

Competencies development in an aerospace organization in the globalized world.

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Resumo

The new charging of accomplishment of complex projects has been demanded a strategic necessity, a study of the development of the competencies as technical and competitive necessities. There is a demand for a new profile, focused on the concept of competencies and traceability in the aerospace area. With this view, we call the attention to the use of knowledge, skills, attitudes and dynamic capabilities which are considered important and that may also be required to companies with large projects. Usually the organizations use the existing internal forces and procedures to mature competencies that can work in organizations with defined business models. This intuitive development is increasing the competitive advantage of these organizations. Thus, the interest on the issue has been increasing in each new result, and has been identifying new opportunities to achieve exponential and systemic results. In a competitive and dynamic environment, organizations constantly seek to reorganize their structures so that they can be more agile when realizing their projects. With the objective to create a solid and standardized framework for project management, organizations look for best practices to define a common way of working, there is a manageable process from end to end and also relevant information to make decisions. To achieve these goals, several actions are taken: defining project management methodologies, office creation processes, implementation of management tools, among others. However, little is said about the human factor present in project management. In the context of complex projects, certain competencies are important for the operated methodologies, and tools are fed and statistics are transformed into strategies and people with competencies and specific skills is the key to success. The methodology of work involves the case study technique. There will not be data analysis or quantitative analysis, but only a descriptive analysis of the model adopted and the foundations of conception and practice. By taking the resource-based view of the firm, this article analyzes its induced development, based on the definition of an approach and an array of reflected product development practices that aim to ensure the development of competencies, in which content and methods are organized and diversified, according its objectives and the environment.

Palavras-chaves: Dynamic Capabilities, Capacity Development and Competency.

INTRODUCTION

The study of dynamic capabilities is an important part of research activities in strategic management, organizational changes and competitive advantage. The importance of this concept lies in the fact that it deals with the adaptive capacity of the firm front of the dynamism of the environment, in other words, how organizations can achieve and sustain competitive advantages in a changing environment (Dosi, Nelson e Winter, 2000; Teece, 2010; Teece *et al.*, 1997; Winter, 2003). In Fine (2000), the author reinforces the idea of a supply chain of capabilities, characterizing an era of competitive advantage in environments of high-speed evolutionary, and that lasting success and sustainability would be conditioned to skills with differentiated skills that determine capabilities that will bring the most value (Fine, 2000).

Some authors focus the analysis of dynamic capabilities in the internal aspects of the firm, as strategic processes and organizational (Nelson e Winter, 1982). The resource-based view where organizations are seen as a set of features and capabilities (Wernerfelt, 1984) which suggests that the systems of human resources can contribute to a sustainable competitive advantage, facilitating and developing competencies that are specific to that organization (Lado e Wilson, 1994).

According to Zollo and Winter, there are companies that integrate, build and reconfigure their competencies even in less dynamic environments and low rates of change (Barrales-Molina, Benitez-Amado e Perez-Arostegui, 2010). In this sense, the important, the foundation of dynamic capabilities is the existence of routine mechanisms that allow the reconfiguration of the capacities of companies (Andreeva e Chaika, 2006; Winter, 2003). Note also that some authors dynamic capabilities are the result of a combination of capabilities, ie construct dynamic capabilities would be defined using a hierarchy of simpler capabilities and related routines (Eisenhardt e Martin, J. A., 2000; Hagedoorn e Wang, 2012). We will make an academic review of the concepts related to dynamic capability, competence and how they bind and how it would be a framework for study. The aim of this paper is to present the answers to these questions from the various theoretical contributions already developed on the theme of dynamic capabilities. Specifically, it seeks to identify the relationship between of competencies and dynamic capabilities.

The path-dependent nature of dynamic capabilities suggests that repeated practice and incremental learning from small mistakes would eventually lead to capabilities that are complex, difficult to imitate, and responsive to change (Bowman e Ambrosini, 2003; Teece *et al.*, 1997). Previous studies have shown the existing paucity in research that examines organizations' capability development processes. To date, there is are few studies that provides valuable insights into how an organization develops resources and capabilities to support its business strategy over time (Pavlou e Sawy, 2005; Pavlou e Sawy, El, 2011; Zahra e George, 2002). Issues, such as how a firm may swiftly establish its strategic direction, or diffuse and grow a strategy through its ranks, remain unaddressed, and deserve much attention. This paper provides some insights into how organizations can better compete in dynamic environments.

