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Resources, Competences and Capabilities Conundrum: A Back -To-Basics Call

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One of the major shortcomings that plague the conceptual development as well as empirical research on the Resource Based View of the firm has been the prevailing confusion about the exact definitions and meanings of the terms competences and capabilities. Through an exhaustive review of literature, the root cause of this confusion has been clearly brought out in this paper. An attempt has also been made at arriving at the 'pure' definitions of the terms firm resources, competences and capabilities. Resources are defined as the tangible and intangible assets of a firm which can be drawn upon by the firm when required to achieve its objective(s). Competence is defined as a combination of firm-specific resources, each of the resources being under the state of sufficiency, towards achieving specific organizational objective(s). Capability is defined as a complex combination of appropriate set of competences towards achieving specific organizational objective(s). A framework linking firm resources, competences and capabilities through first order (resources to competences), second order (competences to capabilities) and third order (simple capabilities to complex capabilities) organizational processes has also been postulated.

Introduction

The terms 'resources', 'competences' and 'capabilities' are widely used in strategic management literature today. Although very frequently used in various books and journals dealing with management in general and strategic management in particular, the usage of these terms tends to be loose and nebulous. The genesis of resources, competences and capabilities lies in the resource-based view (RBV) of the firm (Wernerfelt, 1984), a dominant paradigm of strategic management research in the last one decade. It is the lack of clarity in the RBV's concepts and inconsistency in operationalising the same across different studies that plagues the development of RBV in an accretive way (Hoopes, Madsen & Walker, 2003). Rugman and Verbeke (2002: 770) observe, "Even the exact definitions of key concepts, such as resources, competences, core competences, capabilities, and dynamic capabilities, have not been agreed upon or remain ambiguous and controversial". Terms and relationships have not been systematically combined into a parsimonious yet comprehensive model (Bogner, Thomas, & McGee, 1999: 276). A particularly memorable description of this confusing state of affairs is provided by Dosi, Nelson, and Winter (2000). They state – "The term 'capabilities' floats in the literature like an iceberg in a foggy Arctic sea, one iceberg among many, not easily recognized as different from several icebergs near by" (Dosi et al., 2000: 3). Our attempt through this paper is to get a better understanding of the definitions of the terms 'competence' and 'capabilities' out of - to borrow the phrase they use – this

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'terminological flotilla' (Dosi et al., 2000: 4).

The Oxford English Dictionary, Second Edition, 1989 'defines' 'competence' as "An adequate supply, a sufficiency of " and "Sufficiency of qualification; capacity to deal adequately with a subject". It defines 'capability' as "The quality of being capable in various senses", "Power or ability in general, whether physical or mental; capacity" and "An undeveloped faculty or property; a condition, physical or otherwise, capable of being converted or turned to use". 'Capable' in turn has been defined as "Able or fit to receive and be affected by; open to, susceptible" and "Having the needful capacity, power, or fitness for (some specified purpose or activity)".

The Webster Comprehensive Dictionary 'Encyclopaedic Edition, 1997' defines 'competence' as "The state of being competent; ability" and 'capability' as "The state or quality of being capable; capacity; ability" and "Susceptibility to some particular form of use, treatment, or development".

Although at a first glance at their dictionary meanings, the terms 'competence' and 'capability' seem alike, and numerous authors have used them interchangeably (e.g., Hamel, 1994: 12), a closer examination brings out subtle differences in their literary meanings. 'Competence' gives the feeling of something 'full', full of the capacity to deal with the subject at hand. On the other hand, 'capability' gives the positive feeling of 'some space still being left' that can be utilized to achieve the goal of any activity. These shades of differences lie in the realm of the abstract and hence the general tendency to use them interchangeably.

It is thus quite important to achieve a universal, common understanding of the exact definitions of these terms, so that their appropriate use can help in the systematic progress of both the theory and practice of strategic management. We shall make an attempt to achieve this purpose in the following pages. The first section will deal with the term resources to develop a critical understanding of the same. The second section will look into the term 'competence' and will trace the chronological path of various definitions that were given by numerous scholars. The third section will carry out the same exercise for the term 'capability'. Having studied the definitions, the next section will first revisit our understanding of the term 'resources' and then identify the common thread running through these definitions in an effort to reach a common definition of 'resources', 'competence' and 'capabilities'. Our conception of the resources - competence – capabilities linkage will also be enunciated. Finally in the fifth and final section we shall conclude the paper with suggestions for future research.

Resources

It is important to understand the meaning of the term 'resources' as used in the strategic

management literature. This is the core concept of the resource-based view (RBV) of the firm (Wernerfelt, 1984) and will serve as the building block of the succeeding discussion on competence and capabilities. The maiden prolific use of the term resources can be traced back to the works of Edith Penrose (1959: 24) who has conceptualized the firm as "… a collection of productive resources the disposal of which between different uses and over time is determined by administrative decision". Though, not explicitly defined, from her treatment of resources it is evident that she subscribes to the classical economic view of resources as land, labour, capital and information. Wernerfelt (1984), in his landmark paper on the resource-based view of the firm, defines resources as "… anything which could be thought of as a strength or weakness of a given firm. More formally, a firm's resources at a given time could be defined as those (tangible and intangible) assets which are tied semi-permanently to the firm" (Wernerfelt, 1984:172). He views resources much more broadly than the economic view and cites brand names, in-house knowledge of technology, employment of skilled personnel, trade contacts, machinery, efficient procedures, capital, etc. as examples of resources.

Barney (1991) in another milestone paper on the RBV adopts Daft's (1983) definition of firm resources to "…include all assets, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness" (Barney, 1991:101). But in response to Priem and Butler's (2001) critique on his 1991 article, Barney (2001: 54) says that "… [he] would [now] adopt a simpler definition of resources (i.e., resources are the tangible and intangible assets a firm uses to choose and implement its strategies)".

Grant (1991: 118) considers resources as the "inputs into the production process – they are the basic units of analysis." His examples of the individual resources of the firm include items of capital equipment, skills of individual employees, patents, brand names, finance, and so on. This definition of resources of Grant (1991) is exactly the opposite of Penrose's (1959: 25) view wherein she states – "Strictly speaking, it is never resources themselves that are the 'inputs' in the production process, but only the services that the resources can render". She also states that she is avoiding the use of the term 'factor of production' "… because it makes no distinction between resources and services, sometimes meaning the one and sometimes the other in economic literature" (Penrose, 1959: 25). She further elaborates on the difference between resources and services and says that the word 'service' implies "a function, an activity", whereas resources consist of "a bundle of potential services" (Penrose, 1959: 25).

