

Capability Sourcing Modeling

A High-Level Conceptualization Based on Service-Dominant Logic

Laleh Rafati and Geert Poels

Center for Service Intelligence

Faculty of Economics and Business Administration, Ghent University,

Tweekerkenstraat 2, 9000 Gent, Belgium

{laleh.rafati, geert.poels}@UGent.be

Abstract. Companies need to acquire the right capabilities from the right source, and the right shore, at the right cost to improve their competitive position. Capability sourcing is an organizing process to gain access to best-in-class capabilities for all activities in a firm's value chain to ensure long-term competitive advantage. In this paper, capability sourcing modeling is introduced as a technique to create sourcing alternative solutions to facilitate strategic sourcing decision making. Our approach is applying conceptual models as intermediate artifacts which are schematic descriptions of sourcing alternatives based on organization's capabilities. Therefore, a high-level conceptualization based on Service-Dominant Logic (S-D Logic) is proposed as a language to create capability sourcing conceptual models.

Keywords: strategic sourcing, capability sourcing, capability sourcing modeling, capability sourcing conceptual models, service system, dynamic capability, competitive advantage.

1 Introduction

“For years, sourcing has just been another word for procurement — a financial material, but strategically peripheral, corporate function. Now, globalization, aided by rapid technology innovation, is changing the basis of competition [1]. It's no longer a company's ownership of capabilities that matters but rather its ability to control and make the most of critical capabilities, whether or not they reside on the company's balance sheet” [1].

“Sourcing is evolving into a strategic process for organizing and fine-tuning the value chain” [1]. Companies should be looking for alternative sourcing of business capabilities to seize new market opportunities. Yet few companies are taking full advantage of the cost and flexibility opportunities in the new global arena [1].

Strategic sourcing is a systematic and fact based approach for optimizing an organization's supply base and improving the overall value proposition. *“Strategic sourcing allows companies to take full advantage of cost, flexibility and new capability opportunities; whether delivered by traditional suppliers, trading partners, distributors, agents and even customer self-service models” [2].*

Strategic sourcing is rooted in the idea that a business must have a set of explicitly defined capabilities in order to execute its strategy successfully [2]. “*Leaders often mistake the course of action and pursue a wrong path — diverting attention from the intended strategy. A root cause is often that strategic intent and objectives are not articulated in clear operating language for better execution. A written strategy does not ensure strategic action*” [2].

Sourcing decisions are strategic decisions at the management level of organization. These decisions are related to the organizing process of an organization. Organizing is defined as the process of arranging resources to work together to accomplish a goal [3]. The organizing process formulates corporate strategies to achieve competitive advantage through arranging the firm’s resources and configuring the firm’s capabilities within a changing environment. In the organizing process, strategic decisions are made about choosing the right sourcing solutions like outsourcing, insourcing or co-sourcing. Sourcing decisions include the commitments, decisions and actions required for a firm to achieve strategic competitiveness on resources and organizational capabilities.

At the strategic management level in an organization, decision makers need to share a common ground or a common language to facilitate their discussions [4]. A common language is needed to define and articulate concepts that facilitate the description of objects of strategic interest and that improve the strategic discussions and enhance related decision making [5]. We introduce capability sourcing modeling as a technique to create sourcing alternative solutions. Capability sourcing models can facilitate strategic sourcing decision making to choose the right sourcing solution for the organization. Our approach is applying a conceptualization based on service system as a language for modeling the relevant concepts of strategic capability sourcing. This conceptualization can serve as a common language to facilitate discussions about sourcing at the strategic management level in an organization.

A theoretical background of strategic sourcing and competitive advantage is explained in the next section. In the third section, the capability sourcing process and modeling are introduced as an approach to improve the firm’s competitive position. Finally, in the last section, conceptualization as a solution is proposed for capability sourcing modeling.

2 Theoretical Background

Strategy is the direction and scope of an organization over the long term, which achieves competitive advantage for the organization through its configuration of resources and capabilities within a changing environment. Companies need to leverage right *strategic sourcing* (the right capability at the right cost from the right source and the right shore) to improve their competitive position. *Competitive advantage* is the ability to create more economic value than competitors. It is a firm’s profitability that is greater than the average profitability for all firms in its industry. Furthermore, sustained competitive advantage is a firm maintaining above average and superior profitability and profit growth for a number of years. Competitive advantage results in

superior profitability. The primary objective of strategic sourcing is to achieve a sustained competitive advantage which in turn results in superior profit and profit growth [6].