METHODS

This research is part of large-scale longitudinal research, where capabilities are researched from different perspectives, both inductive and deductive descriptive overviews and causal laws/models are involved. First, research identified key capabilities and observed their dynamism through market cycles in a qualitative research setting, and then, the current

research aims to test how much identified capabilities help to describe performance outcome, therefore this research takes a positivistic approach.

RESULTS AND DISCUSSION

Dynamic Capabilities

The DC perspective emerged in the 1990s as an extension of the theory of resources and capabilities (Barney, 1991, 1995). Its main objective is to provide a dynamic view of the principles established by the theory. The theory of resources and capabilities argues that the firm obtains a competitive advantage because it has available a set of resources that are heterogeneous as compared with those of other firms. These resources are defined as rare, valuable, difficult to imitate, and imperfectly substitutable (Barney, 1991, 1995). This argument provides a good starting point for studies of strategic management.

It is important to clarify Dynamic Capabilities, the word Capability is seen as "the power or ability to do something"(Adams, 2013). There are several dynamic capabilities settings made by the researchers of the subject and although there is relationship between these definitions, it is common to each author to emphasize a particular aspect of dynamic capabilities. DC have been defined as "the firm's abilities to integrate, construct and reconfigure the internal and external competences are the to react quickly to dynamic environments"(Teece, Pisano e Shuen, 1997). In spite of a long list of definitions of DC, it seems to be consensus on the concept of DC as internal processes responsible for modifying the set of the organization's resources (Bowman e Ambrosini, 2003). In general, you can identify the various dynamic capabilities settings two lines of approach:

- Set of skills, behaviors and organizational skills;
- Set of routines and processes.

In the group of authors who deal with the dynamic capabilities as a set of skills and abilities, the stand-views (Andreeva e Chaika, 2006; Collis, 1994; Helfat, 2007; McKelvie e Davidsson, 2009). Collis in 1994, defines dynamic capability with the firm's capacity to innovate faster or better way than the competition (Collis, 1994). From a broader perspective, including changes in general Andreeva and Chaika associate dynamic capabilities the organization's ability to renew its core competencies as changes occur in the environment in which the company operates (Andreeva e Chaika, 2006). According Andreeva and Chaika (2006), the existence of dynamic capabilities in an organization depends on the existence of certain factors: the existence of entrepreneurial skills of leadership and organizational change capacity (the ability of an organization to see new opportunities for development, ability to realize which internal changes to be made and the ability to implement these changes successfully). The authors emphasize that the change in capacity is central to the existence of dynamic capabilities.

Helfat et al. (2007) Dynamic define capacity as the ability of an organization to create, extend or modify its resource base purpose. According to these authors the concept of dynamic capacity includes three functions:

- Identify needs and opportunities for change;
- Formulation of appropriate responses to those needs or opportunities; and
- The development of courses of action.

Note that these authors argue, however, that not all the dynamic capabilities to serve three functions. There are dynamic capabilities that serve different purposes. Helfat et al. (2007)

also state that the dynamic capabilities support two main functions with respect to the resource base of an organization:

- search; selection and creation of resources; and
- Deployment of resources.

The combination of dynamic capabilities with exploration opportunities and generating ideas is also presented in McKelvie and Davidson (2009). The authors define dynamic capabilities as a bundle of other capabilities, such as:

- Ability to create ideas.
- Input Capacity breaks to create momentum in the market in which the company operates.
- Capacity development of new innovative products and services in quantity and superior quality compared to competitors.
- Capacity development of new processes superior compared to competitors.

In the group of authors who deal with the dynamic capabilities as routines and processes, we highlight views (Barrales-Molina, Benitez-Amado e Perez-Arostegui, 2010; Bygdås *et al.*, 2004; Dosi, Faillo e Marengo, 2008; Eisenhardt e Martin, J. a, 2000; Helfat, 2011; Teece *et al.*, 1997; Winter, 2003) that emphasize the notion of business processes by stating that dynamic capabilities are the firm's processes that use resources to match or even create market change. These authors state that the dynamic capacity is a combination product capabilities and simple routines related among themselves, some of which may be other reasons and, therefore, must first be learned.