Amit and Schoemaker (1993: 35) define resources as "stocks of available factors that

are owned or controlled by the firm". Nanda (1996: 103) defines resources as "the fixed, firm-specific input factors of production". Teece et al. (1997: 516) have defined resources as "firm-specific assets that are difficult if not impossible to imitate". They have quoted trade secrets and certain specialized production facilities and engineering experience as examples of resources.

All the above mentioned definitions point towards resources being "stocks or reserves upon which one [the firm] can draw when necessary" (The Oxford English Dictionary, Second Edition, 1989) or "a supply that can be drawn on [by the firm]" (Webster Comprehensive Dictionary, Encyclopaedic Edition, 1997).

Based on the blending of the above presented definitions adopted by scholars and the dictionary meaning of the term, we propose to define resources as - "*Resources are the tangible and intangible assets of a firm which can be drawn upon by the firm when required to achieve its objective(s)*". Resources of a firm are thus tangibles such as land, labour, plant and machinery, other physical assets, etc. as also intangibles such as knowledge (tacit and embedded), culture, reputation, goodwill, skills, etc. And since the firm is "a collection of productive resources" (Penrose, 1959: 24), it is thus justified to consider resources as the "basic units of analysis" (Grant, 1991:118) of the firm.

Competence

Table 1 contains the date, contributor(s) and their definitions of 'competence'. Terms such as 'distinctive' and 'core' have also been used by many authors, as adjectives to the term 'competence'. The words underlined in the definitions column are the terms defined by the contributors.

Table 1 : Chronological sequence of definitions of competence

Date	Contributor	Definition	Remarks
1957	Philip Selznick	[Distinctive competence] … an organization's peculiar adaptation to its own special purposes and programs.	Definition of distinctive competence. Competence can be inferred as an organization's 'adaptation' for various purposes.
1971	Andrews, K.	Distinctive competence is what an organization can do particularly well.	Definition of distinctive competence. The emphasis is on action.
1982	Bernard C. Reimann	…the organization's competence, or the potential to be effective in terms of long term growth and survival, ...	Definition of competence. The potential for effectiveness to achieve the objective of growth or survival is the focus.

Table 1 (Contd.): Chronological sequence of definitions of competence

Date	Contributor	Definition	Remarks
1990	C.K. Prahalad & Gary Hamel	Core competencies are the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technologies.	Definition of core competencies. The focus is on organization-wide learning.
1991	Collis, D.	[Core competencies are a] vector of irreversible assets along which the firm is uniquely advantaged.	Definition of core competencies. The emphasis is on advantage gained by possessing irreversible assets.
1992	Hall, R.	Distinctive competences are the capabilities the organization possesses that set it apart from its competitors	Definition of distinctive competence. This brings in capabilities into the definition with the emphasis being on competitive advantage.
1992	Hall, R.	[Skills or competencies are] the know-how of employees and other stakeholders and the collective aptitudes.	Definition of competencies. The emphasis is on organizational and stakeholder knowledge.
1994	William C. Bogner & Howard Thomas	Core competencies are firm-specific skills and cognitive traits directed towards the attainment of the highest possible levels of customer satisfaction vis-à-vis competitors.	Definition of core competencies. The emphasis is on gaining competitive advantage through firm-specific skills.
1994	Vittorio Chiesa & Maurizio Barbeschi	…, a competence can be defined as a unique mix of knowledge, skills and technologies leading the generation of a series of profitable innovations.	Definition of competence. Brings in innovations under the purview of competence. The instruments to attain competence are knowledge and skills.
1994	George S. Day	The capabilities of a corporation that span and support multiple lines of business are commonly called core competencies.	Definition of core competencies. Brings in capabilities in the definition.
1996	David Lei, Michael A. Hitt, & Richard Bettis	A firm's core competence(s) is defined as a set of problem-defining and problem-solving insights that fosters the development of idiosyncratic strategic growth alternatives.	Definition of core competence. The focus is on firm growth through cognitive skills.
1996	David Lei, Michael A. Hitt, & Richard Bettis	Dynamic core competences are based on the integration into systematic meta-learning of universal and tacit knowledge through information transfer, redefinition of heuristics and continuous improvement based on experimentation and the development of firm-specific skills based on dynamic routines.	Definition of dynamic core competence. Brings in dynamic routines into knowledge and skill development.

Table 1 (Contd.): Chronological sequence of definitions of competence

Date	Contributor	Definition	Remarks
1996	Sanchez, R., Heene, A. & Thomas, H.	[Competence is] the ability to sustain the coordinated deployment of assets in a way that helps a firm achieve its goal.	Definition of competence. Focused deployment of assets is the emphasis.
1996	Nicolai J. Foss	By 'competence', we understand a typically idiosyncratic knowledge capital that allows its holder to perform activities – in particular, to solve problems – in certain ways, and typically do this more efficiently than others.	Definition of competence. The emphasis is on knowledge.
1997	David J. Teece, Gary Pisano & Amy Shuen	Organizational routines/competences: When firm-specific assets are assembled in integrated clusters spanning individuals and groups so that they enable distinctive activities to be performed, these activities constitute organizational routines and processes.	Definition of competence. Used interchangeably with organizational routines. Help perform activities.
1997	David J. Teece, Gary Pisano, & Amy Shuen	We define those competences that define a firm's fundamental business as core [competences].	Definition of core competence.
1997	Ron Sanchez & Aime Heene	Competence, …, is the ability of an organization to sustain coordinated deployments of resources in ways that promise to help that organization achieve its goals.	Definition of competence. Deployment of resources is the focus.
1998	Dosi, Giovanni & Teece, D.	…a firm's distinctive competence needs to be understood as a reflection of distinctive organizational capabilities to coordinate and to learn. Posed differently, a distinctive competence is a differentiated set of skills, complementary assets, and organization routines which together allow a firm to coordinate a particular set of activities in a way that provides the basis for competitive advantage, in a particular market or markets.	Definition of distinctive competence. Brings in capabilities into the definition. Skills, assets and routines are all brought into the definition.

Table 1 (Contd.): Chronological sequence of definitions of competence

Date	Contributor	Definition	Remarks
1999	William C. Bogner, Howard Thomas, & John McGee	…, we posit that no skill or cognitive trait, no matter how refined, should be described as a 'competence' if it does not lead a firm, directly or indirectly, to a persistent competitive advantage by satisfying a customer need better than competitors, or at lower costs than competitors or by producing an advantageous combination of both.	Definition of competence. The focus is on competitive advantage.
1999	Howard Thomas & Timothy Pollock	A core competence is… a knowledge base or set of skills which is general enough to be applied in a variety of settings, results in a clearly defined benefit to the consumer, and is difficult, if not impossible, for other firms to replicate.	Definition of core competence. The focus is on competitive advantage through knowledge, skills.