The firm's resources, capabilities and competencies are the main factors driving the strategic sourcing. *Resources* are the assets that organizations has or can call upon (e.g. from partners or suppliers), that is, 'What the firm Has'. Two categories of resources are tangible resources and intangible resources.

According to the Resource-Based View (RBV) theory, a firm is able to achieve sustained competitive advantage if it can acquire and control Valuable, Rare, Inimitable, and Non-substitutable (VRIN) resources [7]. *Valuable resources* need to deliver a product or service that is not currently available from a competitor. Only value-adding resources can lead to competitive advantage, whereas non-value-adding resources may lead to competitive disadvantage. *Rare resources* are those possessed uniquely by one organization or by a few others only (e.g. a company may have patented products, have supremely talented people or a powerful brand). Rarity could be temporary (e.g. patents expire, key individuals can leave or brands can be de-valued by adverse publicity). Valuable common resources can lead to competitive parity but no advantage. Valuable rare resources can provide, at best, temporary competitive advantage. *Inimitable resources* are those that competitors find difficult to imitate or obtain, usually due to unique historical conditions, causal ambiguity or social complexity. They are things such as culture, partnerships and working relationships perhaps underpinned by recruitment, training, motivating and rewarding staff. Valuable, rare, but imitable resources provide temporary advantage. Only valuable, rare and hard-to-imitate resources can provide sustained competitive advantage. *Non-substitutable resources* do not have strategic equivalents, such as firm-specific knowledge or trust-based relationships. Valuable, rare, hard-to-imitate resources and non-substitutable resources can also provide sustained competitive advantage [8].

VRIN resources if managed by unskilled people will provide no benefit to the firm. The resources themselves do not confer any advantage for a company if they are not organized to capture the value from them. A firm must organize its management systems, processes, policies, organizational structure and culture to be able to fully realize the potential of its valuable, rare, hard-to-imitate and non-substitutable resources. Only then the companies can achieve sustained competitive advantage. Therefore, VRIN framework is modified to VRIO framework [9]. For a firm's resources to be the basis of a competitive advantage, they must have VRIO attributes: valuable (V), rare (R), costly to imitate and non-substitutable (I) and Organization (O). Also the firm must be able to organize (O) in order to capture the value of the resources. The organization (O) means "how is a firm organized to develop and leverage the full potential of its resources base" [9].

The concept of *capability* represents the firm's capacity or ability to integrate the firm's tangible and intangible resources to achieve a desired objective, that is "What the firm Does". So, capabilities can be considered as the Organization (O) in VRIO, as the firm's capacity and ability to capture the value of resources [9].

The concept of Competency captures the essence of what makes an organization unique in its ability to provide value to customers. Competencies are "What a firm

Does that is strategically valuable” (e.g. product design skills, cooperative relationships). *Distinctive competency* is something that an organization does particularly well relative to its competitors. It is a unique firm-specific strength that allows a company to better differentiate or achieve lower cost than rivals [6]. These arise from VRIN resources and capabilities.

Summarizing, strategic sourcing is the direction of an organization to achieve competitive advantage through its configuration of VRIN resources, capabilities and distinctive competencies within a changing environment. (Fig.1)

