience of value-in-use by the customer (Edvardsson, Gustafsson, & Roos, 2005). In recent years, multiple approaches to service as a perspective have been developed under the names of ‘service-dominant logic’ (Vargo & Lusch, 2004a) and ‘service logic’ (Grönroos, 2006), causing debates about basic concepts and premises (Grönroos, 2011; Vargo & Lusch, 2008a). These differentiations, however, are not of paramount importance for the purpose of this dissertation. Thus, no distinction between these concepts is made, and the composition of the S-D logic will be used as a guiding structure for the remainder of this thesis.

S-D logic has had a far-reaching impact in the scientific community, as evidenced by the more than 10,000 times in which the articles on S-D logic have been cited in journals, conferences, and books (Bettencourt, Lusch, & Vargo, 2014). S-D logic is theoretically grounded in resource-based research due to its consistency with resource advantage theory (e.g. Hunt, 2000) and core competency theory (e.g. Prahalad, Hamel, & June, 1990) (Vargo & Lusch, 2004a). Its foundational ideas and concepts have been distilled by Vargo and Lusch (2004a, 2008a, 2016) into eleven foundational premises (FPs), which they later nested under four (Lusch & Vargo, 2014), and subsequently five axioms (Vargo & Lusch, 2016). It is the purpose of the next chapter to introduce these axioms.

2.1.2 Axioms of Service-dominant Logic

The five axioms of S-D logic outline its understanding of economic and social exchange, delineating it from the traditionally prevailing goods-dominant paradigm. These axioms, called ‘service is the fundamental basis of exchange’, ‘value is co-created by multiple actors, always including the beneficiary’, ‘all economic and social actors are resource integrators’, ‘value is always uniquely and phenomenologically determined by the beneficiary’, and ‘value co-creation is coordinated through actor-generated institutions and institutional arrangements’, will be introduced in the following sections.

2.1.2.1 Service is the Fundamental Basis of Exchange

Central to the understanding of S-D logic is the definition of services as “*the application of specialized competences (knowledge and skills) through deeds, processes, and performances for the benefit of another entity or the entity itself*” (Vargo & Lusch, 2004a, p. 2). From this definition results the first axiom and first foundational premise ‘service is the fundamental basis of exchange’ (Vargo & Lusch, 2016). According to S-D logic, physical skills and knowledge (mental skills) are the basic resources which economic and social actors develop, apply and exchange with other actors. These resources are active, or ‘operant’, because they act on other active or passive (‘operand’) resources. Service-for-service exchange between actors is necessary because actors specialize due to the unequal distribution of operant resources in a population (Vargo & Lusch, 2004a). The skills and knowledge employed during service exchange correspond to Cova’s and Dalli’s (2009) notion of ‘immaterial labor’, and the idea of ‘general intellect’ (Zwick, Bonsu, & Darmody, 2008). Therefore, ‘service’ is whatever each actor exchanges during the exchange process and a dichotomy between goods and service becomes obsolete.

Goods, together with money and organizations, are seen as a facilitator of indirect exchange, which have been institutionalized due to their capability for solving problems related to the planning, calculating and coordination of the actions of actors (Lusch & Vargo, 2014, p. 58ff.). Thus, Vargo and Lusch (2004a) argue, goods are seen as distribution mechanisms for service provision (FP3), and consequently all economies are service economies (FP5). This notion accredits goods with a critical role as an enabler for indirect service provision. However, according to FP2 such indirect exchange is considered to mask the fundamental basis of exchange (Vargo & Lusch, 2008a), because basic operant resources such as knowledge and skills are needed to make use of the product as an operand resource. Thus, these active resources are considered to be the fundamental source of strategic benefit (FP4) (Vargo & Lusch, 2016).

2.1.2.2 Value is Co-created by Multiple Actors, Always Including the Beneficiary

The second axiom of S-D logic (also FP6), ‘value is co-created by multiple actors, always including the beneficiary’ (Vargo & Lusch, 2016), introduces a service-centered understanding of value. Until today, multiple interpretations of what the concept of value entails have been proposed in literature (e.g. de Chernatony, Harris, & Dall’Olmo Riley, 2000; Woodruff, 1997; Zeithaml, 1988). Grönroos and Helle (2010) define value as financial gains, which are mutually and reciprocally created by business partners. Value creation can be seen as a process which increases the wellbeing for oneself of another actor (Vargo & Lusch, 2008a), or through which the user becomes better off in some respect (Grönroos, 2008). However, little is known about the value creation process (Grönroos, 2011).

The second axiom is based on the understanding of value as value-in-use and the customer as an actor in value creation. The inclusion of the customer into the creation of value marks a departure from traditional economic thought, which postulates that value is being embedded in matter during manufacturing processes (Vargo & Lusch, 2004a). Consequently, in this view, value creation takes place exceptionally in the supplier’s sphere, and value is frozen in the produced goods, and transferred to the customer via an exchange. Thus, customers become destroyers of value rather than being involved in its creation. In challenging this approach to value as value-in-exchange, service as a perspective considers value as value-in-use, where value is created in the customer’s sphere. This view implies that value is *“the customer’s, or any other user’s, experiential perception of the value-in-use that emerges from usage or possession of resources, or even from mental states”* (Grönroos, 2011, p. 282).

Through participation in the cooperative production of offerings, customers and suppliers engage in dialog, which can be seen as interactive processes of learning together (Ballantyne, 2004). Suppliers and customers thus have the opportunity to jointly create value by customizing and co-producing offerings and as a consequence improve their front-end process of identifying individual customer needs and wants (Payne, Storbacka, & Frow, 2008). Prahalad and Ramaswamy postulate a new logic for value creation where value emerges from personalized customer experiences (Prahalad & Ramaswamy, 2004). While the concept of experience mostly emerges from B2C settings in which single humans determine value-in-use, its focus on individual value assessments is also relevant for industrial settings, where the increasing competition on product markets pushes companies away from offering physical goods towards offering individualized solutions for complex customer problems which are interactively designed (Evanschitzky, Wangenheim, & Woisetschlger, 2011; Mathieu, 2001b; Tuli, Kohli, & Bharadwaj, 2007). The importance of giving attention to the value-in-use of industrial offerings, has been further highlighted in extant literature (e.g. Lapierre, 1997; Ulaga & Eggert, 2006). However, it needs to be noted that, with a customer-inclusive view of value creation, difficulties may arise regarding the measuring or monetization of values (Ramirez, 1999).

As explained above, the idiosyncratic, experiential, and contextual nature of value implies that value cannot be created within manufacturing processes and embedded in physical products. S-D logic elaborates on this consequence in FP7, ‘actors cannot deliver value, but can participate in the creation and offering of value propositions’ (Vargo & Lusch, 2016). Value propositions can be interpreted as invitations to customers to engage with the firm for benefit (Lusch & Vargo, 2014, p. 71), and are always provisional or promise-bound (Vargo & Lusch, 2004a). However, in order for the development of an ongoing relationship which is satisfactory to both partners, suppliers also need to define what value means to them, and thus value propositions are reciprocal promises of value between customers and suppliers (Ballantyne & Varey, 2006). Hence, firms cannot create value themselves, but they can offer potential value and engage in co-creating it.

By emphasizing the co-creation of value, the S-D logic indicates an inseparability of the supplier, the offering and the customer in value creation (Vargo & Lusch, 2004a). Due to this inseparability, the concepts of customer orientation and relationships are central to S-D logic: ‘a service-centered view is inherently beneficiary oriented and relational’ (FP8). The concept

of relationship in S-D logic relates to the notion that value tends to unfold over time and to the interactive and interdependent combination of the activities of multiple parties (Vargo & Lusch, 2010). Hence, value co-creation and service exchange imply the existence of a relationship during any act of value creation, and manufacturing or goods-centered firms should strive to create a valued relationship rather than to produce a product (Lusch & Vargo, 2014, p. 72ff.). This also implies customer orientation, in that firms are not just performing acts for, but rather with the customer. A customer orientation becomes particularly important for capital equipment manufacturing firms offering extensive service offerings because of the difficulties these companies face when trying to convince their customers of the value of new service-based business offerings (Penttinen & Palmer, 2007). The focus on relationship and interactivity within the S-D logic is a clear departure from the traditional view that less direct customer contact is desirable because it increases the efficiency of a service system (Chase, 1977).