The development of product development routines, enable to forge alliances, make acquisitions, allocation routines of resources and knowledge transfer of replication are some of the examples of cases in which the dynamic capabilities are based.

Therefore the grounds of dynamic capabilities: the ability to create changes in the market and the ability to react to external changes. As highlights, Winter (2003) exists in the literature a broad consensus that Dynamic Capacity is something other than a common or operational capacity. An organization that adapts creatively in a succession of crises, seeking solutions to chance, are not making use of dynamic capabilities. To Zollo and Winter (2002) there are two key sets of activities related to capacity: the activities related to the operational functions (operational routines) and the activities dedicated to changing operational routines (dynamic capabilities).

Operational routines are related to know how to perform familiar tasks that generate the revenues that sustain the organization. However dynamic capabilities seek to generate desirable changes in the existing set of operating routines in order to improve future results. In the view of these authors, a dynamic capability is "a learned and stable pattern of collective activity through which the organization systematically generates and modifies its operational routines seeking to improve its effectiveness" (ZOLLO e WINTER, 2002, p. p.340).

These various definitions are in line with what Helfat et al. (2007) state: the dynamic capabilities arise in several ways. Some dynamic capabilities, for example, allow the company to enter a new business and extend its business operations base, other capabilities help the company to create new products and production processes. Many of the authors who define DC establish that they can be understood as organizational routines, since DC assume learned, stable, and repetitive patterns of behaviour (Zollo and Winter, 2002) that enable balanced reconfiguration of the firm's resources without destabilizing the organization (Ambrosini and

Bowman, 2009; Collis, 1994; Helfat et al., 2007; Zollo and Winter, 2002).

Competency And Dynamic Capabilities

The subject competence, its development, its management, joined the staff of academic and organizational discussions associated with different levels of understanding: the person's level (the competence of the individual), organizations (the core competences) and countries (systems educational and skills training) (FLEURY e FLEURY, 2001).

From this source, Webster (. 1981, p 63) defines competence in the English language as quality or state of being functionally adequate or having sufficient knowledge, judgment, skill or strength for a given task. " This definition, somewhat generic mentions two main points related to competence: knowledge and task. The Aurélio Portuguese dictionary emphasizes, in its definition, similar aspects: ability to solve any issue, fitness, suitability and introduces another: the legal capacity to prosecute election. During the 80s, Richard Boyatzis, reanalyzing the studies data on the managerial competencies identified a set of features and traits that, in his view, define superior performance. The works of these authors significantly marked the American literature on the subject competence (McLagan, 1996; Mirabile, 1997; Spencer e Spencer, 1993).

In this perspective, the concept of competence is thought of as a set of knowledge, skills and attitudes (ie, set of human capabilities) that justify a high performance, it is believed that the best performances are based on the intelligence and personality of the people. In other words, competence is perceived as stock funds, which the individual holds (Fleury e Fleury, 2001). (Domik e Fischer, 2010) teach that the concept of competence was first proposed by David McClelland in 1973, this one was designed to address objectively the intelligence tests in people selection processes for organizations, thus developing the concept of competence as synonymous with the KSA, (McClelland, 1973), i.e The sum of knowledge, skills and individual attitudes, we understand that continue to prevail as reference points for any classification in this field three main areas have become classics, ie knowledge (knowledge), skills (know-how) and attitudes (knowing how to be / act).

Therefore, we will use this notion to facilitate competence building approach. The notion of competence appears as associated with verbs and phrases such as: know how to act, mobilize resources, integrate multiple and complex knowledge, knowing how to learn, learn to engage, take responsibility, have strategic vision. The powers should add economic value to the organization and social value to the individual (Fleury e Fleury, 2001).

Briefly, we can conclude that competence is the use of knowledge, skills, behavior that people adopt to perform their on the context tasks of work and values of the organization or "set of knowledge, skills and attitudes that, when integrated and used strategically allowing achieve success with the results that are expected of it in the organization. " (Benedito Milioni - Dictionary of Terms of Human Resources).