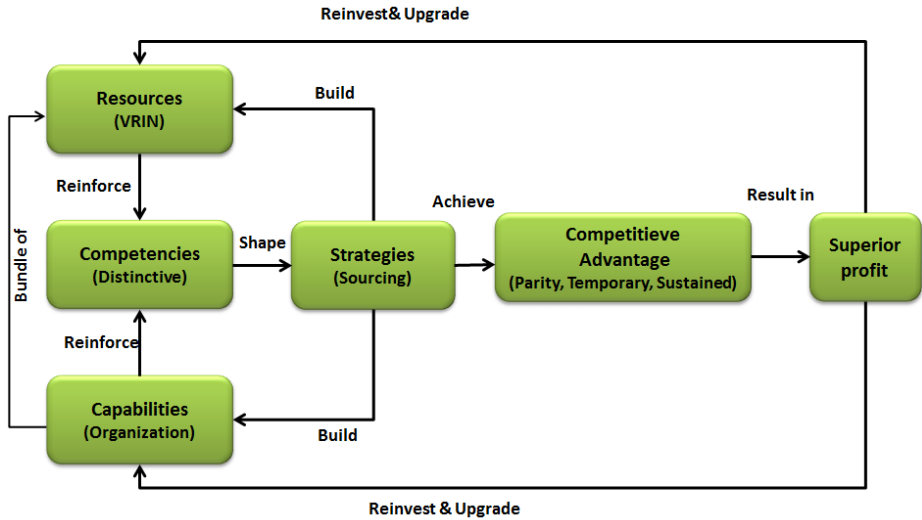


Fig. 1. Competitive advantage through strategic sourcing

To complete the theoretical foundation of our proposed solution, one more concept is needed. The *Dynamic Capability (DC)* of an organization is defined as “the capacity of an organization to purposefully create, extend, and modify its resource base” [10]. The resource base includes the tangible, intangible resources as well as capabilities which the organization owns, controls, or has access to on a preferential basis [10]. The concept of DC has evolved from the RBV theory. RBV proponents argue that VRIN resources can be a source of superior performance, and may enable the firm to achieve sustained competitive advantage. DC has lent value to the RBV arguments as it transforms what is essentially a static view into one that can encompass competitive advantage in a dynamic context [11], [12],[13]. Therefore, the “O” in VRIO should refer to DC as the organization (O) needed to transform bundles of resources into competitive advantage [9].

Three cluster of capabilities can be realized by DC: 1) Sensing capability - dynamic capability of opportunity identification; 2) Seizing capability - dynamic capability of opportunity investment; and 3) Transforming capability - dynamic capability of recombination and reconfiguration. The enterprise will need sensing, seizing, and

reconfiguring capabilities to be simultaneously developed and applied for it to build and maintain competitive advantage [14].

The roots of competitive advantage are thus found in DC, as shown in Fig 2. The Dynamic Capability lets a firm arrange and develop its resources to create and capture value. This ability leads to achievement of competitive advantage. For creating and capturing value, two basic strategies are low cost (similar product at lower cost) and differentiation (price premium from unique product) [6].

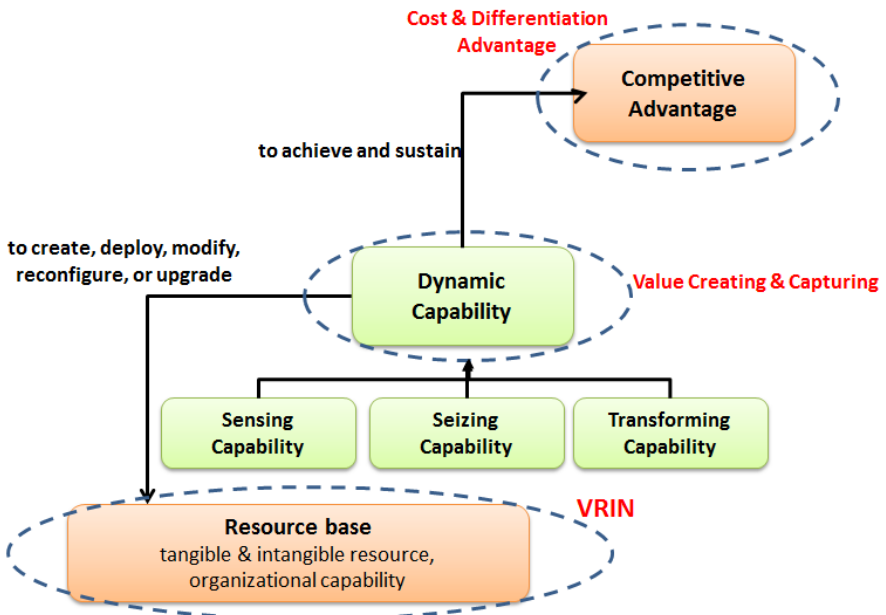


Fig. 2. Dynamic capability to achieve and sustain competitive advantage

3 Solution Approach

Capability sourcing began as a cost-cutting measure, but companies that create real sustained value routinely use it for far more strategic ends to gain capabilities that they don't have in-house, or to strengthen capabilities they do have, for everything from developing world-class talent to bringing new products to market faster and enabling business model innovation [15]. The capability sourcing process improves a company's competitive position by ensuring that processes and functions are obtained from the right source at the right cost. Greater focus on capability sourcing can improve a company's strategic position by reducing costs, streamlining the organization, and improving quality [15]. Also it can support companies for finding more-qualified partners to provide critical functions that usually allow to enhance their core capabilities that drive competitive advantage in their industries [1].

