Adding dynamics to core competence concept applications

Urban Ljungquist

School of Management, Blekinge Institute of Technology, Karlskrona, Sweden

Abstract

Purpose – This paper seeks to enhance practical applications, by refining the original core competence concept to better fit dynamic environments.

Design/methodology/approach – This paper combines theoretical research streams treating core competence and dynamic capability.

Findings – The original core competence concept cannot help managers with today's dynamic business environments. This paper theoretically reviews conceptions of core competence to enhance dynamism and better align theory and practice. The author concludes that a core competence could become more dynamic in three ways, by: balancing itself with the external environment and including external activities and processes; reducing path-dependency influences; and carefully "orchestrating" resources, by guidance rather than control, to release the inherent potential of project teams.

Research limitations/implications – The author rejuvenates a popular concept by including contemporary, more dynamic considerations; however, his propositions need to be tested empirically.

Practical implications – Three criteria are reformulated to match contemporary dynamism; these are also rephrased to better meet practical applications and take account of the internal sharing and transfer of competencies. This supplements the practitioner's toolbox for managing core competence in a company. For ideal core competence dynamism, managers should selectively incorporate external information and adapt external activities and processes, all to match the existing internal resource base.

Originality/value – This paper incorporates contemporary dynamics in an important strategy concept.

Keywords Core competences, Dynamic capability, Market access, Competitively unique, Customer benefits, Competences, Customers

Paper type Conceptual paper

Introduction

When the core competence concept was introduced in 1990, considerable strategic management research focused on firm growth, in particular, on firm diversification (Markides and Williamson, 1994; Pehrsson, 2006; Rumelt, 1982). In fact, the core competence concept was based largely on the notion of diversification, in that it stressed expanding the corporate enterprise by transferring good practices into new products and markets (Bakker *et al.*, 1994; Prahalad and Hamel, 1990). Growth remains the aim of today's companies, as it was when the core competence concept was introduced, except for the diversification focus. However, growth-seeking managers today often face dynamic, high-velocity environments (Eisenhardt and Martin, 2000; Wirtz *et al.*, 2007) with open innovation networks, complex supply sources, empowered and connected customers, and the continuous entry and exit of competitors (Chesbrough and Teece, 2002; Eisenhardt *et al.*, 2010; Fowler *et al.*, 2000), such as in the information and communication technology sector.

The dynamics of the (external) environment also influence companies internally, for example, fluctuating market positions and roles blur organizational boundaries,

causing business models to undergo constant development (Wirtz *et al.*, 2007). Although the concept itself implies dynamics (Gupta *et al.*, 2009), for example, in the expression "organizational learning" and "knowledge transfer" (Prahalad and Hamel, 1990), it has mainly been developed to emphasize issues of identification (Javidan, 1998), instead of increasing its dynamic capacity. In addition, companies' internal and external environments differ greatly from those existing when the core competence concept was introduced (Antoniou and Ansoff, 2004), and today the content and range of a core competence is subject to constant change (McDermott and Coates, 2007). Thus, there is a need to refine the concept to be applicable to more contemporary dynamic environments.

A reason for the lack of progress towards more dynamism, despite the core competence concept's appealing expressions (e.g. "the collective learning in the organization"; Prahalad and Hamel, 1990), is that the concept has long been criticized for being vague (Clark and Scott, 2000; Hafeez *et al.*, 2002; McDermott, 2003) particularly in practical applications (Javidan, 1998; Torkkeli and Tuominen, 2002). In fact, some researchers believe that ambiguity negatively impacts a firm's dynamic capability (Chen and Lee, 2009) and that the vagueness of the core competence concept has hindered its further development and rendered it deficient for practical application (Hafsi and Thomas, 2005; Walsh and Linton, 2002; Wang *et al.*, 2004). We need to be cautious when defining the concept to update its dynamic aspect, and we also need to consider issues concerning practical application. The paper seeks to enhance the practical application of "core competence" by refining the original concept for more contemporary and dynamic environments.

The paper is structured as follows: first, we review the literature on the core competence concept and the dynamic capability framework. Second, we review the two original conceptualizations of core competence and propose more concrete formulations. Third, we advance the core competence concept by proposing refinements applicable in more contemporary environments; in particular, we add dynamic capability considerations to the refined core competence concept. The paper ends by presenting conclusions as well as suggestions for managers and further research.