2.1.2.3 All Economic and Social Actors are Resource Integrators

The third axiom ‘all economic and social actors are resource integrators’ (FP9) is based on the conception of service as a perspective as being inherently relational and customer-centric (FP8)⁴ (Lusch & Vargo, 2014, p. 74). Resource integrators here are considered actors which integrate and combine their own and other market, private and public resources, which in turn creates new resources. Hence, resources and resource integration cause additional resources, which can also be interpreted as innovations (Lusch & Vargo, 2014, p. 77). Adjustments to the process of resource integration and creation are always made incrementally with limited planning, and thus the results of innovation – the development of technologies, for instance – are always open.

2.1.2.4 Value is Always Uniquely and Phenomenologically Determined by the Beneficiary

The fourth axiom (and also FP10) ‘value is always uniquely and phenomenologically determined by the beneficiary’ indicates that value is experienced and assessed differently by the customer in every instance of service exchange (Lusch & Vargo, 2014, p. 78). Grönroos (2011) agrees to this view by stating that value can be experientially perceived and also experientially determined, but criticizes the use of the term phenomenological for being too

⁴ A more detailed explanation of FP8 can be found in chapter 2.1.2.2.

vague. Instead, he suggests that value is both “*accumulating throughout the customer’s value creation process*”, and “*always uniquely and both experientially and contextually perceived and determined by the customer*” (Grönroos, 2011, p. 293). What both notions point out is that the resources (including public resources, for example a public roadway when experiencing a taxi service) which determine value perceptions on the customer’s side during the service experience vary with each service provision and thus impact the value assessment of the customer.

2.1.2.5 Value Co-creation is Coordinated Through Actor-generated Institutions and Institutional Arrangements

The fifth axiom and eleventh foundational premise ‘value co-creation is coordinated through actor-generated institutions and institutional arrangements’ is tightly connected to the ‘service ecosystem perspective’ of S-D logic (Vargo & Lusch, 2016). Lusch and Vargo (2014, p. 161) define a service ecosystem as a “*relatively self-contained, self-adjusting system of resources-integrating actors that are connected by shared institutional logics and mutual value creation through service exchange*”. This implies a shift away from focusing on dyadic relationships of firm and customer, towards a wider and more comprehensive network of actors (Vargo & Lusch, 2016). According to S-D logic, the most important factors within such networks are institutions. It needs to be noted that institutions in this understanding are not organizations or players, but rather aides to collaboration – rules, norms, symbols, beliefs, norms – which in turn can form interdependent groupings called ‘institutional arrangements’ (Vargo & Lusch, 2016). These collaboration aides are important mechanisms which ensure a service ecosystem’s functioning under the restriction of limited time and resources which can be used for their coordination. Importantly, while being an important mechanism within service ecosystems, institutions at the same time bear the risk of leading actors to refrain from reevaluating their suitability in specific situations or contexts (Vargo & Lusch, 2016).

2.1.3 Resources and Competences in Service-dominant Logic

This chapter explains the understanding of S-D logic about two main concepts of this dissertation, ‘resources’ and ‘competences’. Resources play an essential role in the understanding of S-D logic and its view on economic and social exchange. However, it is important to note that a decade has passed since the S-D logic’s emergence in Vargo and Lusch’s seminal paper (Vargo & Lusch, 2004a), and since then several adjustments and enhancements have slightly altered the original meaning of central terms and concepts. For

example, in 2004 *“the fundamental knowledge and skills of an economic entity that represent potential competitive advantage”* were represented by the term ‘core competences’ (Vargo & Lusch, 2004a, p. 5). Ten years later, actors were attributed with two basic ‘operant resources’, namely *“physical and mental skills”* (Lusch & Vargo, 2014, p. 57). Since the delineation between resources and competences is important within this dissertation, the two concepts need to be disentangled and clearly defined.

According to Lusch and Vargo (2014, p. 119), resources are, in a very general definition, *“what actors can draw on for support”*. The authors go on to elaborate on the possible identities of resources:

“Some resources are market facing, but many resources are non-market facing; some are tangible, but many are intangible; some are internal to the actor, but many, if not most, are external to the actor; some are operand, others are operant.”

An important differentiation in S-D logic is the one between ‘operand’ and ‘operant’ resources, which is relatively unfamiliar in literature (Vargo & Lusch, 2004a) and constitutes a fundamental element of the S-D logic’s argumentation. The focus of the mainstream goods-dominant logic (G-D logic) is that operand resources, which are primarily goods, are embedded with value and thus the fundamental basis of exchange (Vargo & Lusch, 2004a). However, these operand resources are not capable of action themselves, but must be acted on by other resources to create an effect (Lusch & Vargo, 2014, p. 123). Such resources, which are capable to act on other resources, are called operant resources. As outlined above, the fundamental operant resources are an actor’s skills and knowledge. Hence, any actor becomes an operant resource, thus changing the view on employees and customers from one which often saw them as passive entities which have to be controlled and acted on to obtain results (Lusch & Vargo, 2014, p. 123/124). Furthermore, S-D logic also recognized technology as an operant resource, because of its function as an integrator of resources within and across firm-customer boundaries (Lusch, Vargo, & O’Brien, 2007). Furthermore, according to S-D logic, resources are not steady in nature, but rather dynamic (Lusch & Vargo, 2014, p. 124ff.). Due to this characteristic, the concept of ‘resourceness’ is introduced, meaning that potential resources are only realized by actors’ skills and knowledge instead of existing independent of them (Lusch & Vargo, 2014, p. 121ff.). By such actions of human appraisal, operand resources can become operant resources, for example if employees and customers are treated as such by other human actors. Within the context of this dissertation, the concept of

resourceness is important, because it favors the importance of how resources are handled over their mere existence.

Due to the S-D logic's proximity to the core competence theory (Prahalad et al., 1990), the notion of core competences transcended into S-D logic (Vargo & Lusch, 2004a). Core competences are understood as intangible processes which are bundles of skills and technologies (Vargo & Lusch, 2004a). However, as mentioned above, the distinction between resources and competences in the S-D logic needs further explanation. In a first meaning, the term competence is congruent with the above description of basic operant resources, which is reflected in the S-D logic's definition of services: "*Service – the application of specialized competences (knowledge and skills), through deeds, processes, and performances for the benefit of another entity or the entity itself*" (Lusch & Vargo, 2006, p. 283; Vargo & Lusch, 2004a, p. 2). However, the term competence is also used in a somewhat different manner in S-D logic literature, meaning the ability to apply the basic resources/competences (skills, knowledge), and thus representing 'meta-competences' (Lusch et al., 2007). In this way, S-D logic considers 'collaborative competence' as critical for a firm's ability to create sustained competitive advantage because it aids in developing two other meta-competences, 'absorptive competence' and 'adaptive competence'. Hence, collaborative competence refers to "*the ability to integrate operant resources between organizations*" (Lusch et al., 2007, p. 8). Hence, competences as 'meta-competences' are conceptually superordinate to competences as 'skills and knowledge'.

2.2 The Competence-based Theory of the Firm

As a second theoretical lens, this dissertation adopts the competence-based theory of the firm (CbTF). In order to generate an understanding of the aspects of the CbTF which are relevant for this dissertation, the following sections present its foundations, goals and terminology, and subsequently introduce the open system view of the firm as a central cornerstone of competence-based research.

2.2.1 Foundations, Goals and Terminology

This section outlines the foundations of the competence-based theory of the firm within resource-based research, presents its fundamental assumptions and explanatory goals, and introduces important terminology.