Capability sourcing is a process of gaining access to best-in-class (sensing, seizing, and reconfiguring) capabilities in a company's value chain to ensure sustained

competitive advantage. Right sourcing of sensing, seizing, and reconfiguring capabilities improves the competitive position of firm across the value chain and within a changing environment. Right sourcing means leveraging the right capability at the right cost from the right source and the right shore to improve the competitive position. Capabilities are the key to alignment and successful strategy execution. Capabilities exist across the value chain and in order to achieve high-performance a business must learn to manage capabilities that other parties in the value chain perform. They must learn to govern a network of capabilities. Right sourcing allows sharper focus on differentiating capabilities. On the other hand, incorrect sourcing decisions limit agility and increase costs. Capabilities where the company is not best in class can be, 1) built internally via process improvement and investment; 2) outsourced to a provider who is best in class; 3) moved offshore when cost and/or quality are superior. Clarifying the value contribution (or strategic relevance) of each capability helps a business allocate the right level of time and resources — whether to strengthen, minimize or outsource. Determining the value contribution helps focus resources and sourcing alternatives on capabilities that create value and distinctiveness, or identifies where to target efficiency work, either through rigorous process improvement or sourcing to a low cost provider [2].

We propose capability sourcing modeling as a technique to explore sourcing alternative solutions which are insourcing, outsourcing or sharing forms (e.g. in-house, spin-off and joint venture) of sourcing. A capability sourcing model is a model of an organization's capabilities like a blueprint (i.e., a capability map) to express the capabilities that are necessary to execute the stated strategy. The capability map as a capability sourcing model is a black-box model to support strategic decision makers to organize their firm's resources and capabilities in a right way (cost, source and shore). This model can express the firm's capabilities across the value chain as 1) Insourced capabilities that are assigned to an internal (but 'stand-alone') entity that specializes in that operation. 2) Outsourced capabilities that are assigned to a third party to perform on its behalf. 3) Co-sourced capabilities that are assigned to a partnership as a long-term cooperation between two (or more) business partners. Therefore, the capability map can facilitate decision making to choose the right sourcing forms as in Table 1.

Table 1. Sourcing alternatives based on a capability map

Capability	Sourcing alternatives (forms)
Insourced capabilities	<ul style="list-style-type: none"> ▪ Shared service center (SSC) ▪ Captive center
Outsourced capabilities	<ul style="list-style-type: none"> ▪ Nearshore outsourcing ▪ Offshore outsourcing ▪ Business Process Outsourcing (BPO) ▪ Build Operate Transfer (BOT)
Co-sourced capabilities	<ul style="list-style-type: none"> ▪ Selective sourcing ▪ Joint venture ▪ Strategic alliance

Our approach to create a capability sourcing model as a part of sourcing solutions is applying conceptual modeling. “*Conceptual modeling is a widely applied practice*

and has led to a large body of knowledge on constructs that might be used for modeling and on methods that might be useful for modeling” [16]. The main purpose of conceptual modeling is extraction of a high-quality conceptual schema of a system.

“Conceptual models are used as intermediate artifact for system construction. They are schematic descriptions of a system, a theory, or a phenomenon of an origin thus forming a model” [17], [18]. A conceptual model is a model enhanced by concepts. Conceptual models use a language as a carrier for the modeling artifact and are restricted by the expressiveness of this carrier [17], [18]. This language is often also used for the description of the concepts that are incorporated into a modeling result.

Therefore, for capability sourcing modeling, we use conceptual models as intermediate artifacts which are schematic descriptions of sourcing alternatives based on organization’s capabilities. We propose the Service-Dominant Logic (S-D Logic) as a language and the service system abstraction as a high-level conceptualization [19] for modeling the intermediate artifacts in capability sourcing conceptual modeling.