Literature review
Core competence
Core competence has been a very popular concept among scholars and practitioners for the last 20 years, and has been developed in diverse directions (Bogner and Thomas, 1995). Scholars claim that a core competence can be distinguished by four capability attributes (Rumelt, 1994) or defined as the vector of irreversible assets (Collis, 1991). The vector concept can be seen as indicating path-dependency (Dierickx and Cool, 1989; Leonard-Barton, 1992; Teece *et al.*, 1997), in the sense of an accumulation of historic decisions and investments. One researcher has proposed an eight-step method for identifying a firm's core competencies (Javidan, 1998), and a third research group suggests an identification process that builds on more than 600 competence survey items, taken from a review of the strategy literature (Yang *et al.*, 2006). Other scholars have proposed that the core competence concept consists of three components (Wang *et al.*, 2004) – marketing, technological, and integrative competencies – and measured the effects of these components on firm performance. Core competence has also been viewed as a strategic platform (Unland and Kleiner, 1996), linked to

sustainable competitive advantage (Post, 1997), and more holistically, linked to company meta-learning (Lei *et al.*, 1996). The concept has been categorized according to various levels of performance in the innovation process (Pennings *et al.*, 1996). Yet another research project validated a scale for core competence identification based on shared vision, cooperation, and empowerment (Agha *et al.*, 2012). Another approach aligned the core competence concept to practical engineering in a car design department (Bonjour and Micaelli, 2010). Thus, there is a long tradition of refining and developing the applicability of the core competence concept, in both research and practice. Nevertheless, the concept still has some limitations.

Clark (2000) studied attempts to implement core competence as a strategy, finding severe confusion among respondents due to the concept's abstraction. Similar findings were reported more recently by Nicolai and Dautwiz (2010), when studying the concept's ambiguity among large corporation managers; they reported that managers "reduced the richness of the core concept's original knowledge structure to a principle" (p. 887).

Despite this ongoing concept development, in specific core competence applications, managers still have difficulties fully adapting the core competence concept, even for practical applications (Clark, 2000; Ljungquist, 2008). A main reason is the abstract formulation of the original definitions: "the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technologies" (Prahalad and Hamel, 1990), and "a bundle of skills and technology that enable a company to provide benefit to customers" (Hamel and Prahalad, 1994). For enhanced validity, we refer to the original definition (Prahalad and Hamel, 1990) in the following review.

We now start to refine the theoretical aspects of the core competence concept as such, since it has two meanings as originally conceived:

(1) a definition, i.e. "the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technologies"; and

(2) three criteria that distinguish a core competence from a regular competence (Prahalad and Hamel, 1990).

Unfortunately, these two aspects[1] are mismatched. The original definition is abstract and thus difficult to apply in practice. The three criteria, on the other hand, are more concretely expressed, though less comprehensive in scope than the definition. The original definition describes the "ideal" of core competence in normative terms. The three criteria, formulated simultaneously by the initiators, outline the concept in positive terms by suggesting how to distinguish a core from a non-core competence. Briefly stated, a core competence:

(1) contributes significantly to the customer benefit of a product;

(2) is competitively unique; and

(3) potentially provides access to new markets.

The concreteness of the criteria obviously makes the concept more accessible and useful in practice, since they avoid the abstraction of the above definition. Although the criteria are part of the core competence concept, they primarily express what "distinguishes" a core competence from a regular competence, and not what a core

competence is. The directness of the criteria comes at a cost, as they do not capture the richness of the concept expressed by the definition. Although the criteria have been empirically applied (McDermott, 2003), they seem inadequate to capture all the characteristics of the concept (Ljungquist, 2008). This not only explains the mismatch between the two aspects of the concept, but also risks invalidating the concept as such. The definition, despite its abstractness, marks the centre of the core competence concept, so the criteria should be refined to better match it, not vice versa.

It has been suggested that core competence research and application ought to start by identifying the core competencies involved (Clark, 2000), even though the concept's initiators, Prahalad and Hamel (1990), acknowledge that this is difficult to accomplish. They suggest involving task forces of employees from various functions, divisions, geographical locations, and hierarchical levels in the organization, in order to distinguish competencies from products, ignoring assets and infrastructure and instead highlighting the connection to customer value. Empirical studies by various scholars have attempted to do this with varying results (Clark and Scott, 2000; Eden and Ackermann, 2000; Yang *et al.*, 2006).