2.2.1.1 Foundations Within Resource-based Research

Although resource-based and competence-based thinking stretches back to early economic theories of Adam Smith (1776), Charles Babbage (1832) and Friedrich List (1841) (Freiling et al., 2008a), theories which explain the competitiveness of firms based on differences within the resource and competence base were developed later and based on the seminal work of Penrose (1959) and Selznick (1957). Wernerfelt proceeded from these approaches to develop the ‘resource-based view of the firm’ (RBV) (Wernerfelt, 1984), thereby initiating a new research stream in strategic management. Soon after its emergence, the RBV enjoyed a high degree of popularity, due to its important contribution of pointing out the link between resources and firm performance and evidenced by its quick adoption by strategy scholars (Priem & Butler, 2001a). Contrary to the ‘industrial organization view’, which puts determinants of firm performance outside the firm and focuses on the structure-conduct-performance paradigm (e.g. Bain, 1968; Porter, 1979), the RBV in its original form argues that the internal resources companies possess are the determining factors for success (Wernerfelt, 1984). The RBV is not to be seen as a replacement for the industrial organization view, but rather as a complement (Mahoney & Pandian, 1992; Peteraf & Barney, 2003). While the position of the RBV created a foundation for explaining competitiveness through the existence of idiosyncratic resources, it has also faced considerable criticism (e.g. Priem &

Butler, 2001a, 2001b). Among others⁵, a widely echoed critique is the claim that the identification of valuable resources takes place ex-post, and that the RBV is thus based on analytic statements which are tautological and cannot be tested (Lockett, Thompson, & Morgenstern, 2009; Priem & Butler, 2001a, 2001b). The RBV is further claimed as being inherently static, and thus not well equipped to explain the development of performance differences in dynamic markets (Kraaijenbrink, Spender, & Groen, 2010). Third, the RBV focuses on internal factors and thus portrays an unrealistic notion of competition, because companies generally have access to external resources as well (Sanchez, Heene, & Thomas, 1996). Regarding the last two points, work on the RBV by Barney (1991) and Peteraf (1993) partly abandoned the exclusively internal perspective and introduced external aspects as additional determinants of the success, however the focus on investigating success at a specific point in time was retained (Freiling, 2001).

Initiated by Prahalad and Hamel's 'the core competence of the corporation' (1990) and Hamel and Heene's 'competence-based competition' (1994) and based on the RBV, the competence-based theory of the firm emerged (Foss and Ishikawa, 2007; Freiling, 2004; Freiling et al., 2008). The CbTF shifted the focus from resources to competences and from a static perspective to a dynamic one, thus addressing weaknesses of the RBV and further advancing resource-based research. Main contributions to the CbTF beside Prahalad and Hamel's core competence approach are the 'dynamic capabilities' approach (Teece, Pisano, & Shuen, 1997), and Sanchez and Heene's (1996) 'competence-based strategic management' (Freiling et al., 2008a). There are considerable conceptual similarities between the various building blocks of the CbTF, for example in the way organizational readiness for dynamics in markets is addressed: Teece et al. (1997) formulated the 'dynamic capability' approach to explain an organization's aptitude to sense opportunities and threats, and consequently to seize those opportunities and to reconfigure its resources in a way which allows for sustainable competitiveness in highly dynamic environments. Building on this notion, Sanchez (2004) refers to the dynamic capability approach as a theoretical base of the open system view (Sanchez & Heene, 1996, 2004), and emphasizes the creation of organizational flexibilities and strategic options.

⁵ A detailed assessment of the critiques on the RBV is provided in Kraaijenbrink (2010).

2.2.1.2 Fundamental Assumptions and Goals

The theoretical core of the CbTF is constituted by the following six foundational assumptions, which are presented according to the explanations of Freiling et al. (2008a):

- ‘Subjectivism’ posits that economic agents possess individually different knowledge, motivation, expectations and abilities, and that these characteristics are not static but change over time. Thus, “*individuals make decisions from their own points of view and their respective interpretations*” (Freiling et al., 2008a, p. 7).
- ‘Radical uncertainty’ points to the fact that economic actors have no knowledge about future events and developments such as the conditions of the firm’s environment or varying market demands.
- ‘Methodological individualism’ means that single individuals in organizations contribute to aggregated phenomena, and thus are at the basis of every decision in an organization. Taking a position of moderate methodological individualism (Foss, 2005), the CbTF allows for some institutional influence through the impacting of individual behavior.
- ‘Homo Agens’: Due to the incompatibility of the ‘homo oeconomicus’ to the aforementioned assumptions, Freiling (2008a) places the concept of the ‘acting man’ (von Mises, 1949) as a proactive player who constantly strives to improve his own situation in the center of the CbTF. The homo agens is alert and economizing, and thus able to exert entrepreneurial action in order to pursue a desired outcome.
- ‘Moderate voluntarism’ stands in close connection with the homo agens and means that actors can shape conditions in a favorable way. However, due to the actor’s embeddedness in a restrictive external environment, this power is not infinite, but limited. Thus, the CbTF takes a middle position between deterministic theories such as transaction cost theory (Coase, 1937) or resource-dependence theory (Pfeffer & Salancik, 2003), and voluntaristic theories such as the innovation approach (Schumpeter, 1934) (Freiling & Laudien, 2011).
- ‘Time matters’: Events, in the view of the CbTF, are tightly connected to their past. Due to this path-relatedness – meaning the influence of past decisions and developments on the actors’ conception of future possibilities – future options for development are confined. However, accumulation processes with respect to resources and competences are also possible, thus creating ‘asset mass efficiencies’ (Dierickx & Cool, 1989). Consequently, an accurate estimation or forecasting of future events is not possible (Arthur, 1994, p.12),

and thus “*there are no ex ante fully predictable results/outcomes of any significant (strategic) action*” (Freiling et al., 2008b, p. 90).

Applying these foundational assumptions to the context of servitization implies that each company embarking on a servitization strategy does so from a unique starting point, due to the existence of fundamental diversity of path-dependent resources and competences between firms (Foss, Knudsen, & Montgomery, 1995). Thus, the challenges of servitization perceived by their managers differ, as do the moderately voluntaristic and creative actions they subjectively perceive as rational measures to achieve competitiveness. Moreover, the long-term validity of challenges and measures to overcome them can be questioned due to the notion of an essentially open and non-predictable future. Due to its foundation in the market process theory of the Austrian School, the CbTF promotes entrepreneurial thinking, which reflects in the understanding of the organization’s environment as an arena of opportunities which have to be identified and exploited (Freiling & Laudien, 2011). This notion ties well with the context of servitization, where the formulation of proactive product service strategies which aim at the satisfaction of identified customer needs is a success factor (e.g. Frambach et al., 1997).

Regarding the epistemological aim of the theory, and hence its ‘explanandum’, the CbTF strives to explain “*current and future firm competitiveness in markets due to inhomogeneous availability of competences and resources*” (Freiling et al., 2008a, p. 10). Viewing the explanandum in the context of this dissertation, it becomes clear that the CbTF explains relative competitiveness among servitizing firms due to the (non-)existence of the resources and competences which a company possesses. As will be explained in chapter 2.2.1.3, the availability of resources and competences at a point in time t_n depends on the perception of managers within the firm at the point in time t_{n-1} that these resources and competences are relevant to achieve competitiveness, but are not yet in the possession of the firm.

2.2.1.3 The Terminology of the Competence-based Theory of the Firm

This section introduces main elements of the CbTF’s chain of reasoning. The following explanations of the terminology are based on Gersch et al. (2005, p. 44ff.), if not labeled differently.

Assets, Resources and Competences

According to Freiling et al. (2008a), the concepts of assets, resources and competences need clarification for an understanding of the CbTF which is in tune with its basic assumptions and epistemological aims:

‘Assets’ are *“homogeneous external or internal factors that can usually be procured in markets, serving as input for value-added/upgrading processes”* (Freiling et al., 2008a, p. 11). Due to their homogeneity, assets are not a direct source of competitive advantage. They are either being used directly in market processes or being upgraded to resources, and thus be a part of the future readiness for action of a firm. Assets can be produced externally in the market and subsequently purchased, or internally within the firm.

‘Resources’ are *“those assets that have undergone a firm-specific upgrading process. Therefore they should (...) contribute to the actual and future competitiveness of a firm and thus account for the firm’s heterogeneity”* (Freiling et al., 2008a, p. 11). Due to their nature as upgraded assets, resources are firm-specific and thus can contribute to the firm’s competitiveness. Such upgrading processes encompass all activities which aim at a qualitative, firm-specific change in assets, which is based on the assessment of current and future market needs. However, resources are not a competitive advantage in themselves, but only a foundation for successful market activities.