The term 'distinctive competence' can be traced back to Selznick (1957) where he characterizes it as "an organization's peculiar adaptation to its own special purposes and programs" (Selznick, 1957: 50). His book is a perspective for the study of leadership in administrative organizations. His definition of distinctive competence is concerned with the adaptations and skills of the organization to carry out various activities or "action programs" (Selznick, 1957: 50). This action orientation of distinctive competence is also visible in Andrews' (1971) definition wherein he states that "distinctive competence is what an organization can do particularly well" (Andrews, 1971: 97).

Hall (1992) has brought in the competitive dimension into the definition of distinctive competence. His definition states that "distinctive competences are the capabilities the organization possesses that set it apart from its competitors" (Hall, 1992: 139). Another recent definition of distinctive competence by Dosi and Teece (1998) has combined skills, assets, processes, activities and competitive advantage. Their view is that "a distinctive competence is a differentiated set of skills, complementary assets, and organization routines which together allow a firm to coordinate a particular set of activities in a way that provides the basis for competitive advantage, in a particular market or markets".

One of the early definitions of 'competence' has been given by Reimann (1982). He considers the organization's competence to be the potential to be effective in terms of long term growth and survival (Reimann, 1982: 325). Hall (1992: 136) uses the term competencies synonymous with skills and defines it as the know-how of employees

and other stakeholders and the collective aptitudes. This same aspect of skills and knowledge recurs in Chiesa and Barbeschi's (1994) definition of competence – "… a competence can be defined as a unique mix of knowledge, skills and technologies leading the generation of a series of profitable innovations" (Chiesa and Barbeschi, 1994: 293).

Assets as constituents of competence are used in Sanchez, Heene, and Thomas' (1996) definition of competence. This same definition is repeated in Sanchez and Heene (1997). They consider competence to be "the ability of an organization to sustain coordinated deployments of resources in ways that promise to help that organization achieve its goal" (Sanchez & Heene, 1997: 7). Foss (1996: 1) brings in knowledge and efficient performance of activities in his definition of competence. Teece, Pisano, and Shuen (1997) in their seminal paper have taken competences as representative of organizational routines. Their definition links competence to firm-specific assets used for the performance of distinct activities through organizational routines or processes (Teece et al., 1997:516). Bogner, Thomas, and McGee (1999: 281) have considered the lending of competitive advantage as the necessary condition of competence.

A popular and oft-cited term is 'core competence'. This has been introduced by Prahalad and Hamel (1990). Their conceptualization of core competence is that of organizational learning especially related to the coordination of diverse production skills and integration of multiple technological streams (Prahalad & Hamel, 1990: 82). This seminal paper of theirs has spawned off numerous definitions and conceptualizations of core competence.

Collis (1991) brings assets and the competitive advantage which they provide, under the purview of core competence. Bogner and Thomas (1994: 113) bring in skills that lead to competitive advantage as a necessary condition of their definition of core competence. Day (1994) has defined core competence in terms of 'capabilities' that "span and support multiple lines of business" (Day, 1994: 39). Lei, Hitt, and Bettis (1996: 549) in their conceptualization of core competence and 'dynamic core competence' take into account firm-specific skills, learning and knowledge, and the resultant competitive advantage. A rather matter-of-fact definition of core competence – "those competences that define a firm's fundamental business as core" – is given by Teece et al. (1997: 516). A recent definition of core competence given by Thomas and Pollock (1999: 134) considers in its ambit skills and knowledge for the attainment of competitive advantage.

Capabilities

Table 2 contains the date, contributor(s) and their definitions of 'capabilities'. Terms such as 'strategic', 'core' and 'dynamic' have also been used by many authors, as adjectives to the term 'capabilities'. The words underlined in the definitions column are the terms defined by the contributors.

Table 2 : Chronological sequence of definitions of capabilities

Date	Contributor	Definition	Remarks
1969	Learned, E., C. Christensen, K. Andrews, & W. Guth	The capability of an organization is its demonstrated and potential ability to accomplish against the opposition of circumstance or competition, whatever it sets out to do.	Definition of capability. The emphasis is on ability to sustain competitive advantage.
1980	R. T. Lenz	[Strategic capability] is defined as the capability of an enterprise to successfully undertake action that is intended to affect its long-term growth and development. It refers to an organization's total capability, which includes support that may be summoned from environmental aggregates and projected in pursuit of a strategy.	Definition of strategic capability. The ability to act and grow is the focus.
1984	Teece, D. J.	Capabilities are the kind and amount of resources in place with which a firm can support its current competitive actions, respond to market change, and maintain growth.	Definition of capability. The focus is on resources possessed.
1984	Wernerfelt, B.	Resources, like capabilities, consist of assets that influence implementation, and proper fit with resources results in effective competitive strategy.	Definition of capabilities. The emphasis is on resources.
1989	Michael W. Lawless,Donald D. Bergh, & William D. Wilsted	... each firm's unique resource position, [is called] its "capabilities".	Definition of capability. The focus is on resources.
1990	David Ulrich & Dale Lake	[Organizational capability] is a business's ability to establish internal structures and processes that influence its members to create organization-specific competencies and thus enable the business to adapt to changing customer and strategic needs.	Definition of capability. Competence has been brought into the definition. Processes are also used in the definition.
1991	Grant, R. M.	Capability refers to the capacity for a team of resources to perform some task or activity.	Definition of capability. Resources are used in the definition.

Table 2(Contd.):Chronological sequence of definitions of capabilities

Date	Contributor	Definition	Remarks
1992	Paul J. H. Schoemaker	The following characteristics help define a core capability and can be used to score it relative to other core competencies: - It evolved slowly through collective learning and information sharing. - Its development cannot be greatly speeded up by doubling investments. - It cannot be easily imitated by or transferred (sold) to other firms. - It confers competitive advantage in the eyes of customers. - It complements other capabilities in a 2+2=5 fashion. - Investment in it is largely irreversible; that is, the firm cannot cash it out.	Definition of core capability.
1992	George Stalk, Philip Evans, & Lawrence E. Shulman	A capability is a set of business processes strategically understood.	Definition of capability. Business processes are the focus.
1992	George Stalk, Philip Evans, & Lawrence E. Shulman	[Strategic capability]: A capability is strategic only when it begins and ends with the customer.	Definition of strategic capability. Customer is the focus.
1992	Leonard-Barton, D.	Core capability is a knowledge set that distinguishes and provides a competitive advantage and it comprises of four dimensions: (1) employee knowledge and skills, that are embedded in (2) technical systems. Its processes are guided by (3) managerial systems and (4) values and norms associated with the various types of embodied and embedded knowledge and with the processes of knowledge creation and control.	Definition of core capability. Knowledge and processes play an important role in this definition.