In addition, the existing core competence identification procedures are of roughly two types: either the focus is on identification *per se*, often as part of a wider organizational approach (Clark, 2000), or the identification process is suggested to be a strategic tool, including organizational change (Eden and Ackermann, 2000). Here, we focus on the former type to exclude non-core competence-related strategic issues from the discussion. The former type could be subdivided into two alternatives: first, to examine very large samples (>600 items) and focus on strategic issues in general in a company (Yang *et al.*, 2006); and second, to use the three previously mentioned core competence criteria for identification, a procedure previously applied in several empirical studies (Ghannad and Ljungquist, 2012; McDermott, 2003). In this paper, we choose the second alternative, describing the three criteria in greater detail as follows (Hamel and Prahalad, 1994; Prahalad and Hamel, 1990):

(1) A core competence must contribute significantly to the "customer benefit" of a product. This does not mean that the customer must be able to identify the competence *per se* in the products, but that it would be a great disadvantage if it were missing. Manufacturing companies can also possess a core competence if they maintain persistent cost benefits, even though the direct customer relationship is missing.

(2) A core competence should be "competitively unique" and, as such, it must be difficult for competitors to imitate. Though competitors may have the competence, only one company in the industry can make it into a core competence. Companies may need certain competencies to be fully competitive in an industry. These competencies are not core, but necessary.

(3) A core competence should provide "potential access to a wide variety of markets". That is, the competence should give access to new product arenas, extending from its current embedded product or service.

Before entering the discussion of how to refine the core competence concept, we first outline the dynamic capability framework, to establish the theoretical foundations of the paper.

Dynamic capability

Dynamic capability is defined and interpreted in various ways (Barreto, 2010) and has given rise to various research streams (Di Stefano *et al.*, 2010). In the present research, we adopt the dynamic capability framework proposed by the concept's initiator (Teece, 2007), i.e. the capability to sense and shape opportunities and threats, seize opportunities, and maintain competitiveness through enhancing, combining, protecting, and transforming the business's tangible and intangible assets. This is one of the first comprehensive models of the concept that has also been empirically operationalized and explored (Ellonen *et al.*, 2009).

"Sensing" involves searching and scanning activities in the firm's internal and external environments (Aguilar, 1967). Firms need to develop an "absorptive capacity" (Cohen and Levinthal, 1990; Volberda *et al.*, 2010) to identify and capture information and ideas. The framework involves the following sensing components: processes to direct internal R&D and select new technologies, processes to tap supplier and complementary innovation, processes to tap developments in exogenous science and technology, processes to identify target market segments, and processes to tap and change customer needs and customer innovation (Teece, 2007).

"Seizing" involves selecting and developing the previously identified (i.e. sensed) opportunities and threats by maintaining and improving resources, support systems, routines, and competencies, both internally and externally. Seizing includes the following components: delineating the customer solution and the business model, selecting decision-making protocols, selecting enterprise boundaries to manage complements and platforms, and building loyalty and commitment (Teece, 2007).

The dynamic capability framework involves the following "transforming" aspects: decentralization and near decomposability, governance, co-specialization, and knowledge management. Without coordination, matching the innovation activities required to leverage a new technology may not occur (Chesbrough and Teece, 2002). In addition, recent research suggests that radical innovation could be viewed as the desperate act of a firm unable to adjust its resource base to a dynamic environment (Ellonen *et al.*, 2009). In other words, some firms are more or less forced into radical changes to survive. Furthermore, the same research also suggests that firms with a strong sensing capability not balanced by equally strong seizing and transforming capabilities risk overdoing innovation, i.e. innovating beyond the firm's dynamic capability. This could result in a "capability gap" (Danneels, 2007; Levinthal and March, 1993) and the firm would be unable to deliver the innovation output. More recent research, however, proposes that a strong sensing capability and an equally strong transforming capability do not bring organizational success if not balanced by an equally strong seizing capability (Ellonen *et al.*, 2009).

Discussion

Core competence three criteria refined

We now review the three criteria and propose new formulations of them. The initial formulation of the "customer benefit" criterion states that a core competence must contribute significantly to the customer benefit of a product. This does not mean that the customer must be able to identify the presence of the competence in the product, but that it would be a great disadvantage to the customer if it were missing. Manufacturing companies can also have core competencies if they maintain persistent

cost benefits, even though the direct customer relationship is missing (Hamel and Prahalad, 1994; Prahalad and Hamel, 1990). Customers may actually gain satisfaction from the supplier's not-yet-developed products, we suggest, when product development projects sometimes are put on hold, to be re-launched when customers and technology are ready to adapt to it. This was the case for a large manufacturer in the information logistics industry in Scandinavia. In mid-1980s, it pioneered digital media, but the customers did not (yet) see the value of flexible printing technology, so the invention was put on hold. The event was not entirely a setback for the company, which had invested large sums in the new technology, since customers were impressed by the firm's innovative capability, and to them the invention was an artefact of trust: the company cared for both existing and future customer needs, and this would ensure future customer satisfaction by means of new product development.