‘Competences’ *“mean a repeatable, non-random ability to render competitive output. This ability is based on knowledge, channeled by rules and patterns”* (Freiling et al., 2008a, p. 11). Competences can further be divided into individual skills and organizational competences. While individual skills determine the ability of a single individual to perform actions and make decisions, while organizational competences are independent of individuals and refer to collective actions of people within an organization. Competences are dependent on the learning processes within an individual or an organization. Therefore, the existing level of knowledge and the learning processes of an individual or a firm determine the type of competence which is available at a certain point in time. Three different types of competences are relevant within the causal structure of the CbTF: Firstly, ‘asset-upgrading competences’ are needed to transform firm-unspecific inputs into firm-specific resources, including the combination of such inputs with external assets, resources and competences. Secondly, ‘market-input competences’ transform the firms’ potentials to act into concrete market

offerings, and subsequently into market transactions. Thirdly, ‘meta-competences’ shape individual and organizational competences in a way which ensures the competitiveness of the firm over time. Meta-competences include the shaping of organizational structures for sufficient flexibility and the implementation of organizational learning activities. Hence, they relate to a system which is superordinate to the lower level competences, and which defines e.g. the adaptability of the organization and the management of organizational learning processes.

In summary, resources are bundled or qualitatively refined and enhanced assets, which contribute to the competitiveness of a firm because they provide a specific value in the market which competitors cannot instantly imitate (Freiling, 2006). Hence, resources are the foundation on which competitiveness and customer value is built (Freiling, 2006). Individual skills and organizational competences, in turn, are needed to use resources in a goal-oriented manner in order to unlock actual customer value (Freiling, 2006, with reference to Teece et al., 1997). This is also reflected in Sanchez and Heene’s (Sanchez & Heene, 2004, p. 7) definition of organizational competence as *“the ability of an organization to sustain coordinated deployments of resources in ways that help the organization to achieve its goals”*. Freiling’s understanding of competences is nearly identical with Sanchez’ (2004, p. 519) definition of ‘capabilities’ as *“repeatable patterns of action in the use of assets to create, produce and/or offer products to a market”*, which serves as an example for the significant terminological heterogeneity within the CbTF (Freiling, 2011, p. 11ff.). To avoid additional confusion, the terms ‘competence’ and ‘capability’ are used interchangeably in this dissertation.

Building Organizational Competence

In order to achieve organizational competence, strategic managers within an organization must not just define the organization’s goals for value creation, but also define the processes through which value will be created and distributed by the organization. These processes include ‘competence leveraging’ and ‘competence building’ (Sanchez & Heene, 2004, p. 7/8), as well as ‘competence maintenance’ and ‘competence defense’ (Sanchez & Heene, 2004, p. 57/58). While competence leveraging relates to the process of maintaining the organization’s current value creating processes (Sanchez & Heene, 2004, p. 8) and thus to *“do more of the same”* (Freiling et al., 2008b, p. 70), competence building means the investment into new competences that will enable the organization for future value creation (Sanchez & Heene,

2004, p. 7). Hence, competence building implies qualitative changes within the firm, and thus the acquisition of new competences which create new strategic options (Freiling et al., 2008b, p. 70). The CbTF reasons that competence building and leveraging within the organizational system elements must be geared towards two distinctive goals to achieve organizational competence, and thus competitiveness (Freiling, 2004): Firstly, achieving the firm's ability to prove itself in market processes with customers and suppliers, and secondly, achieving the ability to withstand competitive forces of rivals and menacing forces of the market environment. The first goal regards the leveraging and building of competences so that an organization can make attractive offers in the market. The second goal concerns the development of so called 'isolation mechanisms'. Through such mechanisms, a firm can either outpace its rivals by active behavior ('asset mass efficiencies'), or protect itself in case of competitor attacks ('time compression diseconomies') (Dierickx & Cool, 1989). Hence, isolation mechanisms can protect the competences a firm possesses from appropriation by competitors, for example by employing measures of competence maintenance and competence defense (Sanchez & Heene, 2004, p. 57/58). Competence maintenance refers to competence leveraging activities, in that it aims to maintain the availability of the resources and capabilities required within them (Sanchez & Heene, 2004, p. 57). This includes monitoring and reinforcing organizational processes to avoid a decreasing level of performance due to 'organizational entropy' (Sanchez, 2004). Competence defense, on the other hand, relates to the protection of resources and competences against external threats (e.g. from competitors or customers) which potentially harm the organization's competence building and leveraging activities (Sanchez & Heene, 2004, p. 58).

Visionary Shaping and Market Feedback

Gersch et al. (2005, p. 51ff.) draw upon Ortmann (2008)⁶ in outlining two additional factors which are central to investigating servitization from a CbTF point of view. Firstly, at every point in time, firms possess a 'present capacity to act', meaning the range of possible actions which the firm could perform according to its present assets, resources and competences. From every application of its present capacity to act results a change in the capacity the firm possesses at the next point in time, because every action comes with an acquisition of previously external potentials. Hence, the CbTF emphasizes the path dependency of the

⁶ Later published in Ortmann (2008).

capacity for action of a firm, as well as the role time plays in developing it. Secondly, the ‘future capacity to act’ refers to the various strategic options which can be attained by a firm in the future.

Both actions – the realization of the present capacity to act, as well as the analysis, planning and realization of future strategic options – are integral concerns of the CbTF (Gersch et al., 2005, p. 54), and play an important role in the strategic uncertainty which comes with the servitization transition. Because actors perform these actions under radical uncertainty, ‘visionary shaping’ is needed to transform the present capacity to act into concrete market offerings, as well as to identify the future strategic options of the firm, to match them with anticipated market demands, and to develop the organization in a way which realizes these options. Hence, visionary shaping comprises three types of actions: the shaping of readiness for action, the shaping of market-input processes, and the shaping of market processes.

The processes of visionary shaping have to be monitored and reflected upon according to information generated by ‘market feedback’-processes. Market-feedback can be generated through large-scale surveys as well as through individual customer information, and provides the organization with a better picture of the state of its markets. This allows for a timely realization of previous misconceptions regarding the asset, resource and competence base, and the adjustment thereof. (Gersch et al., 2005, p. 55)

2.2.1.4 Value and Value Creation within the Competence-based Theory of the Firm

Due to the fact that this dissertation employs an understanding of value which is rooted in the S-D logic, a brief overview of the interpretation of value and value creation within the CbTF is necessary to provide a basis for the integration of both perspectives.

As explained in the previous chapter, definitions of value and value creation are abundant in S-D logic-related literature due to its emphasis on a re-conceptualization of fundamental notions of economic and social exchange. The basis for this reconceptualization is the S-D logic’s differentiation between value-in-exchange and value-in-use (Vargo, Maglio, & Akaka, 2008). In contrast to S-D logic, CbTF offers little explicit explanation of its understanding about both concepts. However, the underlying logic becomes evident within descriptions of its theoretical foundation: Freiling, Gersch and Goeke’s (2008a, p. 10) mentioning of economic actors’ “*value-added systems*” indicates that firms are seen as value creators and customers as passive value recipients within a supplier-customer relationship. Similarly, Sanchez and

Heene's (Sanchez & Heene, 1997a, p. 40) assessment that specific sets of knowledge and skills "*enable the organization to create value for its customers in distinctive ways*" reflects a view of the firm as the sole value creator. In another example, Teece's (2007, p. 1328) "*value-enhancing investments inside the knowledge-based enterprise*" points to the notion that value is influenced within the suppliers premise, and through his internal actions.

Despite the terminology used in the above examples, the CbTF shows a degree of openness to mutual value creation which exceeds that of other strategic management approaches. This is best illustrated by Freiling (2004), who delineates the CbTF from the resource-based view by emphasizing its emphasis on market-oriented thinking. Specifically, he refers to Sanchez and Heene (1997b) in arguing that the competence-based logic includes the notion that external and internal resources must be combined to attain competitiveness. According to Freiling (2004), this implies a more relational view in which competitive advantage relies on mutual resource integration between a network of firms.

Despite this extension of the value creation logic beyond the single firm, CbTF generally reflects a view which focuses on value-in-exchange, i.e. it assumes that the supplier – or a supplier network – creates value, and the customer destroys it during the usage phase. Hence, the conceptual difference between S-D logic and CbTF regarding the value creation logic relates strongly to the CbTF's distinction between a value-creation phase which ends with the transaction to the customer, and a value-destruction phase, which begins with the customer's usage. This theoretical grounding of CbTF in a goods-dominant worldview gives reason for the development of an S-D logic-adjusted research framework. The basis for this framework lies in the 'open system view' of the firm (Sanchez & Heene, 1996), which is presented in the subsequent chapter.