Table 2(Contd.): Chronological sequence of definitions of capabilities

Date	Contributor	Definition	Remarks
1993	Raphael Amit & Paul J. H. Schoemaker	Capabilities,…, refer to a firm's capacity to deploy resources, usually in combination, using organizational processes, to effect a desired end.	Definition of capability. Resources and processes are emphasized.
1993	Treacy, M. & F. Wiersema	[Capabilities are] one of three value disciplines – operational excellence, customer intimacy, or product leadership.	Definition of capability.
1994	Henderson, R. M. & I. Cockburn	[Capabilities are] the organizational abilities to deploy the firm's resources and to develop new ones.	Definition of capability. Resources are emphasized.
1994	George S. Day	Capabilities are complex bundles of skills and collective learning, exercised through organizational processes that ensure superior coordination of functional activities.	Definition of capability. Skill, learning and processes are used in the definition.
1994	David J. Collis	…. define organizational capabilities as the socially complex routines that determine the efficiency with which firms physically transform inputs into outputs.	Definition of capability. Routines are the focus.
1996	Robert M. Grant	[Organizational capability is] defined as a firm's ability to perform repeatedly a productive task which relates either directly or indirectly to a firm's capacity for creating value through effecting the transformation of inputs into outputs.	Definition of capability. Performance of action is emphasized.
1997	David J. Teece, Gary Pisano, & Amy Shuen	We define dynamic capabilities as the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments.	Definition of dynamic capability. Competence has been brought into this definition.
1997	David J. Teece, Gary Pisano, & Amy Shuen	The ability to achieve new forms of competitive advantage is referred to as 'dynamic capabilities' to emphasize… The term 'dynamic' refers to the capacity to renew competences so as to achieve congruence with the changing business environment;… The term 'capabilities' emphasizes the key role of strategic management in appropriately adapting, integrating, and reconfiguring internal and external organizational skills, resources, and functional competences to match the requirements of a changing environment.	Elaboration of dynamic capability. Resources and skills are part of the definition of capability.

Table 2(Contd.) : Chronological sequence of definitions of capabilities

Date	Contributor	Definition	Remarks
1998	Dosi, Giovanni & Teece, D.	By 'organizational capabilities' we mean the capabilities of an enterprise to organize, manage, coordinate, or govern sets of activities.	Definition of capability. The focus is on action.
2000	Sidney G. Winter	An organizational capability is a high-level routine (or collection of routines) that, together with its implementing inputs flows, confers upon an organization's management a set of decision options for producing significant outputs of a particular type.	Definition of capability. Routines are emphasized.

One of the earliest known definitions of capabilities has been given by Learned, Christensen, Andrews, and Guth (1969). According to them, capabilities are the 'abilities' that allow an organization to achieve its goal in the face of opposition and competition. Wernerfelt (1984) in his seminal paper on the resource-based view likens resources to capabilities and states that they consist of assets that could lead to competitive advantage. Teece (1984) too brings in the consideration of resources that lend competitive advantage, in his definition of capabilities. Lawless, Bergh, and Wilsted (1989: 650) consider capabilities to be "each firm's unique resource position".

Perhaps the first ever conceptualization of capabilities as an organization's internal structures and processes has been made by Ulrich and Lake (1990). They consider organizational capabilities to be "the business's ability to establish internal structures and processes that influence its members to create organization-specific competencies and thus enable the business to adapt to changing customer and strategic needs" (Ulrich & Lake, 1990: 40). Grant (1991) brings in the capacity of a team of resources to perform activities, in his definition of capabilities. Stalk, Evans, and Shulman (1992) bring in the concept of strategic understanding of business 'processes' into their definition of capabilities.

Amit and Schoemaker (1993) define capabilities as "a firm's capacity to deploy resources, usually in combination, using organizational processes, to effect a desired end" (Amit and Schoemaker, 1993: 35). Henderson and Cockburn (1994) also take firm resources into the ambit of their use of the term 'capabilities'. Day's (1994: 38) definition of capabilities takes into account complex bundles of skills and collective learning, exercised through organizational processes that ensure superior coordination of functional activities. Collis (1994: 145) too defines "organizational capabilities as

the socially complex routines that determine the efficiency with which firms physically transform inputs into outputs". Dosi and Teece (1998) mainly focus on the carrying out of activities in their definition of organizational capabilities. They consider it to be the "capabilities of an enterprise to organize, manage, coordinate, or govern sets of activities". Winter (2000: 983) defines capabilities in terms of routines used to transform inputs to outputs.

Some scholars have used terms such as 'strategic capabilities', 'core capabilities' and 'dynamic capabilities'. According to Lenz (1980: 226), "[Strategic capability] is defined as the capability of an enterprise to successfully undertake action that is intended to affect its long-term growth and development. It refers to an organization's total capability, which includes support that may be summoned from environmental aggregates and projected in pursuit of a strategy". Stalk, Evans, and Shulman (1992: 62) consider only that capability as strategic which "begins and ends with the customer".

Some scholars have attempted the characterization of 'core capabilities'. Schoemaker (1992: 75) characterizes core capabilities as the ones - a) that have undergone slow evolution through collective learning and sharing of information, b) whose development is not directly proportional to the amount of investments, c) that are not easily imitable or transferable, d) that give competitive advantage, e) that are synergistic with other capabilities, and f) with irreversible investments made in them. Leonard-Barton (1992) also provides a few dimensions that distinguish core capabilities from the others. She has considered a core capability to be a knowledge set that confers competitive advantage and "is made up of employee skills and knowledge that are embedded in the technical systems. The processes are guided by managerial systems and values and norms associated with the various types of embodied and embedded knowledge and with the processes of knowledge creation and control" (Leonard-Barton, 1992: 113).

'Dynamic capabilities' as a concept has been introduced by Teece et al. (1997: 516). Their use of the term 'dynamic' refers to the capacity of the organization to renew competences to be in line with the changing business environment. The term 'capabilities' in their definition of 'dynamic capabilities' deals with the adaptation, integration and reconfiguration of internal and external organizational skills, resources, and functional competences to match the requirements of the changing environment.