That is, the criterion is not necessarily found in specific product features, since the customers (and the company) do not know its characteristics *ex ante*, because it has not yet been developed. This is also emphasized by the initiators of the core competence concept: "The distinction between core and non-core competencies rests, in part, on a distinction between core and non-core customer benefits" (Hamel and Prahalad, 1994). Accordingly, the criterion is here actually to be found in the customer relationship, i.e. the artefacts delivered by satisfaction with current products, and by expected satisfaction with future products. This implies that the ability to develop products is not the only essential competence: customer relations competence is also key. Thus, this criterion needs a customer relations dimension, not included in the original definition, though implied in the basic notion of core competence:

> The critical task for management is to create an organization capable of infusing products with irresistible functionality or, better yet, creating products that customers need but have not yet imagined (Prahalad and Hamel, 1990).

To that we argue one could add "to satisfy the customers' expectations of the relationship". Hence, though product features satisfy customers' immediate needs, customers' trust in the company and in their relationship with it is what underpins that satisfaction.

This also underscores a time aspect of the criterion: customers are satisfied with the current relationship because of past and/or current experience of supplier behaviour, products, relationships, etc. and expectations of future positive experience. This implies the necessity of adding a time dimension to the criterion, since current customer satisfaction could come from past or present experience, or even from expectations of the future. Furthermore, and even more obvious, is the fact that future products will be developed based on current and past core competencies.

Accordingly, we suggest that the criterion be refined as follows:

> A core competence contributes significantly to the customer benefit of a product and to the customer – supplier relationship, which is built on past and current experience and on expectations of future positive experience.

This new formulation also eliminates the need to include specific expressions for manufacturing companies, such as "persistent cost benefits" as evident in the original formulation of this criterion, which is a rare phenomenon today. Since manufacturing companies have customers, they are able to fulfil the new criterion.

The initial formulation of the "competitive uniqueness" criterion indicates that a core competence must be difficult for competitors to imitate. This means that, though competitors may have a given competence, only one company in an industry can make it a core competence. Companies may need certain competencies to be fully competitive participants in an industry; these competencies are not core, but necessary (Hamel and Prahalad, 1994; Prahalad and Hamel, 1990). If the competitors in an industry could possess the same core competence while differentiating their products – from the customer perspective – that would make a difference in terms of customer satisfaction. On the other hand, customers' future expectations of product development matter, as discussed in the previous paragraph. It seems that the criterion needs to be broadened in scope, so as also to include the customers' view of the differentiation of the products offered. It also needs to be narrowed, in that it does not seem productive to have competitively unique core competencies go unused in product differentiation. Accordingly, the criterion must include customers' views.

We may now rephrase the criterion:

A core competence should be competitively unique and, as such, difficult for competitors to imitate. The products a firm develops using its core competence, and the customers' expectations of future products, is how a firm achieves competitive differentiation.

The initial formulation of the "market access" criterion indicates that a core competence should facilitate potential access to a wide variety of markets. That is, the competence should give access to new product arenas, extending from current products (Hamel and Prahalad, 1994; Prahalad and Hamel, 1990). As exemplified in the literature review, this criterion invokes growth potential rather than serving as an instrument to indicate whether a competence is core or not. The criterion relates to the notions of growth by diversification within the strategic management tradition. We choose three examples of how the market access criterion, in its original formulation, can be violated:

(1) abandoning or not entering a new market due to corporate strategy concerns;

(2) concentrating and converging the business instead of diversifying; and

(3) divesting or selling a profitable unit.