2.2.2 The Open System View of the Firm

The open system view (OSV), an integral part of CbTF (Freiling & Laudien, 2011), is a framework which conceptualizes organizations as systems which are in constant interaction with their external environment, and thus 'open' (Sanchez & Heene, 1996), and which structures the various external and internal factors which impact a firm's competitiveness (Freiling, 2004). In this view, creating a competent organization requires the ability to build, maintain and leverage organizational competences (Sanchez & Heene, 2004). The OSV provides an adequate foundation and structure for understanding the heterogeneity of single

firms at a certain point in time, as well as in their development over time, and furthermore allows for the analysis of challenges firms face in shaping and managing their asset, resource and competence bases (Gersch et al., 2005, p. 61), and is therefore highly useful for the investigation of servitization.

The understanding of competence as the *“ability to sustain coordinated deployments of resources in ways that help the organization to achieve its goals”* (Sanchez & Heene, 2004, p. 7) represents a nature of competence which is ‘dynamic’, ‘systemic’, ‘cognitive’ and ‘holistic’ (Sanchez, 2004). The ‘dynamic’ nature of competence refers to the ability to respond a) to a dynamic external environment and b) to its own dynamic internal processes, and to sustainably maintain its ability to create value in the face of both dynamics. The ‘systemic’ nature of competence requires an organization to coordinate its own assets⁷ as well as external, firm-addressable assets in processes of product creation and realization. Furthermore, managers within organizations face ‘cognitive’ challenges when attempting the efficient and effective deployment of assets to value creating activities. In doing so, managers on the one hand have to leverage the existing resources and competences in order to execute current strategic options (‘competence leveraging’), and on the other hand have to build new resources and competences to create future strategic options (‘competence building’). Finally, the ‘holistic’ dimension of competence addresses the goal achievement of organizations, for which multiple individual and organizational interests must be managed successfully.

In the OSV, the organization is characterized as a system of interacting and interdependent resources which is embedded in larger systems constituting strategic groups, markets, industries, economies and societies (Sanchez & Heene, 2004, p. 46ff.). In order to build and leverage competences within such an open system in a manner which supports goal achievement, managers must understand the fundamental system properties of organizations (Sanchez & Heene, 2004, p. 51). These properties are depicted in figure 3 among other elements of the open system view which will be addressed in detail later.

⁷ Sanchez (2004) defines assets as *“Anything tangible or intangible the firm can use in its processes for creating, producing and offering its products (goods or services) to a market”*.

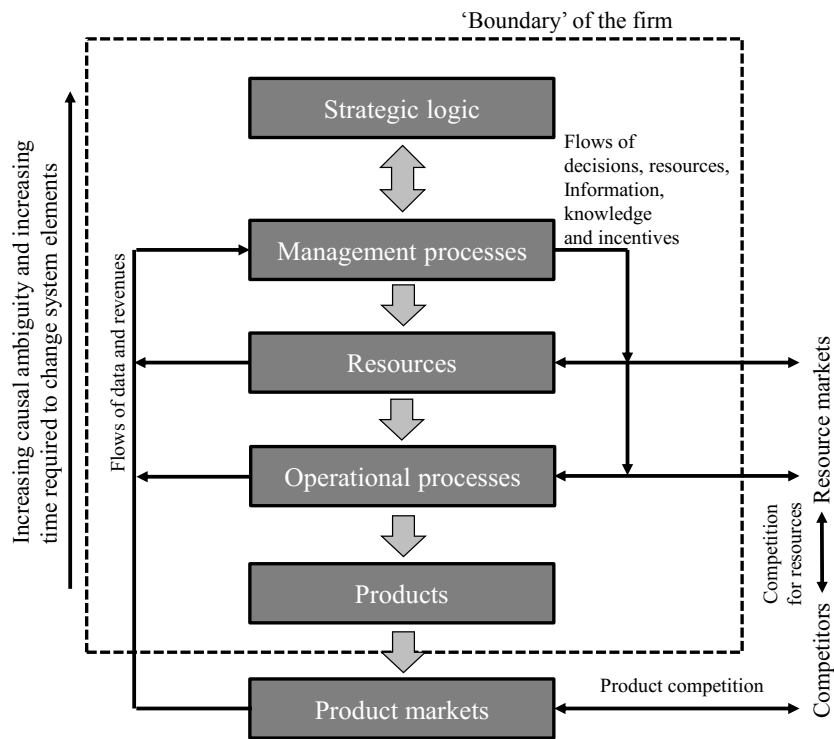


Figure 3: Open system view of the firm
Source: Sanchez and Heene (2004, p. 47)

The arrows on the left side of the system elements in figure 3 indicate feedback channels of data which emanate from the external environment as well as from internal system elements to inform managers about the state of the organization's stocks and flows of resources (Sanchez & Heene, 2004, p. 47). These arrows therefore represent the 'market feedback' processes which were introduced in chapter 2.2.1.3 of this part of the dissertation. Following the definitions from above, the quality of the data gathered through such feedback channels mainly depends on the firm's management processes, while the quality of the identification and interpretation of information based on this data relies predominantly on the strategic logic. The arrows on the right side of the system elements in figure 3 portray the 'visionary shaping' of the organizational system elements through the flow of decisions, resources, information, knowledge and incentives. The internal and external system elements presented

in figure 3 create an understanding of the embeddedness of firms into social and economic environments, as well as their options to use available resources and competences to change these factors (Freiling & Laudien, 2011). The internal system elements are located within the boundary of the firm and will be described in the following sections.

2.2.2.1 Strategic Logic

The fundamental responsibility of strategic managers within the organization as an open system is the definition and implementation of the ‘strategic logic’ (Sanchez & Heene, 2004, p. 59). The strategic logic represents the rationale employed by decision makers within the organization for how different forms of resource deployment lead to different levels of goal achievement (Sanchez & Heene, 1996). Because all individuals within a firm act as decision makers in that they are to some degree involved in resource allocation, the strategic logic of the firm is not exclusive to only the top management level, but takes effect in all employees (Sanchez & Heene, 1996).

The strategic logic embodies the operative rationale according to which the resources of the organization are organized, and which represents the basic ideas which motivate all decision makers of the organization (Sanchez & Heene, 1997a). Hence, it determines the organization’s decision-making processes about how the current and future possibilities for value creation are approached in terms of competence building and competence leveraging (Sanchez, 2004). In this way, the strategic logic represents an important institution (as defined by axiom 5 of S-D logic⁸) within the service ecosystem of the servitizing firm. Consequently, cognitive limitations within the strategic logic – for example a lack of market knowledge – can lead to misjudgments about the resource and competence status of the organization, and thus about the actions necessary to achieve competitiveness. The strategic logic determines three essential components of an organization: the ‘business concept’, the ‘organization concept’ and the ‘core processes’ (Sanchez & Heene, 2004, p. 59). The organization concept and the core processes take effect in lower system elements and thus will be introduced in the subsequent chapters. The business concept, however, sets the boundaries for the organization on the strategic level by determining:

⁸ For a detailed explanation of the term ‘institution’ see chapter 1.2.5 within this part.

- Who will be served by the organization (targeted market preferences and customers),
- What the firm will offer its customers (product offers), and
- How the firm will create and provide its products to its customers (key activities).

The question of targeted customers is a matter of keeping current customers satisfied in the short term as well as ensuring a sustainable customer base in the long term. Over time, changes in the needs of the firm's current customer base might not be desirable for the firm to continue to serve (Sanchez & Heene, 2004, p. 60). Preferences on a market-wide level, however, are usually more stable and thus more desirable to target (Sanchez & Heene, 2004, p. 60). Hence, in order to assure the 'dynamic' aspect of organizational competence, managers must aspire to build competences which will be effective in serving evolving preferences in the market in the long term. This requires ongoing traditional market research as well as 'real-time' market research, which includes the testing of consumer reactions by using product and service prototypes (Sanchez & Heene, 2004, p. 68).