Discussion

When we consider the term 'competence', the various conceptualizations and definitions of competence, distinctive competence and core competence in vogue, given in the brief outline above in the section on 'competence', illustrate the medley of meanings that can be derived from each one of them. Every scholar has conceptualized

and adapted the terms to the particular context being addressed. Further, Hall (1991) and Day (1994) have used the term 'capabilities' in their definition of competence. This is representative of the prevailing lack of clarity about these terms. It is our contention that the indiscriminate use of these terms may have led to the obstruction of meaningful insights being obtained about organizational issues occurring in the realm of competence.

We are unable to arrive at any significant and meaningful practical differences between, for example, competence and distinctive competence, or between core competence and distinctive competence. In the light of the preceding discussion about numerous definitions being followed by various scholars, we find that most differences of definitions that exist appear to be purely semantic, repetitive and topic-based. We need to examine whether it is at all relevant to indulge in this tautology.

On closer examination of the definitions of competence (see Table 1), we find some terms occurring frequently, though in fragmented form, across all the definitions. These terms are - skills, knowledge, activities, routines, assets, and competitive advantage. These seem to comprise the common thread running through a majority of the definitions of competence, distinctive competence and core competence.

Referring back to the dictionary meaning of competence, we find that competence is characterized by sufficiency of qualification or a capacity to deal adequately with a subject. Since the definitions of competence revolve around skills, knowledge and assets, we can take these as the qualifiers of the definition of competence. The skills that are referred to here are firm-specific in nature. Sufficiency of supply of these qualifications will give the firm, the "capacity to deal adequately with the subject". These qualifications in turn are part of our definition of resources. Thus we can say that sufficient availability of firm-specific resources will help a firm deal with a subject adequately. Terms such as activities and routines cannot be qualifiers since it is meaningless to talk of the sufficiency of activities or routines. It therefore does not appear justified to use these terms in the definition of competence.

The 'subject' in the various definitions of competence outlined above is competitive advantage. This does not mean that the subject is restricted only to competitive environments. The subject, for example, can also be related to social causes if we are studying the competences of a voluntary organization, in which case a different set of firm-specific skills will be required to help the organization deal appropriately with its subject of social welfare, say. The focus of the dictionary meaning of competence is on sufficiency of qualifications. The subject for which this sufficiency is required is not to be considered as an integral part of the definition of competence. We now see that competence should connote only the firm-specific resources made up of both

tangible and intangible assets. So we find that the basic building blocks are firm-specific resources which combine to form competences of a firm. The moment we bring in the notion of combination of resources, we get into the zone of processes. These processes are the means of combining and extracting work out of firm-specific resources to attain specific objective(s).

Therefore, when more than one sufficiently available firm-specific resource is linked together by a wide range of bonding mechanisms and formal and informal organizational processes, a competence is formed. For instance, a group of technologists and designers, sufficient in number and knowledge, work together to combine their knowledge, duly governed and supported by the organizational environment and routines, when develop a miniaturized form of any product, what is underlying this successful development is miniaturization competence. Similarly a group of engineers and technicians, sufficient in number and skills, utilize the sufficient set of machinery, duly governed and supported by the organizational environment and routines, when manufacturing a product according to design specification, what is underlying this successful manufacturing is manufacturing competence. *We thus define competence as a combination of firm-specific resources, each of the resources being under the state of sufficiency, which are glued together by various relevant organizational processes, routines, and bonding mechanisms, towards achieving specific organizational objective(s).*

When we turn to capabilities we find a similar plethora of definitions of the terms capabilities, strategic capabilities, core capabilities and dynamic capabilities. Scholars such as Ulrich and Lake (1990) and Teece et al. (1997) have used the term 'competences' in their definitions of capabilities. There appears to be limited clarity on what exactly constitutes capability.

The terms that are used relatively frequently by scholars in their definitions of capability are ability, resources, assets, activities, routines, processes and competitive advantage. As we have already seen, these terms are used equally frequently in the definitions of competence too. So this compounds the difficulty of comprehending the difference between 'competence' and 'capability'.

On revisiting the dictionary meaning of the term 'capabilities', we find that it is the quality of being able or fit to receive and be affected by, or having the needful capacity, power, or fitness for (some specified purpose or activity). It thus connotes something that is capable of being converted or turned to use. Competence, i.e., the requisite sufficiency in the necessary qualification, has to be present. This competence can then be affected, converted or used to achieve the purpose. So competence is a necessary condition for capabilities. Therefore, when more than one competence is linked together by a wide range of bonding mechanisms and formal and informal

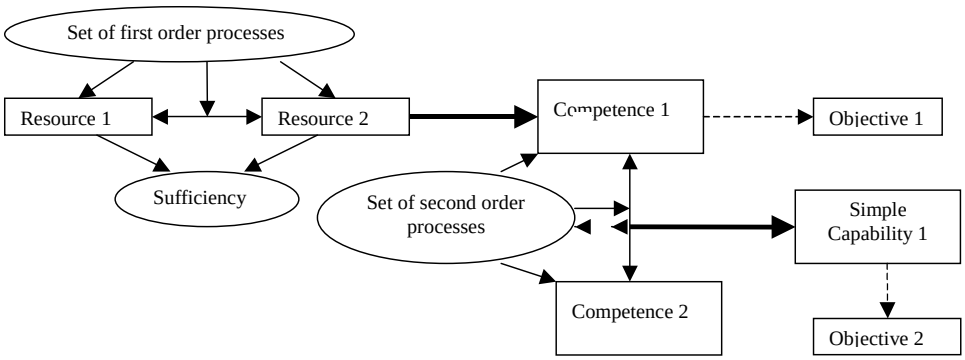
organizational processes, a capability is formed. For example, a complex combination of competencies in different functional areas of a firm such as R&D, design, marketing, and manufacturing collectively may give rise to product development capability. As in the case of competence, we find that it appears erroneous to consider competitive advantage as the necessary purpose of capabilities, since there may be several other organizational objectives. *We define capability as a complex combination of appropriate set of competences, glued together by various relevant organizational processes, routines, and bonding mechanisms, towards achieving specific organizational objective(s).*

Even though the flow of stages from firm resources to firm objective appears linear, it is not so. Each stage consists of recursive steps that keep adding on and modifying the building blocks to finally achieve the necessary competence or capabilities. We need to differentiate here between first order, second order and third order processes. First order processes are a set of organizational processes that can act on a bundle of resources to develop an organizational competence. The level of sufficiency of each constituent resource of the bundle need not necessarily be measurable, or need not be adequate even if measurable. In fact, there might even be lack of clarity on what level of presence can be regarded as rendering each individual resource sufficient by itself. This is because many individual resources are not useful by themselves. On being acted upon by first order processes, this bundle of resources gets transformed into a more useful resource, the sufficiency of which helps the firm achieve its objective. Carrying the same logic forward, we can understand that a sufficient supply of a single resource or a combination of resources leading to a certain organizational competence may not be very useful in helping the firm attain its purpose. The single competence itself may need to be combined with other competences through suitable processes to make the organization capable of attaining the purpose. Hence we need to distinguish between first order and higher order processes acting on the linkages at various levels.