Facilitation of access to new markets does not seem a valid criterion of what constitutes a refined version of the core competence concept. Still, this criterion is very much at the heart of the concept – at times of diversification and growth-maximization – making it difficult to abandon. Hence, if by "access to new markets" we mean a competence market (internal or external to the firm), the basic definition of core competence (i.e. "the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technologies") seems to better match the criterion. That argument emphasizes that only a competence shared through learning, integration, knowledge transfer, etc. within and across business areas in the organization could be categorized as core. Therefore, we suggest using the concepts of "integration" and "knowledge transfer" as indicators of this third criterion. Furthermore, the word "potential" makes no sense when it comes to matters of competitive advantage. Accordingly, we propose reformulating this criterion as follows: "A core competence provides company growth and access to a wide variety of competencies and core competencies – shared by integration and/or knowledge transfer". Table I summarizes the discussion.

Adding dynamism to the core competence concept
The following review draws on the dynamic capability framework introduced by
Teece *et al.* (1997), previously described in the literature review section. The core
competence concept is said to be hierarchically higher than dynamic capability
(Zubac *et al.*, 2010), due to the former's ability to establish competitive advantage, often
based on complex internal competence-combinations over time.

The sensing category of the dynamic capability framework mainly concerns
tapping the company's internal and external environments for information. The
sensing category applies more in general, to information that is strategic to a company
(Aguilar, 1967), than to the core competence concept in particular. Thus, input so
obtained is largely unfiltered, making it difficult to effectively assess the input received
and even more difficult for the input to stimulate the development of more advanced
activities and processes. Although empirical evidence suggests that external input, for
example, customer interaction, supports new product development processes (Alam,
2006; Prandelli *et al.*, 2006), we conclude that sensing in general applies to more generic
strategic matters, i.e. not in particular to core competence. However, it might be fruitful
to add a balance dimension (Ellonen *et al.*, 2009) between a firm's core competence, on
the one hand, and the external environment, on the other:

> *P1.* A core competence fits better in a dynamic environment when balanced by the
> external environment.

The seizing category focuses on selecting and using the information obtained by
sensing (Teece, 2007). An assumption is that new activities can be added, i.e. adapted
to, the existing resource base. This applies to the core competence concept, for example,
in transforming knowledge and technology within an organization (Hamel and
Prahalad, 1994). The concept of fungibility (Danneels, 2010) refers to the adaptability of
existing resources (e.g. transforming), not only to new activities, but also to new
environments and processes (Wang and Ahmed, 2007; Verona and Ravasi, 2003). Yet,
in the original core competence conceptions, transforming refers essentially to internal
transfer only, so we need to add external transfer to the original notion:

> *P2.* A core competence fits better in a dynamic environment by "seizing", i.e. when
> adding external activities and processes.

	Customer benefit	Competitive uniqueness	Market access
Suggestions for key issues to be added (+) and removed (−)	+ Time dimension, including past and future expectations + Customer relationships	+ Customer expectations + Product differentiation − Necessary competencies	+ Competence markets + Shared integration and knowledge transfer + Growth − Access to new markets − Potential market access

Table I.
Three criteria of core competence with suggested key issues added and removed

In addition, researchers suggest that firms tend to be "path-dependent" (Cohen and Levinthal, 1990; Dierickx and Cool, 1989) even in innovation processes, and to rely on the same historic seizing and transforming activities (Ellonen *et al.*, 2009). This intuitively seems applicable to the core competence concept, yet would most likely limit a core competence's dynamics:

> *P3.* A core competence fits worse in a dynamic environment when it is path-dependent.

Managerial understanding of current resources and capabilities could limit a firm's dynamic capability (Danneels, 2010; cf. "cognitive inertia" in Tripsas and Gavetti (2000)) and obviously its core competencies as well. Management needs to understand the value, applicability, etc. of the firm's existing resource base (including its core competence) to be able to manage, let alone reconfigure and develop it. Teece (2007) refers to this understanding as "orchestration", a notion not new to the core competence field. For example, one scholar empirically studied a case in which core competence implementation was the strategy of a firm (Clark, 2000). The implementation attempts failed, not due to lack of orchestration, but to lack of clarity and detailed conceptions of the core competence concept. From that perspective, orchestration was impossible.

In this paper, we have already discussed the vagueness of the core competence concept, from practical and theoretical perspectives. In previous paragraphs we also have reviewed and refined the concept, to make it more tangible and applicable in practice. Therefore, we are ready to progress beyond previous attempts of core competence implementation and acknowledge the importance of "orchestration":

> *P4.* A core competence fits better in a dynamic environment when the resource base of a company is being "orchestrated".