After identifying the targeted customers and market segments, the second question within the strategic logic determines with which value propositions the future customers will be served. In the OSV, the customer's value and costs of value propositions are measured according to the net delivered customer value (NDCV) (Sanchez & Heene, 2004, p. 69ff.). The NDCV builds on Kotler and Keller's (2003, p. 124ff.) 'perceived customer value', and thus conceptualizes four sources of value (product benefits, service value, image value and personal interaction value), and four sources of perceived costs (financial costs, time costs, energy costs, psychic costs). The difference between the value and the cost together make up the customer's perception of the total value he can obtain from accessing the value proposition (Kotler & Keller, 2003, p. 125). Hence, in order to determine which offers to compete with, a customer value analysis should be conducted to reveal the firm's strengths and weaknesses relative to its competitors (Kotler & Keller, 2003, p. 126). Despite acknowledging various aspects which influence the customer's value perception, this framework takes a product-dominant approach to value by viewing the customer as a recipient who merely judges the offering for its benefits and costs.

Third, a company must decide which activities are central and need to be carried out effectively in order to successfully serve the customer. These activities can be considered as 'critical success factors' and can vary according to different market and customer preferences.

The key activities performed by the organization manifest in the core processes which are carried out on the operational level (Sanchez & Heene, 2004, p. 59), and thus will be discussed in more detail later in this chapter.

By determining who will be served by the firm, what offerings it will approach its customers with, and how it will create its products and deliver them to its customers, the strategic logic sets strategic boundaries for the organization (Sanchez & Heene, 2004, p. 51). As a consequence, if there are cognitive limitations such as a lack of market knowledge within the strategic logic, they can lead to mistakes in judgments about the resources and competences the organization obtains, and thus about the actions which have to be taken to achieve competitiveness.

2.2.2.2 Management Processes

The strategic logic as a guiding element has an especially strong influence on the ‘management processes’ of an organization, because those processes support a firm’s goal achievement (Sanchez & Heene, 1997a) by implementing the goal-oriented planning, regulation and control mechanisms which coordinate the actions of resources (Sanchez, 2004). These coordinating mechanisms affect all other system elements, and thus greatly influence the quality of information, decision-making and communication, and employee motivation (Sanchez & Heene, 1996, p. 40). Within the OSV, the management processes act as superordinate regulatory mechanisms, and thus determine the course of action for a company by addressing the following questions (Sanchez & Heene, 2004, p. 81):

- What resources will be used by our organization?
- What organization design will be used to coordinate those resources?
- How will providers of resources that are used in carrying out our business concept (‘controls and incentives’) be monitored, evaluated, and rewarded?

Furthermore, in implementing a strategic change such as servitization, a company also undergoes planned transformations which affect the organization in a broad manner (Sanchez & Heene, 2004, p. 116). Such ‘transformative processes’ are usually planned, and reshape operational processes of product creation and realization according to the requirements of the strategic logic.

Within a combined, orchestrated effort, the management processes essentially put the strategic logic into action. When conducting a strategic change such as servitization, it is therefore crucial for firms to reevaluate and alter their management processes in ways which gear the future resource base and its operational processes towards the customers, offerings and activities defined within the strategic logic. Especially in dynamic markets, this requires strategic managers to define, design and implement fundamental processes of competence building and leveraging, as well as competence maintenance and defense. For example, the ability of resource providers ('stakeholders') to provide qualitatively, quantitatively and financially superior resources can be improved through processes of stakeholder development, which are defined as working with resource providers such as employees, customers, suppliers, the government, communities or shareholders and debtholders to create a shared stake in the organization (Sanchez & Heene, 2004, p. 113ff.).

2.2.2.3 Resources

Within the OSV, the 'resources' *"include anything tangible or intangible that would be both useful and available to an organization in carrying out its value-creating activities"* (Sanchez & Heene, 2004, p. 81). The intangible resources comprise capabilities, knowledge, and reputation, while tangible resources are the physical input factors of a firm, such as machines or buildings (Sanchez & Heene, 2004, p. 82ff.). One way that an organization functions as an open system is that it must continually replenish its tangible and intangible resources through internal development efforts as well as through interfaces with external organizations and markets (Sanchez & Heene, 1997a, p. 26). Within this conceptualization, intangible resources have a superordinate role with respect to tangibles, since their nature determines *"the uses to which the organization's tangible assets can be applied in its operations"* (Sanchez & Heene, 1997a, p. 26). Capabilities are considered a special category of intangible resource, because *"they use or 'operate on' other tangible and intangible assets"* (Sanchez, 2004, p. 519). In this way, the understanding of resources within the OSV resembles the hierarchy between operant and operand resources within S-D logic, with both conceptualizations stressing the importance of capabilities and knowledge for the firm. Firm-addressable resources can be acquired and subsequently integrated by a firm from 'resource markets' outside of the boundary of the organization, and comprise all external potentials which are accessible to it (Sanchez & Heene, 2004, p. 82).

The range of strategic options which are attainable for a firm is determined by the flexibility of its resources, as well as the flexibility of the organization in deploying these resources (Sanchez, 1997). The resource level of organizational competence for servitization thus depends firstly on the firm's ability to identify the discrepancies between the resources needed to pursue desired strategic options and the resources and resource flexibilities it currently possesses. Secondly, existing resources must be leveraged and currently unavailable resources must be built in a goal-oriented manner. Competence building can be carried out via three kinds of resource accumulations: internal development efforts aiming at the creation of specialized resources which are qualitatively different from the currently available resources; the acquisition of additional but qualitatively similar resources to achieve higher resource quantity; and the development or access to new kinds of flexible resources which can be used for multiple purposes (Sanchez, 1997).

2.2.2.4 Operational Processes

The resources an organization possesses operate in idiosyncratic activities of value creation and distribution (Sanchez & Heene, 2004, p. 105). These activities include the development ('product creation'), as well as production, marketing and distribution ('product realization') of a firm's offerings (Sanchez & Heene, 1996). More precisely, product creation is the process in which a firm defines, designs and develops its offerings and the competences needed to deliver these offerings. Depending on the speed with which the targeted market preferences change, an organization must establish continuous or periodic processes of product creation to sustain the competitive potential of its value propositions. Product realization, on the other hand, encompasses the way in which the firm produces, distributes and supports its offerings. Depending on the speed with which the targeted market preferences change, an organization must establish continuous or periodic processes of product creation to sustain the competitive potential of its value propositions. These processes consist of three primary activities (Sanchez & Heene, 2004, p. 106ff.):

- 'Defining new product offers', in which the eight dimensions of NDCV are characterized for each product,
- 'Designing new products and processes', which translates the offer definition into functional components and an effective organizational architecture, and
- 'Developing new products and processes', where detailed designs for the functional components and activities are developed.

Product realization, on the other hand, encompasses the way in which the firm produces, distributes and supports its offerings. In this view, many industrial service offerings, e.g. maintenance services, can be viewed as an externalisation of operative customer processes facilitated by competence building and leveraging on the supplier's side.

2.2.2.5 Products and Product Markets

As the lowest-level system element, the OSV conceptualizes 'products' as the output of the firm's operational processes. According to this view, firms compete in product markets against other firms with the goal of attracting potential customers to these product offers (Sanchez & Heene, 2004, p. 6). A product offer thus represents the benefits and costs which a customer anticipates before the purchase and use of the offering (Sanchez & Heene, 2004, p. 69).

From an competence-building and leveraging point of view, this system element is of minor importance, because the competence-building and leveraging activities which relate to the generation of successful product offers are conducted during the formulation of the organization's business concept (Sanchez & Heene, 2004, p. 66 ff.), and thus have been included within the explanation of the strategic logic⁹. Consequently, the 'products' and 'product markets' levels of the OSV are not included in the subsequent considerations.