Second order processes act on multiple competences, mesh them together and facilitate the formation of the requisite simple capability to achieve its objective. Similarly, third order processes act on combinations of the firm's simple capabilities, interweave them, enable them collectively, and result in the formation of higher order complex capabilities.

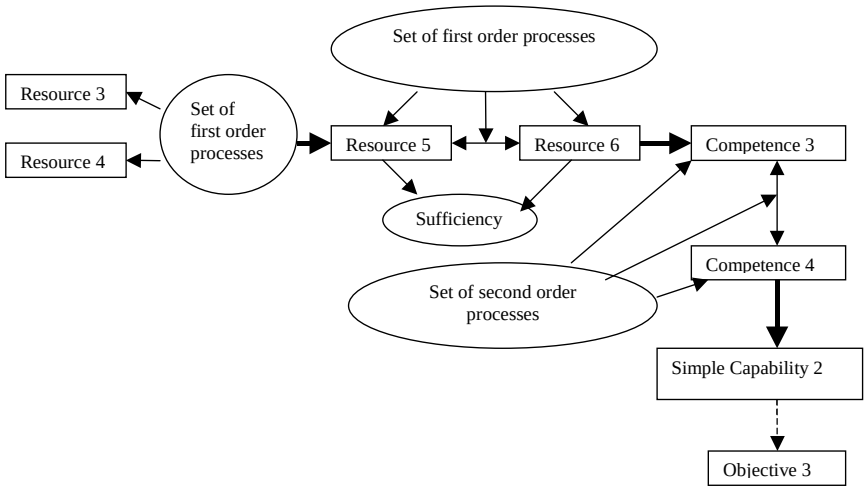
Our conceptualizations of the resources – competences – capabilities linkages in an organization are given in the figures below.

Figure 1



In Figure 1 there are two firm specific resources, Resource 1 and Resource 2. When these resources reach sufficiency and are acted upon by a set of first order processes, the said firm acquires a competence (Competence 1) that is useful to achieve an objective (Objective 1). When a set of second order processes act on and combine

Figure 2



this competence and another competence (Competence 2), the firm acquires a simple capability (Simple Capability 1), useful to achieve an objective (Objective 2).

Figure 2 shows another possible variant of the resource-competence-capability linkage. In this case, two firm resources (Resource 3 and Resource 4) are acted upon and combined by a set of first order processes leading to formation of a new firm resource (Resource 5).When the firm achieves sufficiency in Resource 5 and is acted upon by a set of first order processes to combine with another sufficient Resource 6, it will be taken to possess a competence (Competence 3) pertaining to these resources. Then a set of second order processes when act on to combine Competence 3 and Competence 4 of the firm, a simple capability (Simple Capability 2) is formed that is useful to attain its objective (Objective 3).