Conclusions

To sum up, we repeat the point of departure of this paper: the original core competence concept cannot help managers deal with today's dynamic business environments. In this paper, we theoretically reviewed the original conceptions of core competence introduced by Prahalad and Hamel (1990) to better align the three criteria with the original definition's scope. The three criteria are reformulated to better match the theoretical origins of the core competence concept, while maintaining concreteness. The newly formulated criteria are as follows:

(1) A core competence contributes significantly to the customer benefit of a product and to the customer – supplier relationship, which is based on past and current experience and on expectations of future positive experience.

(2) A core competence should be competitively unique and, as such, difficult for competitors to imitate. The products a firm develops using its core competence, and the customers' expectations of future products, are how a firm achieves competitive differentiation.

(3) A core competence facilitates a company's growth and gives it access to a wide variety of competence markets and core competencies – shared via integration and/or knowledge transfer.

Furthermore, we reviewed the dynamic capability framework in an effort to make the core competence concept more applicable to the dynamic environments of today. Our discussion suggests that the framework is not directly applicable to the core competence concept. Instead, some issues apply better than others, as outlined in the aforementioned propositions. Drawing on the propositions, we conclude that core competence fits better in a dynamic environment when applied in these three ways:

(1) by being balanced with the external environment (*P1*) and by adding external activities and processes to the internal environment (*P2*);

(2) by reducing path-dependency influences (*P3*); and

(3) by cautious management to "orchestrate" all resources (*P4*).

Managerial implications
Our review and refinement of the core competence concept offers several benefits to managers and practitioners: the three criteria were reformulated to better match contemporary contexts, and were rephrased for better applicability to practical applications and to include internal sharing/transfer of competencies as a purpose of a core competence. This adds to practitioners' toolbox of how to manage the core competence of a company.

In detail, the new formulations add customer relations as crucial part of building and enhancing firm competitiveness, which is in line with contemporary literature (Gummesson, 2008) and replaces the "persistent cost benefits" that rarely exist in today's markets. In addition, the implicit time dimension of the core competence concept brings an understanding and acceptance of investment not only in technological competencies but also in market competencies (Ghannad and Ljungquist, 2012). The new formulations also shift the focus from competitors, which today often act as co-operators, for example, in open innovation settings (Chesbrough and Teece, 2002), to differentiation by competencies.

For ideal core competence management, practising managers should selectively assimilate external information and adapt external activities and processes, all to match the existing (internal) resource base. The activities and processes need to be core competence-specific to make a difference.

Future research
Future research should empirically test the propositions outlined here. The empirical study could take either a case-study approach for enhanced in-depth understanding, or a cross-sectional survey approach to statistically validate the hypotheses.

Note
1. The three criteria will be referred to as "the criteria" and the original definition as "the definition".

References

Agha, S., Alrubaiee, L. and Jamhour, M. (2012), "Effect of core competence on competitive advantage and organizational performance", *International Journal of Business and Management*, Vol. 7, pp. 192-204.

Aguilar, F.J. (1967), *Scanning the Business Environment*, Macmillan, New York, NY.

Alam, I. (2006), "Removing the fuzziness from the fuzzy front-end of service innovations through customer interactions", *Industrial Marketing Management*, Vol. 35, pp. 468-480.

Antoniou, P.H. and Ansoff, I.H. (2004), "Strategic management of technology", *Technology Analysis and Strategic Management*, Vol. 16, pp. 275-291.

Bakker, H., Jones, W. and Nichols, M. (1994), "Using core competences to develop new business", *Long Range Planning*, Vol. 27, pp. 13-27.

Barreto, I. (2010), "Dynamic capabilities: a review of past research and an agenda for the future", *Journal of Management*, Vol. 36, pp. 256-280.

Bogner, W. and Thomas, H. (1995), "Core competence and competitive advantage: a model and illustrative evidence from the pharmaceutical industry", in Hamel, G. and Heene, A. (Eds), *Competence-Based Competition*, Wiley, Chichester.

Bonjour, E. and Micaelli, J.-P. (2010), "Design core competence diagnosis: a case from the automotive industry", *IEEE Transactions on Engineering Management*, Vol. 57, pp. 323-337.

Chen, H.-H. and Lee, P.-Y. (2009), "The driving drivers of dynamic competitive capabilities: a new perspective on competition", *European Business Review*, Vol. 21, pp. 78-91.

Chesbrough, H.W. and Teece, D.J. (2002), "Organizing for innovation: when is virtual virtuous?", *Harvard Business Review*, Vol. 80, pp. 127-134.