4 Proposed Solution

“Conceptualization aims at collection of objects, concepts and other entities that are assumed to exist in some area of interest and the relationships that hold among them. It is thus an abstract, simplified view or description of the world that we wish to represent. Conceptualization extends the model by a number of concepts that are the basis for an understanding of the model and for the explanation of the model to the user” [17].

S-D Logic provides a framework for thinking more clearly about the service system and its role in competition (competitive advantage) [20], [21]. The S-D Logic views a service system as a dynamic value co-creation configuration of resources, including at least one operant resource, all connected internally and externally to other service systems by value propositions [22]. Service system as a dynamic value co-creation configuration of resources is related to the concept of Dynamic Capability that is defined before (in section 2) as the capacity of an organization to purposefully reconfigure its resource base. More specifically, the concept of service system can be used for modeling the bundle of VRIN resources that can be used to provide services to other service systems in order to create value and then to achieve the sustained competitive advantage. (Fig. 3)

S-D Logic views service as the application of operant resources – for example skills and knowledge that are capable of acting and producing effects in other resources – for the benefit of another party. Service is the fundamental basis of exchange. “Competing through service is about applying operant resources better than the competition” [20], [21]. The concept of service can be used for modeling the connection between service systems as the “service-for-service exchange” that is needed to create value.

S-D Logic represents a shift in focus from operand to operant resources. Operand resources are resources upon which an operation or act is performed to produce an effect like primarily physical resources, goods, etc. Operant resources are resources

that produce effects e.g., primarily knowledge and skills. Operant resources are active resources that are capable of creating value [23]. Competitive advantage is a function of how one firm applies its operant resources to meet the needs of the customer relative to how another firm applies its operant resources. Since applied operant resources are what are exchanged in the market, they are the source of competitive advantage. “*Operant resources are the fundamental source of competitive advantage*” [20], [21]. The concept of operant resource can be used for modeling the VRIN resources and capabilities (resource base) that have potential to achieve the sustained competitive advantage. (Fig. 3)

The ability to integrate operant resources between organizations increases the ability to gain competitive advantage through innovation. Firms gain competitive advantage by engaging customers and value network partners in co-creation activities. One opportunity for organizations to compete through service is to identify innovative ways of co-creating value. The central idea of S-D Logic is the concept of resource integration as a key mechanism for value co-creation. The individual firms need a network-to-network conceptualization of relationships that converge on value creation through a web of resource integration. Resource integration is therefore a multidirectional network-oriented process with parties integrating multiple resources for their own benefit and for the benefit of others [20], [21]. Resource integrating is a process for value co-creation through a value network of actors that results in a competitive advantage. The concepts of value co-creation and resource integration can be used for modeling the collaborative relationships between a firm and its value network partners to achieve the sustained competitive advantage. (Fig. 3)

The core concepts of S-D Logic like service exchange, value co-creation, resource integration, and collaborative relationships point to a generic actor conceptualization in which all actors engaged in exchange (e.g., firms, customers, etc.) are viewed as service provider or value creator. In other words, all social and economic actors are essentially doing the same thing: creating value for themselves and others through reciprocal resource integration and service provision [24]. S-D Logic views the social and economic actors as an operant resource – a resource that is capable of acting on other resources, a collaborative partner who co-creates value. “*The value network member (actor) that is the prime integrator is in a stronger competitive position*” [20], [21]. The concept of actor (resource integrator or value co-creator) can be used for modeling internal and external service providers. (Fig. 3)

Value comes from the ability to act in a manner that is beneficial to a party. Value is subjective and always ultimately determined by the beneficiary, who in turn is always a co-creator of the value. Value creation is at the heart of competitive advantage. A firm is said to have a competitive advantage only if it can create more economic value than its competitors. The concept of value can be used for modeling value creating (value-in-use) and value capturing (value-in-exchange) to achieve the sustained competitive advantage [25]. (Fig. 3)