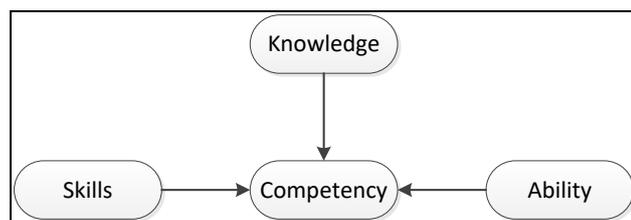


Figure 1: Competency from proposed

The dimension is undoubtedly the notion of core competencies, developed by (Prahalad, Hamel e June, 1990), which expresses an organizational dimension of skills. Then, we can highlight the scale of functional competencies, which are the skills necessary for the performance of the vital areas of the organization (eg skills to sell the product or service, or expertise to produce it etc.). They are specific competencies to each of the vital areas of the firm (Example sell, produce and design).

Through this perspective, not enough to have the skills necessary to perform an action, it is essential to know the target and the need to be satisfied. Then comes the issue of strategic planning as one of the most important contributions of competency management: the definition of the organization's competencies, ie those that are essential because they are the ones that need to have to meet the market needs (Barney, 1991; Lado, Boyd e Wright, 1992; Mahoney e Pandian, 1992).

The work out the reduced structure of competence according to these concepts, choosing a core of Integrated Project Management do CMMI® for Development, Version 1.3.

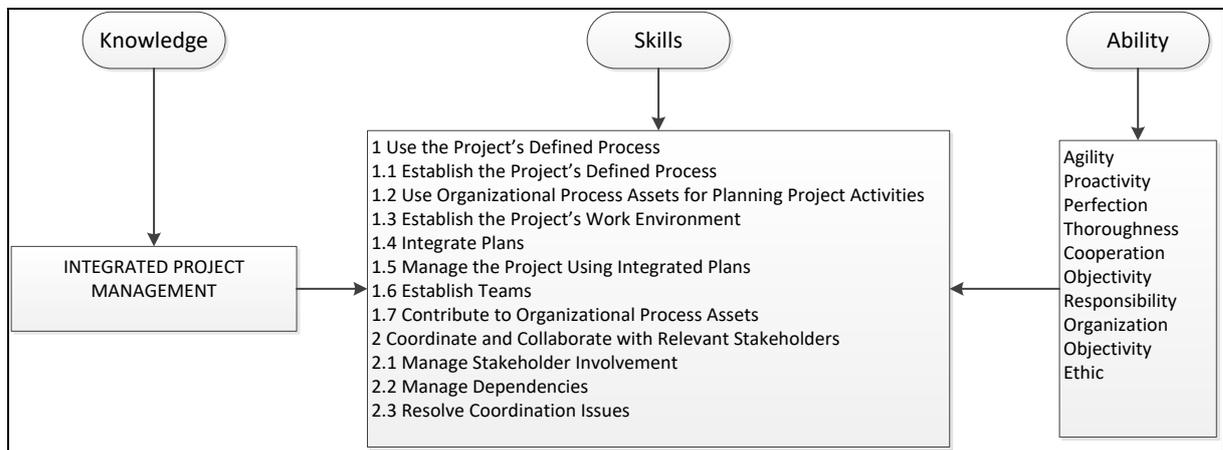


Figure 2: structure of competence CMMI® for Development (Software Engineering Institute, 2010)

To exemplify this thought we skills represent knowledge in their applicable form, and the Abilities reinforce and add value the skills. In this context the figure would be better exemplified as is shown below.

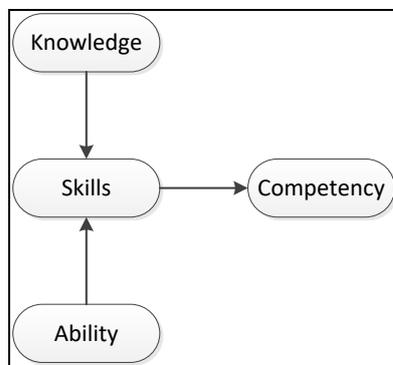


Figure 3: Interaction between knowledge, skills and ability

The competencies can be exploited and leveraged resulting in skills to provide the basis for sustainable competitive advantage. These investments in skills result from a path defined in

the scope of the mission and the context in which the strategy and the organization is a function of resources, insights and exclusive assets, accumulated over time and drive the evolution of skills and strategic opportunities future of organization (Dosi, 1988; Leonard-Barton, 1992).