Clark, D. (2000), "Implementation issues in core competence strategy making", *Strategic Change*, Vol. 9, pp. 115-127.

Clark, D. and Scott, D. (2000), "Core competence strategy making and scientific research: the case of HortResearch, New Zealand", *Strategic Change*, Vol. 9, pp. 495-507.

Cohen, W.M. and Levinthal, D.A. (1990), "Absorptive capacity: a new perspective on learning and innovation", *Administrative Science Quarterly*, Vol. 35, pp. 128-152.

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

Danneels, E. (2007), "The process of technological competence leveraging", *Strategic Management Journal*, Vol. 28, pp. 511-533.

Danneels, E. (2010), "Trying to become a different type of company: dynamic capability at Smith Corona", *Strategic Management Journal*, Vol. 32, pp. 1-31.

Dierickx, I. and Cool, K. (1989), "Asset stock accumulation and sustainability of competitive advantage", *Management Science*, Vol. 35, pp. 1504-1511.

Di Stefano, G., Peteraf, M. and Verona, G. (2010), "Dynamic capabilities deconstructed/sup double daggers up: a bibliographic investigation into the origins, development, and future directions of the research domain", *Industrial and Corporate Change*, Vol. 19, pp. 1187-1204.

Eden, C. and Ackermann, F. (2000), "Mapping distinctive competencies: a systemic approach", *Journal of the Operational Research Society*, Vol. 51, pp. 12-21.

Eisenhardt, K.M. and Martin, J. (2000), "Dynamic capabilities: what are they?", *Strategic Management Journal*, Vol. 21, pp. 1105-1121.

Eisenhardt, K.M., Furr, N.R. and Bingham, C.B. (2010), "Microfoundations of performance: balancing efficiency and flexibility in dynamic environments", *Organization Science*, Vol. 21, pp. 1263-1273.

Ellonen, H.K., Wikstrom, P. and Jantunen, A. (2009), "Linking dynamic-capability portfolios and innovation outcomes", *Technovation*, Vol. 29, pp. 753-762.

Fowler, S.W., King, A.W., Marsh, S.J. and Victor, B. (2000), "Beyond products: new strategic imperatives for developing competencies in dynamic environments", *Journal of Engineering and Technology Management*, Vol. 17, pp. 357-377.

Ghannad, N. and Ljungquist, U. (2012), "Change of entrepreneurial agenda in a core competence context: exploring the transformation from technology focus to market focus", *International Journal of Entrepreneurial Venturing*, Vol. 4, pp. 148-167.

Gummesson, E. (2008), "Customer centricity: reality or a wild goose chase?", *European Business Review*, Vol. 20, pp. 315-330.

Gupta, S., Woodside, A., Dubelaar, C. and Bradmore, D. (2009), "Diffusing knowledge-based core competencies for leveraging innovation strategies: modeling outsourcing to knowledge process organizations (KPOs) in pharmaceutical networks", *Industrial Marketing Management*, Vol. 38, pp. 219-227.

Hafeez, K., Zhang, Y. and Malak, N. (2002), "Core competence for sustainable competitive advantage: a structured methodology for identifying core competence", *IEEE Transactions on Engineering Management*, Vol. 49, pp. 28-35.

Hafsi, T. and Thomas, H. (2005), "The field of strategy: in search of a walking stick", *European Management Journal*, Vol. 23, pp. 507-519.

Hamel, G. and Prahalad, C.K. (1994), *Competing for the Future*, Harvard Business School Press, Boston, MA.

Javidan, M. (1998), "Core competence: what does it mean in practice?", *Long Range Planning*, Vol. 31, pp. 60-71.

Lei, D., Hitt, M. and Bettis, R. (1996), "Dynamic core competences through meta-learning and strategic context", *Journal of Management*, Vol. 22, pp. 549-569.

Leonard-Barton, D. (1992), "Core capabilities and core rigidities: a paradox in managing new product development", *Strategic Management Journal*, Vol. 13, pp. 111-126.

Levinthal, D. and March, J. (1993), "The myopia of learning", *Strategic Management Journal*, Vol. 14, pp. 95-112.

Ljungquist, U. (2008), "Specification of core competence and associated components: a proposed model and a case illustration", *European Business Review*, Vol. 20, pp. 73-90.

McDermott, C. and Coates, T. (2007), "Managing competencies in breakthrough product development: a comparative study of two material processing projects", *IEEE Transactions of Engineering Management*, Vol. 54, pp. 340-350.