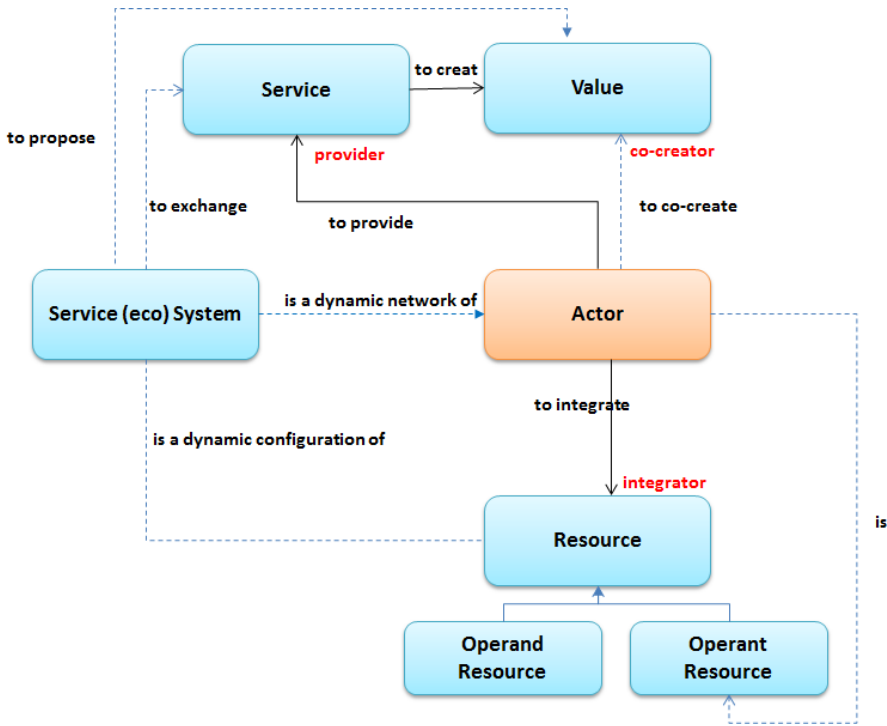


Fig. 3. A high level conceptualization for capability sourcing modeling

The proposed conceptualization (Fig. 3) can be applied to build capability sourcing conceptual models as intermediate artifacts which are schematic descriptions of sourcing alternatives based on organization’s capabilities. Service system can be used for modeling the bundle of (operand/operant) resources which are able to exchange services through value propositions. The bundle of resources in a service system can be available internally or externally. Therefore, it can be provided through internal providers (firm) or external providers (market). Determining the value contribution of a service system can be used to analyze whether resources are able to provide a (sustained, temporary, parity) competitive advantage within an capability or not. This analysis may be a step toward a decision on making, buying or sharing this capability.

5 Conclusion

Capability sourcing conceptual models as intermediate artifacts are schematic descriptions of sourcing alternatives based on organization’s capabilities. These models help decision makers to choose the right sourcing alternatives for capabilities such as insourcing forms (e.g. in-house, captive center), outsourcing forms (e.g. spin-off, divestment) and sharing forms (e.g. strategic alliance, joint venture). S-D Logic is introduced as a language and conceptualization for modeling these intermediate artifacts in capability sourcing. The proposed 'high-level' conceptualization is more an

integration of different theoretical concepts. It provides a frame of reference to define a more specific conceptual framework and meta-model for modeling strategic sourcing alternatives and elaborating analytical techniques to explore, compare, and evaluate alternatives and make the right decision.

The next steps in our research are 1) Further defining *capability sourcing conceptual modeling* as a technique, *capability sourcing conceptual models* as intermediate artifacts and *capability sourcing conceptualization* as a language through elaborating more the proposed abstraction based on S-D Logic; 2) Applying capability sourcing conceptual method, artifacts and language to create sourcing alternative solutions.