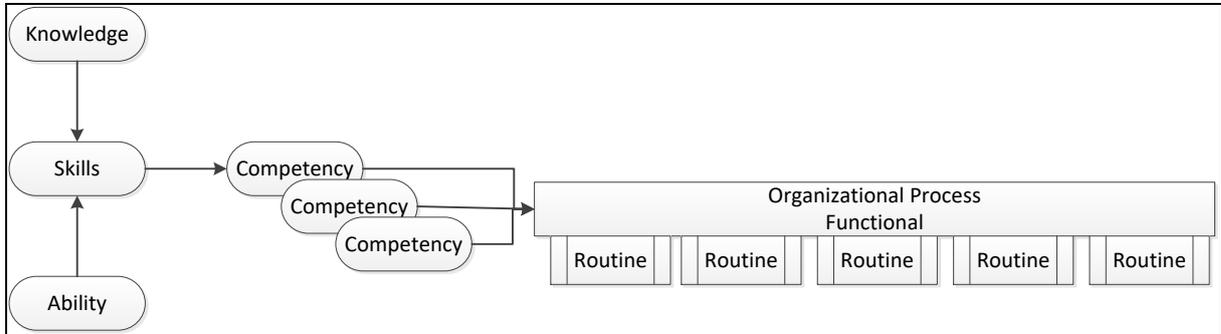


Figure 4: Competency and Organizational Process

Finally, the development of dynamic organizational routines plays an important role in generating new skills and capabilities. The establishment of dynamic routines is the basis for channeling resources organization skills, many of which rely on training, shared consciousness, collective experience and other complex social arrangements (Itami, 1987; Prahalad and Hamel, 1990). How the organization creates dynamic routines and learning patterns within and between its subunits considerable influence about the degree to which the skills and organizational skills become embedded in socially complex arrangements (Badaracco, 1991; Fiol, 1991 Hamel 1991 ; Kobe, 1987).

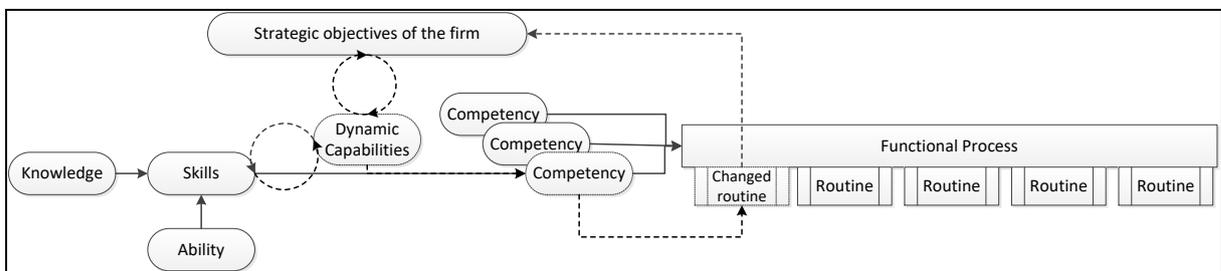


Figure 5: Influence of dynamic capacity in the context of functional process

Each dimension of organizational learning directly influences the ability of complex organizational problem solving. In turn, the development of a competency provides the context to improve and focus the learning efforts in the organization.

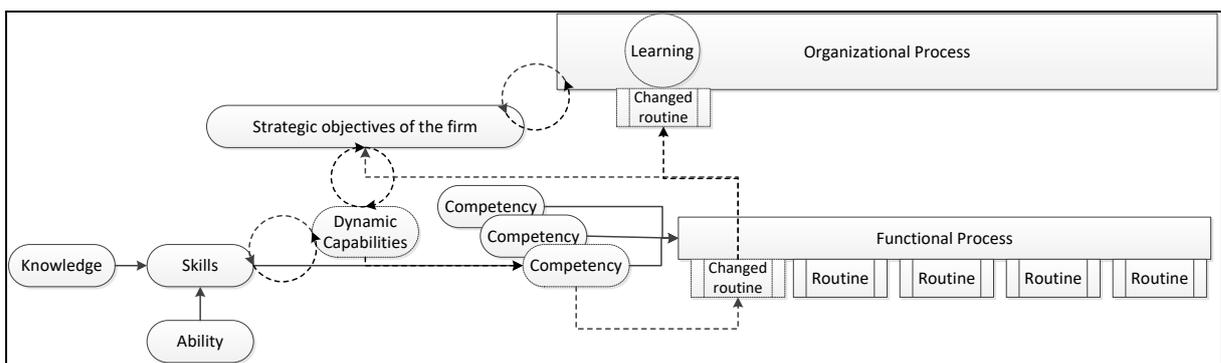


Figure 6: Influence of dynamic capacity in the context of functional process and organizational process