McDermott, M. (2003), *An Empirical Investigation of Core Competence and Firm Performance*, University at Albany, State University of New York, Albany, NY.

Markides, C.C. and Williamson, J.P. (1994), "Related diversification, core competencies and corporate performance", *Strategic Management Journal*, Vol. 15, pp. 149-165.

Nicolai, A.T. and Dautwiz, J.M. (2010), "Fuzziness in action: what consequences has the linguistic ambiguity of the core competence concept for organizational usage?", *British Journal of Management*, Vol. 21, pp. 874-888.

Pehrsson, A. (2006), "Business relatedness and performance: a study of managerial perceptions", *Strategic Management Journal*, Vol. 27, pp. 265-282.

Pennings, J., Cobbenhagen, J. and Den Hertog, F. (1996), *Core Competencies and Organizational Innovativeness*, MERIT – Maastricht Economic Research Institute, Maastricht.

Post, H.A. (1997), "Building a strategy on competences", *Long Range Planning*, Vol. 30, pp. 733-740.

Prahalad, C.K. and Hamel, G. (1990), "The core competence of the corporation", *Harvard Business Review*, Vol. 68, pp. 79-92.

Prandelli, E., Verona, G. and Raccagni, D. (2006), "Diffusion of web-based product innovation", *California Management Review*, Vol. 48, pp. 109-135.

Rumelt, R.P. (1982), "Diversification strategy and profitability", *Strategic Management Journal*, Vol. 3, pp. 359-369.

Rumelt, R.P. (1994), "Foreword", in Hamel, G. and Heene, A. (Eds), *Competence-Based Competition*, Wiley, New York, NY.

Teece, D.J. (2007), "Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance", *Strategic Management Journal*, Vol. 28, pp. 1319-1350.

Teece, D.J., Pisano, G. and Shuen, A. (1997), "Dynamic capabilities and strategic management", *Strategic Management Journal*, Vol. 18, pp. 509-533.

Torkkeli, M. and Tuominen, M. (2002), "The contribution of technology selection to core competencies", *International Journal of Production Economics*, Vol. 77, pp. 271-284.

Tripsas, M. and Gavetti, G. (2000), "Capabilities, cognition and inertia: evidence from digital imaging", *Strategic Management Journal*, Vol. 21, pp. 1147-1161.

Unland, M. and Kleiner, B.H. (1996), "New developments in organizing around core competences", *Work Study*, Vol. 45, pp. 5-9.

Verona, G. and Ravasi, D. (2003), "Unbundling dynamic capabilities: an exploratory study of continuous product innovation", *Industrial & Corporate Change*, Vol. 12, pp. 577-607.

Volberda, H.W., Foss, N.J. and Lyles, M.A. (2010), "Absorbing the concept of absorptive capacity: how to realize its potential in the organization field", *Organization Science*, Vol. 21, pp. 931-954.

Walsh, S. and Linton, J.D. (2002), "The measurement of technical competencies", *The Journal of High Technology Management Research*, Vol. 13, pp. 63-86.

Wang, C.L. and Ahmed, P.K. (2007), "Dynamic capabilities: a review and research agenda", *International Journal of Management Reviews*, Vol. 9, pp. 31-51.

Wang, Y., Lo, H.-P. and Yang, Y. (2004), "The constituents of core competencies and firm performance: evidence from high-technology firms in China", *Journal of Engineering and Technology Management*, Vol. 21, pp. 249-280.

Wirtz, B.W., Mathieu, A. and Schilke, O. (2007), "Strategy in high-velocity environments", *Long Range Planning*, Vol. 40, pp. 295-313.

Yang, B.-C., Wu, B.-E., Shu, P.-G. and Yang, M.-H. (2006), "On establishing the core competency identifying model: a value-activity and process oriented approach", *Industrial Management & Data Systems*, Vol. 106, pp. 60-80.

Zubac, A., Hubbard, G. and Johnson, L.W. (2010), "The RBV and value creation: a managerial perspective", *European Business Review*, Vol. 22, pp. 515-538.

About the author

Urban Ljungquist is an Assistant Professor in Strategy and Innovation in the School of Management at Blekinge Institute of Technology. He conducts research primarily in the area of processes of strategy and innovation. He has published his research in journals such as *Management Decision, European Business Review*, and *Knowledge and Process Management*. Urban Ljungquist can be contacted at: ulj@bth.se