Figure 3

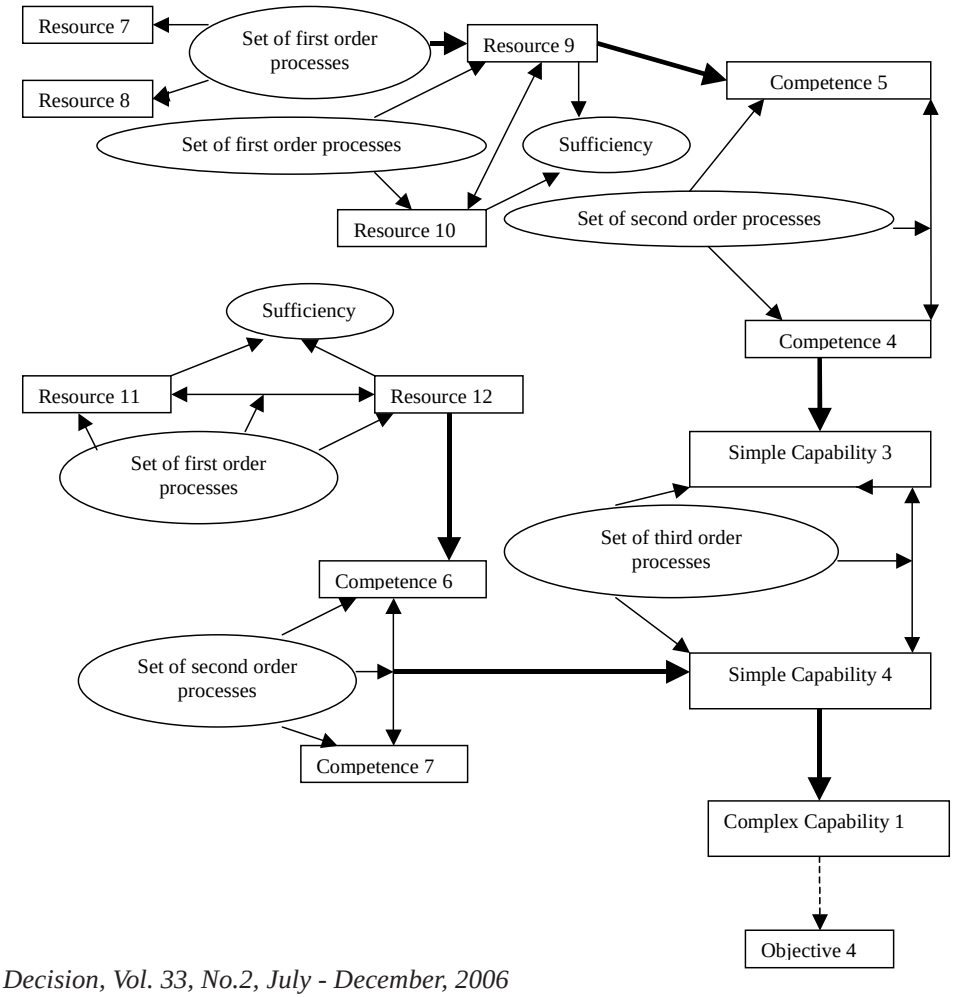


Figure 3 is an extension of the second case. Here, two firm resources (Resource 7 and Resource 8) are acted upon and combined by a set of first order processes leading to formation of Resource 9. When Resource 9 reaches sufficiency and is acted upon by a set of first order processes to combine with another sufficient Resource 10, it results in the firm gaining a competence (Competence 5). When this Competence 5 is acted upon by a set of second order processes to combine with Competence 4 a simple capability is formed (Simple Capability 3). Similarly, when Resource 11 reaches sufficiency and is acted upon by a set of first order processes to combine with another sufficient Resource 12, a new competence (Competence 6) pertaining to these two resources is formed. When a set of second order processes act on to combine Competence 6 and Competence 7, another simple capability (Simple Capability 4) is formed. Now the earlier simple capability (Simple Capability 3) and the newer simple capability (Simple Capability 4) are acted upon and combined by a set of third order processes to give the firm a complex capability (Complex Capability 1). This capability helps the firm attain its objective (Objective 4).

As can be clearly seen from the figures given above, firm-specific resources are the basic building block of competences and capabilities of a firm. However, to attain competence in any area, a firm needs to have sufficient resources in that area. It is also to be noted that sufficiency of resources is a necessary but not a sufficient condition for acquiring competence, as the resources need to be acted upon and combined by an appropriate set of processes. Moreover, the presence of a set of competences is not enough for a firm to reach all its goals. It also needs to develop and deploy a set of simple and complex capabilities combining multiple competences to reach its more difficult goals.

We now illustrate this conceptualization through an example. Let us consider the new product development capability of a pharmaceutical firm, i.e., the ability to research, develop and launch new compounds for its target market. This firm has individual knowledge resources in the form of embedded knowledge, knowledge in its scientific manpower, and huge databases of previous research and development work. A critical mass or sufficiency of such a combined knowledge resource has to be reached through collaboration among its scientists, through incremental research and development work and through analysis and interpretation of existing and newly generated information. This can be reached by a set of first order processes acting on the bundle of the individual knowledge resources. Only when this state of sufficiency is met can we say that the firm has the knowledge resource to produce the new compound. Else, with half baked or hastily worked out knowledge, the firm will not be able to bring out the compound, thus exhibiting its lack of the relevant knowledge resource. But the presence of this knowledge resource alone cannot help the firm to achieve its purpose of say,

introducing a new compound every three years. When this knowledge resource along with sufficiently available various requisite chemical ingredients pass through a series of experimenting, problem solving and interpretive processes using sufficient set of laboratory equipments, a competence in the area of new drug formulation gets developed, which is useful to reach its objective of developing a new compound at the laboratory stage. Similarly, the firm needs competence in the area of clinical trials to progress further. It can acquire, develop or outsource the clinical competence. When these two competences are combined, being acted upon by a set of higher order processes, a simple capability called drug discovery capability is formed. This is an example of a simple capability.

Similarly, combining the competences in the area of regulatory approval from the Drug Authorities, marketing of drugs to the doctors, and distribution of drugs to the pharmacies through a set of higher order processes a simple capability, say, drug launch capability is formed. Now when these two simple capabilities, drug discovery capability and drug launch capability, developed through these steps of first, second and third order processes acting on the relevant resources and competences respectively, are acted upon and combined with manufacturing competence by a set of fourth order processes, a complex capability called the new product development capability is formed. This capability developed by combining resources and competences around a number of activities along the value chain helps provide the firm the ability to successfully achieve its goal of introducing new drugs, for example, a new drug in every three years.

It is also evident that there is a fundamental connection between competences, capabilities and value chain activities. Prior activities using firm resources over time help build and accumulate competence and capabilities. The distinction among activities, processes and resources gets blurred as we move from observing simple competence to more complex capabilities. It is also to be noted that while competences in a firm are developed around a group of homogeneous interrelated activities along the value chain, capabilities are developed around a group of heterogeneous activities of the value chain.

Conclusion

We have through this paper attempted to re-direct attention to the importance of arriving at a common definition of the terms ‘competence’ and ‘capabilities’. We have illustrated the prevailing confusion about the exact meanings of these terms in the extant literature. The adaptation of the terms to fit various contexts, either alone or with adjectives, may have led to incorrect approaches to various problems using the

partially understood definitions of these terms. It is hence important to restore and maintain the pristine purity of the exact definitions of competence and capability.

Our paper has aimed at arriving at a 'pure' definition of the terms competence and capabilities. In doing so, we have used resources as the basic building blocks of competences, and competences, in turn, as the building blocks of capabilities. We have systematically arrived at definitions of each of these terms which, we hope, would not only help bring greater clarity about the concepts but also enable scholars capture the exact substance of the same in future empirical research. Capabilities have also been distinguished into simple and complex varieties. The first, second, and third order processes that link each of these building blocks have been elaborated in the paper. These basic definitions and linkages need further operationalisation depending on the research contexts and problems. However, one must guard against the temptation to use adjectives or enlarge the scope of the definitions during course of further operationalisation. Else, this will again result in renewed confusion about the meanings of these terms. Tautological manifestations of the basic definitions must be avoided and if identified must be eliminated to help advance knowledge significantly.

Issues that need to be resolved through empirical research pertain to the categorization of various types of resources, competences and capabilities, and establishing various linkages among the three. Since the purpose of the organization will dictate the specific resources and processes that the firm would need for its attainment, competence and capabilities will have to be segregated into categories. The first order processes that act on resources to result in competence-building resources need to be understood. The measures of sufficiency of resources which indicates that a firm has competence pertaining to those very resources will have to be arrived at. Different kinds of second order organizational processes used to extract work out of competences by making the firm capable of realizing its purpose should be studied to categorize both the processes and the simple capabilities. Similarly, third order processes and their resulting in complex capabilities will also have to be operationalised and empirically validated. Organizational processes present a vast area of study. It might be interesting to understand how the entire chain starting from resources through competences and capabilities is used through processes to achieve the organizational goal. The foundation of the results of such empirical studies will be strong if the scholars work with a common definitional understanding and usage of the terms competence and capabilities.

References

Amit, R., & Schoemaker, P. J. H. 1993. Strategic assets and organizational rent. *Strategic Management Journal*, 14: 33-46.

Andrews, K. 1971. *The concept of corporate strategy.* Bombay: Taraporevala

Publishing Industries Private Limited.

Barney, J. 1991. Firm resources and sustained competitive advantage. *Journal of Management,* 17: 99-120.