References

1. Gottfredson, M., Puryear, R., Phillips, S.: Strategic Sourcing: From Periphery to the Core. *Harvard Business Review*, 132–139 (February 2005)
2. Loftin, R., Lynch, R., Calhoun, J.: *The Sourcing Canvas: A Strategic Approach to Sourcing Decisions*, p. 13. Accelare Inc. (2011)
3. Schermerhorn, J.R.: *Introduction to management*, 12th edn. John Wiley & Sons (2012)
4. Clark, H., Brennan, S.: Grounding in communication. In: Resnick, L.B., Levine, J.M., Teasley, S.D. (eds.) *Perspectives on Socially-shared Cognition*, American Psychological Association, Washington, DC (1991)
5. Osterwalder, A., Pigneur, Y.: Designing business models and similar strategic objects: the contribution of IS. *Journal of the Association for Information Systems* 14(5), Article 3 (2013)
6. Hill, C., Jones, G.: *Strategic Management: an integrated approach*, 10th edn. Cengage Learning (2012)
7. Barney, J.B.: *Gaining and sustaining competitive advantage*, 2nd edn. Prentice Hall, Upper Saddle River (2002)
8. Barney, J.: Firm resources and sustained competitive advantage. *Journal of Management* 17(1), 99–120 (1991)
9. Cardeal, N., António, N.: Valuable, rare, inimitable resources and organization (VRIO) resources or valuable, rare, inimitable resources (VRI) capabilities: What leads to competitive advantage? *African Journal of Business Management* 6(37), 10159–10170 (2012)
10. Helfat, C., Finkelstein, S., Mitchell, W., Peteraf, M., Singh, H., Teece, D., Winter, S.: *Dynamic Capabilities: Understanding Strategic Change in Organizations*. Blackwell, Malden (2007)
11. Ambrosini, V., Bowman, C., Collier, N.: Dynamic capabilities: An exploration of how firms renew their resource base. *British Journal of Management* 20(S1), S9–S24 (2009)
12. Barney, J.B.: Is the resource-based view a useful perspective for strategic management research? Yes. *Academy of Management Review* 26, 41–56 (2001a)
13. Barney, J.B.: Resource-based theories of competitive advantage: a ten year retrospective on the resource-based view. *Journal of Management* 27, 643–650 (2001b)
14. Teece, D.J.: Explicating dynamic capabilities: The nature and micro foundations of sustainable enterprise performance. *Strategic Management Journal* 28(13), 1319–1350 (2007)
15. *Capability Sourcing / Outsourcing/ Offshoring* - Bain & Company, <http://www.bain.com/consulting-services/performance-improvement/capability-sourcing.aspx>

16. Thalheim, B.: Towards a theory of conceptual modelling. *Journal of Universal Computer Science* 16(20), 3102–3137 (2010)
17. Thalheim, B.: The science and art of conceptual modelling. In: Hameurlain, A., Küng, J., Wagner, R., Liddle, S.W., Schewe, K.-D., Zhou, X. (eds.) *TLDKS VI. LNCS*, vol. 7600, pp. 76–105. Springer, Heidelberg (2012)
18. Thalheim, B.: The theory of conceptual models, the theory of conceptual modelling and foundations of conceptual modelling. In: *The Handbook of Conceptual Modeling: Its Usage and Its Challenges*, ch. 17, pp. 547–580. Springer, Berlin (2011)
19. Poels, G., Van Der Vurst, G., Lemey, E.: Towards an Ontology and Modeling Approach for Service Science. In: Falcão e Cunha, J., Snene, M., Nóvoa, H. (eds.) *IESS 2013. LNBIP*, vol. 143, pp. 285–291. Springer, Heidelberg (2013)
20. Lusch, R.F., Stephen, L., Vargo, S.L., Matthew, O.: Competing through service: Insights from service-dominant logic. *Journal of Retailing* 83(1), 2–18 (2007)
21. Mele, C., Della Corte, V.: Resource-based view and Service-dominant logic: Similarities, differences and further research. *Journal of Business Market Management* 6(4), 192–213 (2013)
22. Lusch, R.F., Vargo, S.L., Wessels, G.: Toward a Conceptual Foundation for Service Science: Contributions from Service-Dominant Logic. *IBM Systems Journal* 47(1), 5–14 (2008)
23. Vargo, S.L., Lusch, R.F.: Service-Dominant Logic: Premises, Perspectives. Possibilities *Naples Forum on Service* (2013)
24. Wieland, H., Polese, F., Vargo, S., Lusch, R.F.: Toward a Service (Eco)Systems Perspective on Value Creation. *International Journal of Service Science, Management, Engineering, and Technology* 3(3), 12–25 2012)
25. Vargo, S.L., Akaka, M.A.: Value Cocreation and Service Systems (Re)Formation: A Service Ecosystems View. *Journal of Service Science* (2012)