2.2.2.6 Causal Ambiguity and Competence Management

Following the OSV, a firm's competitiveness depends on the ability of managers to perceive differences between the current state of system elements of the organization and the desired state of these elements (Sanchez & Heene, 2004, p. 53). When such 'strategic gaps' are perceived, new competences are built to create and realize current and new offerings, and thus strategic change is triggered. The perception of managers about strategic gaps is influenced to a large extent by the data flows informing them about the state of the system elements and the external environment, and by the interpretative frameworks through which managers analyze them. According to the OSV, the available data can be gathered through two types of control loops (Sanchez & Heene, 2004, p. 54/55): 'Lower-order control loops' gather data on the tangible assets, operations and product markets of an organization, and the data collected is

⁹ For a detailed explanation of the 'strategic logic' see chapter 2.2.1 within this part.

usually numerically quantifiable. ‘Higher-order control loops’, on the other hand, apply to the higher system elements of the OSV, and thus gather data on the intangible assets, management processes and strategic logic. Such control loops create more qualitative data and thus rely on rather subjective judgments. Due to this implicitness, data in higher-order control loops underlies a greater extent of ‘causal ambiguity’, and thus the OSV assumes an increasing dynamic response time required to change higher system elements (Sanchez & Heene, 1997a). The increasingly hidden cause-and-effect relationships within an organization’s higher system elements make it difficult to measure and assess these elements (Sanchez, 2004). This often leads to a tendency of managers to ‘manage what you can measure’ – a focus on the easily definable and measurable entities of lower system elements, while neglecting the higher system elements which predominantly determine competitiveness (Sanchez, 2004). Thus, in order to achieve a proactive strategic positioning for sustainable competitiveness, the strategic logic, management processes and intangible assets of a firm should continuously be assessed for their current and future effectivity. Overall, the OSV view advocates flexibility within all system elements as a major goal of the organization (Sanchez, 2004). This resonates well with extant literature on servitization, where multiple forms of flexibility have been identified as critical, including overall organizational flexibility (Gebauer et al., 2006; Kindström & Kowalkowski, 2014; Turunen & Neely, 2012), management flexibility (e.g. Raja, Green, & Leiringer, 2010), resource flexibility (e.g. Mathieu, 2001b; Smith et al., 2014) and operational flexibility (e.g. Ulaga & Reinartz, 2011). However, the OSV’s view on value creation reflects that of the CbTF, as evidenced by the OSV’s emphasis on the firm as a value creating system (e.g. Sanchez, 2004).

2.3 Aligning the CbTF and S-D Logic

Previous attempts to combine resource- and competence-based theories with elements from other theories have been criticized for being eclectic due to their lack of an assessment of paradigmatic compatibility of both theories (Gersch et al., 2005, p. 12). The fact that S-D logic is “*grounded in and largely consistent with resource advantage theory and core competence theory*” (Vargo & Lusch, 2004a, p. 5), which are both part of the ‘house’ of resource-based approaches in strategic management theory (Freiling et al., 2008a), sends a promising signal regarding the applicability of the CbTF within S-D logic. However, a thorough investigation of the issue is necessary.

In order to examine the compatibility of CbTF and S-D logic, and thus to ensure this dissertation’s explanatory power, the CbTF’s fundamental assumptions are cross-checked with the S-D logic’s five axioms in chapter 2.3.1. In a second step, the alignment of central terms and concepts is necessary to ensure the clear and unambiguous use of terminology within the remainder of this dissertation (chapter 3.2).

2.3.1 Assessing the Compatibility of the Competence-based Theory of the Firm and Service-dominant Logic

Firstly, it needs to be noted that CbTF’s basic assumptions are ‘hard core’ elements of a scientific research program in the sense of Lakatos (1976), while the S-D logic’s five axioms have not been formulated with reference to this approach. Rather than as a ‘research program’, S-D logic is postulated as a ‘paradigm’ (Vargo & Lusch, 2004a). However, a closer look at the underlying definitions shows that similar levels of inquiry are at hand: A ‘research program’ can be described as a sequence of theories within a domain of scientific inquiry, and ‘hard core elements’ are non-revisable heuristics within this program (Lakatos, 1976). Paradigms, on the other hand, are “*universally recognized scientific achievements that, for a time, provide model problems and solutions for a community of researchers*” (Kuhn, 2012, p. X), and, within such paradigms, an axiom is defined as “*an established rule or principle or a self-evident truth*” (merriam-webster.com). Thus, it is safe to assume that an assessment of the compatibility of CbTF’s hard core elements with S-D logics axioms is a reliable indicator for the compatibility of CbTF and S-D logic at large.

Thus, the approach of this chapter takes the more fundamental assumptions of CbTF ('subjectivism', 'radical uncertainty', 'methodological individualism' and 'time matters') as a reference point and investigates the compatibility of S-D logic to these assumptions.

2.3.1.1 Subjectivism

Subjectivism – the notion that economic agents possess individually different and dynamic knowledge, motivation, expectation and abilities (Freiling et al., 2008a) – is reflected in S-D logic in the concept of operant resources. Physical and mental skills, including knowledge and abilities, are unequally distributed between actors, which is why actors develop, apply, and exchange these resources with other actors for mutual benefit (Lusch & Vargo, 2014, p. 58). Subjective motivations relate to a feature of the Austrian School of Economics called 'subjective value theory' (Menger, 1981, p. 114ff.). The subjective value theory posits that not only the nature, but also the measure of value are purely subjective, differ with various people and with the same people at different points in time. S-D logic defines value as an increase in the well-being of a particular actor, which is actor specific and contextually distinct (Lusch & Vargo, 2014, p. 57). Thus, value in S-D logic is not embedded in products and services (like the concept of value-in-exchange would imply), it rather is determined by the specific preferences of individuals and dependent on the context of its creation. Furthermore value is also subject to dynamic changes, since the 'value potential' an actor perceives in another actor's skills and knowledge is dependent on his own dynamic skills and knowledge. It can therefore be concluded that the understanding of actors and value in S-D logic is compatible to the CbTF's basic assumption of subjectivity.

2.3.1.2 Radical Uncertainty

In CbTF, radical uncertainty is understood in the way that actors don't have all relevant knowledge and that new knowledge is being created constantly, and therefore relates to knowledge of which the actor does not know and which does not exist yet (Freiling et al., 2008a). In S-D logic, knowledge plays a crucial role as the fundamental source of competitive advantage (Lusch et al., 2007). Referring to knowledge which is unknown to economic actors, the S-D logic acknowledges 'absorptive competence' – a company's ability to absorb new information and know-how from the external environment – as a critical meta-competence in dynamic environments (Lusch et al., 2007). Radical uncertainty in the sense of potential future knowledge is represented in S-D logic through the crucial role of innovation, because

the outcomes of innovation are always uncertain and thus new and previously unknown knowledge is being created (Lusch & Vargo, 2014, p. 77/78).

2.3.1.3 Methodological Individualism

The notion that all decisions in organizations are triggered by individuals is reflected in S-D logic's FP2 'indirect exchange masks the fundamental basis of exchange'. In this view, organizations (along with money and goods) are intermediaries for direct service-to service exchange. As Lusch and Vargo (2014, p.62) explain, despite the presence of organizations *"actors still exchange (...) skills for the individual and collective skills of others in often market-based, monetized exchange"*. Moreover, the disguise of individual actions by the organization as an intermediary is considered a liability because it may divert the individuals focus from the customer towards the internal units of output they produce (Lusch & Vargo, 2014, p. 61). Thus, the recognition within S-D logic of individual actions of service exchange as the fundamental processes within organizations points towards an understanding of individualism which is congruent with the CbTF's methodological individualism.

2.3.1.4 Homo Agens

The notion of economic actors as proactive, entrepreneurial individuals is a distinct delineation from the homo oeconomicus model of economic theory. The need to apply a different model emerges because of the CbTF's basic assumptions, which are incompatible with the assumptions of perfect information and the infinite ability to make rational decisions underlying the homo oeconomicus (Freiling et al., 2008a). The characteristic of proactivity is central, because it enables an actor to not only act within a given framework, but to shape said framework through his own actions. The S-D logic not only allows for proactive shaping of the external environment, but rather names it as a demarcation point from G-D logic: According to Lusch et al. (2007), G-D logic views the external environment as essentially uncontrollable, and thus considers it as a force to which actors need to adapt. The S-D logic, however, regards the external environment as made up by resources which can be accessed in order to proactively co-create these environments (Lusch et al., 2007).