Barney, J. 2001. Is the resource-based "view" a useful perspective for strategic management research? Yes. *Academy of Management Review,* 26: 41-56.

Bogner, W. C., and Thomas, H. 1994. Core competence and competitive advantage: A model and illustrative evidence from the pharmaceutical industry. In Hamel, G., and Heene, A. (Eds.), *Competence-based competition*: 111-144. West Sussex, England: John Wiley and Sons.

Bogner, W. C., Thomas, H., and McGee, J. 1999. Competence and competitive advantage: Towards a dynamic model. *British Journal of Management,* 10: 275-290.

Chiesa, V., and Barbeschi, M. 1994. Technology strategy in competence-based competition. In Hamel, G., and Heene, A. (Eds.), *Competence-based competition*: 293-314. West Sussex, England: John Wiley and Sons.

Collis, D. 1991. A resource-based analysis of global competition: The case of the bearings industry. *Strategic Management Journal,* 12: 49-68.

Collis, D. J. 1994. Research note: How valuable are organizational capabilities? *Strategic Management Journal,* 15: 143-152.

Daft, R. 1983. *Organization theory and design.* New York: West.

Day, G. S. 1994. The capabilities of market-driven organizations. *Journal of Marketing,* 58(October): 37-52.

Dosi, G., and Teece, D. 1998. Organizational competencies and the boundaries of the firm. In Arena, R., and Longhi, C. (Eds.), *Markets and organization:* 281-301. New York: Springer-Verlag.

Dosi, G., Nelson, R. R., and Winter, S. G. 2000. Introduction: The nature and dynamics of organizational capabilities. In Dosi, G., Nelson, R. R., and Winter, S. G. (Eds.), *The nature and dynamics of organizational capabilities:* 1-22. New York: Oxford University Press.

Foss, N. J. 1996. Introduction – The emerging competence perspective. In Foss, N. J., and Knudsen, C. (Eds.), *Towards a competence theory of the firm:* Routledge: London.

Grant, R. M. 1991. The resource-based theory of competitive advantage: Implications for strategy formulation. *California Management Review,* 33: 114-135.

Grant, R. M. 1996. Prospering in dynamically-competitive environments: Organizational capability as knowledge integration. *Organization Science,* 7: 375-387.

Hall, R. 1992. The strategic analysis of intangible resources. *Strategic Management Journal,* 13: 135-144.

Hamel, G.1994. The concept of core competence. In Hamel, G., and Heene, A. (Eds.), *Competence-based competition:* 11-33. West Sussex, England: John Wiley and Sons.

Henderson, R. M., and Cockburn, I. 1994. Measuring competence? Exploring firm effects in pharmaceutical research. *Strategic Management Journal,* 15: 63-84.

Hoopes, D.G., Madsen, T.L. and Walker, G. 2003. Why is there a resource-based-view? Toward a theory of competitive heterogeneity. *Strategic Management Journal,* 24: 889-902.

Lawless, M. W., Bergh, D. D., and Wilsted, W. D. 1989. Performance variations among strategic group members: An examination of individual firm capability. *Journal of Management,* 15: 649-661.

Learned, E., Christensen, C., Andrews, K., and Guth, W. 1969. *Business policy: Text and cases.* Homewood, IL: Irwin.

Lei, D., Hitt, M. A., and Bettis, R. 1996. Dynamic core competences through meta-learning and strategic context. *Journal of Management,* 22: 549-569.

Lenz, R. T. 1980. Strategic capability: A concept and framework for analysis. *Academy of Management Review,* 5: 225-234.

Leonard-Barton, D. 1992. Core capabilities and core rigidities: A paradox in managing new product development. *Strategic Management Journal,* 13: 111-125.

Nanda, A. 1996. Resources, capabilities and competencies. In Moinegeon, B. and Edmondson (Eds.), *Organizational learning and competitive advantage,* 93-119. London: Sage.

Penrose, E. T. 1959. *The theory of the growth of the firm.* Delhi: Khosla Publishing House.

Prahalad, C. K., and Hamel, G. 1990. The core competence of the corporation. *Harvard Business Review,* May-June: 79-91.

Priem, R. L., and Butler, J. E. 2001. Is the resource-based "view" a useful perspective for strategic management research? *Academy of Management Review,* 26: 22-40.

Reimann, B. C. 1982. Organizational competence as a predictor of long run survival and growth. *Academy of Management Journal,* 25: 323-334.

Rugman, A. M., and Verbeke, A. 2002. Edith Penrose's contribution to the resource-based view of strategic management. S*trategic Management Journal,* 23: 769-780.

Sanchez, R., Heene, A., and Thomas, H. 1996. Towards the theory and practice of competence-based competition. In Sanchez, R., Heene, A., and Thomas, H. (Eds.), *Dynamics of competence-based competition: Theory and practice in the new strategic management:* Oxford: Elsevier.

Sanchez, R., and Heene, A. 1997. Competence-based strategic management: Concepts and issues for theory, research, and practice. In Heene, A., and Sanchez, R. (Eds.), *Competence-based strategic management:* 3-42. West Sussex, England: John Wiley & Sons.

Schoemaker, P. J. H. 1992. How to link strategic vision to core capabilities. *Sloan Management Review,* Fall: 67-81.

Selznick, P. 1957. *Leadership in administration*. New York: Row, Peterson and Company.

Stalk, G., Evans, P., and Shulman, L. E. 1992. Competing on capabilities: The new rules of corporate strategy. *Harvard Business Review,* March-April: 57-69.

Teece, D. J. 1984. Economic analysis and strategic management. In Pennings, J. H. (Ed.), *Strategy for decision making in complex organizations:* 78-101. San Francisco, CA: Jossey-Bass.

Teece, D. J., Pisano, G., and Shuen, A. 1997. Dynamic capabilities and strategic management. *Strategic Management Journal,* 18: 509-233.

Thomas, H., and Pollock, T. 1999. From I-O economics' S-C-P paradigm through strategic groups to competence-based competition: Reflections on the puzzle of competitive strategy. *British Journal of Management,* 10: 127-140.

Treacy, M. and Wiersema, F. 1993. Customer intimacy and other value disciplines. *Harvard Business Review,* 71: 84-93.

Ulrich, D., and Lake, D. 1990. *Organizational capability – Competing from the inside out.* New York: John Wiley and Sons.

Wernerfelt, B. 1984. A resource-based view of the firm. *Strategic Management Journal,* 5: 171-180.

Winter, S. G. 2000. The satisficing principle in capability learning. *Strategic Management Journal,* 21: 981-996.

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