2.3.1.5 Moderate Voluntarism

Moderate voluntarism is closely related to the 'homo agens' in that it posits that actors are able to impact their environment through processes of proactive and creative management (Freiling et al., 2008a). However, it also implies that certain factors like legal systems, market

standards and power constellations within markets limit this ability (Freiling et al., 2008a). The S-D logic views the environment of an economic actor as ‘service ecosystems’ – dynamic networks of direct as well as indirect and remote exchanges involving a potentially large number of actors (Lusch & Vargo, 2014, p. 158ff.). Within such service ecosystems, actors draw upon resources from other actors and by doing so shape their local environment (Lusch & Vargo, 2014, p. 161). Furthermore, as the fifth axiom of S-D logic states, ‘value co-creation is coordinated through actor-generated institutions and institutional arrangements’ (Vargo & Lusch, 2016), meaning that service ecosystems include largely inflexible institutions such as language, governance and cultural values (see also Lusch & Vargo, 2014, p. 170). Due to the rigidity and stability of these institutions on the macro level of the service system, individual actors are constrained in their awareness of the need to make changes, as well as in their ability to exert such changes. These conceptualizations imply that, in S-D logic, actors can shape their environment within certain limits, and hence moderate voluntarism as a core element of CbTF is compatible with S-D logic.

2.3.1.6 Time Matters

The CbTF considers actions to be path-dependent and their outcomes to be unpredictable. The unpredictability of outcomes plays an important role in S-D logic, based on axiom 3 which states that ‘all economic actors are resource integrators’ (Lusch & Vargo, 2014, p. 74ff.): Lusch and Vargo discuss the axiom as a means to describe innovation, and propose that resource integration between actors results in resource creation, and that the resources created are themselves integrated with other resources, and thus a continuous process of resource integration and resource creation progresses. As this process continues, actors make incremental and relatively unplanned adjustments, and accordingly the outcomes of such actions are “*always uncertain and surprising*” (Lusch & Vargo, 2014, p. 78). While path dependency is not mentioned explicitly, it results as a consequence of the resource integration and creation process that the possibilities and needs of actors at a certain point in time depend on past actions and thus are path-dependent.

Summarizing, the S-D logic appears to be compatible to all six basic assumptions of the CbTF, with no evidence pointing towards the opposite. This indicates that a joint application of S-D logic and CbTF implies no theoretical inconsistencies, and that the general approach of this dissertation regarding the explanans is sound.

2.3.2 Development of a Harmonized Terminology

In order to apply both S-D logic and CbTF within this dissertation, a clear definition and integration of relevant terms is essential. This is especially relevant for the terms ‘resource’ and ‘competence’, which are central concepts of both S-D logic and CbTF, but are being used under the presumption of different meanings and interpretations.

2.3.2.1 Terminological inconsistencies between S-D logic and CbTF

There are considerable inconsistencies between S-D logic and CbTF. On the one hand, S-D logic differentiates between operant resources (resources which act on other resources) and operand resources (resources which are being acted upon). Furthermore, it refers to the term competence as an operant resource (knowledge, skill), as well as a meta-competence (e.g. collaborative competence). On the other hand, CbTF differentiates between assets (as homogeneous inputs), resources (upgraded, firm-specific assets), competences (individual and organizational), and meta-competences (competences governing other competences).

The multitude of different concepts used reflects the terminological inconsistency of literature on organizational competence as mentioned e.g. by Teece (2007). However, when taking a closer look at the meaning behind the above terms, considerable similarities are visible. Table 1 provides an overview of the different terminology:

Service-dominant logic		Competence-based theory of the firm			
Term	Description	Term	Description	Sub-category	Description
Operand Resource	Resources that must be acted upon by some other resource to create an effect (Lusch & Vargo, 2014, p. 123)	Asset	Internal or external homogeneous factors which can be procured in markets (Freiling et al., 2008, p. 11), e.g. production equipment (Sanchez & Heene, 1997, p. 306)		
Operant Resource / Competence	Operant resources are dynamic resources such as competences (skills and knowledge) that are capable of acting and producing effects in other resources (Lusch & Vargo, 2007, p. 8)	Resource	Assets which have undergone a firm-specific upgrading process (Freiling et al., 2008, p. 11)		
		Competence	Repeatable, non-random ability to render competitive output. Based on knowledge, channeled by rules and patterns (Freiling et al., 2008, p. 11)	Individual	Skill of a single individual to perform actions and make decisions (Freiling et al., 2008, p. 11)
				Organizational	Collective actions of people within an organization (Freiling et al., 2008, p. 11)
Meta-competence	Collaborative, absorptive and adaptive competence. Help firms survive in complex, dynamic, and turbulent environments (Lusch & Vargo, 2007, p.9)	Meta-competence	Shaping individual and organizational competences to sustain the competitiveness of the organization (Gersch et al., 2005, p. 51), e.g. dynamic capability (Teece, 2007, p. 1344)		

Table 1: Terminological inconsistencies between S-D logic and CbTF

2.3.2.2 Alignment of Relevant Terms

As mentioned above, the apparent heterogeneity in concepts becomes less intimidating with a look at what both theories are aiming to explain with their respective terminology. S-D logic uses the terms operant resources and competences interchangeably to explain how these act upon other resources (operant and/or operand) to achieve an effect which aims at creating a

competitive advantage. Meta-competences, in this scenario, are responsible for ensuring that a firm adapts to its dynamic environments in ways which ensure the availability of the adequate operant resources/competences to sustain its competitiveness (Lusch et al., 2007). The approach in CbTF is similar: here, individual and organizational competences act upon assets to generate resources which contribute to a firm's competitiveness. Meta-competences design and manage these competences to sustain competitiveness over time (Freiling et al., 2008a, p. 51). In both settings, there is a level of 'being acted upon', a level of 'acting', and a level of 'ensuring the ability to act'.

On the level of 'being acted upon', S-D logic emphasizes that it can be both operant as well as operand resources which receive the action, but does not mention firm specificity. CbTF, on the other hand, states that the resources on this level are not firm-specific, and thus unable to provide a competitive advantage by themselves, but makes no mention of their ability to act upon other resources.

On the level of 'acting', the picture is much clearer. Here, both CbTF and S-D logic mention skills and knowledge as crucial, with CbTF adding that these factors are channeled by repeatable rules and patterns. The term 'market-input competences'¹⁰, however, reflects goods-dominant terminology and thus does not fit into a harmonized terminology of CbTF and S-D logic. Since the definition of market-input competences as competences which activate the resources for market offerings (Gersch et al., 2005, p. 50) refers to the ability to integrate resources for service processes (Lusch & Vargo, 2014, p. 74ff.), the terminology is changed to 'resource integration competences'.

On the level of 'ensuring the ability to act', the concepts used by CbTF and S-D logic are similar: both aim at ensuring the continuous availability of the right assets/resources/competences at every point in time, with the absorptive and adaptive competences as mentioned by Lusch et al. (2007) relating to the need for a continuous ability to adapt and change which is mentioned by Gersch et al. (2005, p. 51).

To harmonize both approaches without losing the explanatory power of each, the differentiation between operant and operand resources is integrated into the causal structure of

¹⁰ See chapter 2.1.3.1 of part II of this dissertation for an explanation of market-input competences.

the CbTF as a means to harmonize both approaches without losing the explanatory power of each. In order to be able to distinguish between assets as mere input factors on the one hand and resources on the other hand, the concepts of ‘operant assets’ and ‘operand assets’ is added, and the level of resources is extended to ‘operant’ and ‘operand’ resources.

Figure 4 introduces the harmonized terminology:

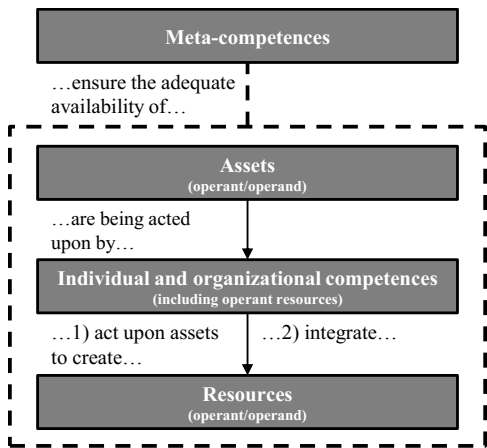


Figure 4: Harmonized terminology for assets, resources and competences

Source: Own representation



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