As can be seen in the Figure above, the relation linking of knowledge, skills and abilities associated with processes and routines with dynamic capabilities, which are supported by learning mechanisms and governance of knowledge, result in learning and meeting the strategic objectives of the firm. Dynamic capabilities, and result of this set of elements and mechanisms can be identified from a number of dynamic updates, as figure Competence and Capacity dynamics developed by the authors.

According to Winter (2003), organizational capacity is a high-level routine, or collection of routines, along with the input stream, gives the organization's management a number of options to produce significant results. The author states that there are capacities of different levels in organizations. Collis (1994) defines a hierarchy of three levels of capabilities. At the first level are the functional capabilities, ie, the operational capabilities that make the company exists. The second level is directly related to the dynamic capabilities in that this second level is placed on the need for dynamic improvement of business processes. Finally on the third level is the creative or entrepreneurial skills that includes capabilities related to the ability of the firm to develop new strategies faster than competitors, recognizing the values of each resource.

Zollo and Winter (2002) articulate this assumption and propose a set of learning mechanisms that enable the generation of DC, mechanisms to develop the learning needed to understand the environmental circumstances and to change organizational routines. The learning mechanisms proposed by Zollo and Winter are experience accumulation, knowledge articulation, and knowledge codification. These mechanisms constitute ways of accumulating and renewing knowledge, as well as establishing knowledge in new organizational routines.

We can thus conclude that the learning mechanisms proposed by Zollo and Winter (2002) for the construction of DC will help keep organizations safe from the challenges of complex competitive environments. We should assume that firms whose managers perceive high complexity in the competitive environment will promote the development and use of learning mechanisms to generate capabilities that enable them to reconfigure, integrate, and combine their resources and basic knowledge in the face of new and varied demands from agents in the environment.

When managers perceive a high level of munificence in their context, we can expect them to try to find the right conditions for developing processes of organizational learning and thus for generating routines. According to this definition, dynamic capabilities are process-improvement techniques that constitute the firm's way of modifying operating routines. The generation of capabilities requires enough experience that tacit organizational knowledge become stored in new patterns of activity, known in routines (Teece et al., 1997). These routines help the firm integrate (Helfat e Raubitschek, 2000), reconfigure (Hargadon e Sutton, 1997), or develop and release new resources (Henderson e Cockburn, 1994).

LAWLER, 1995 states that organizations must compete not only with products, but through skills, seeking to attract and develop people with complex combinations of capabilities to meet your competences core and dynamic capabilities (Lawler, 1995). Organizational learning must be focused on complex heuristics construction defining and solving problems that become the basis of competitive advantage (Itami e Nishino, 2010; Nonaka e Kenney, 1991).

CONCLUSIONS

This article explores the dynamic capabilities and, more broadly, the competence. Based on how the constituent parts of competency integrate the concept of dynamic capabilities, sometimes neglected organizational theory and empirical research, we conclude that what we hope is a more realistic view, theoretically valid. Our observations to connect the various areas of research. Dynamic capabilities include organizational and strategic processes well known as alliancing and product development whose strategic value lies in its ability to manipulate resources in value creation strategies.

Therefore, its large structural patterns vary according to the dynamism of the market and evolve routines. They evolve through learning mechanisms, we can conclude that competitive advantage lies in long-term resource to have and use their dynamic capabilities. Its value for competitive advantage lies in its ability to change the resource base: create, integrate, recombine, and free resources, dynamic capabilities exhibit their suggested properties in traditional research, where effective routines are efficient and robust processes, however we realize that routines are modified purposely borrowing the dynamic capacity of the competence to adapt to the emerging environment. In order to adapt to new information, routines are modified and adaptable to changing circumstances. The use of dynamic capabilities sooner, more astute or more by chance than the competition to create resources settings that have this advantage. This advantage is particularly enhanced when the related resource settings are tightly woven combinations, synergistic activities.

Finally, RBV is a condition of increasing in high-speed markets, where the duration of competitive advantage is inherently driving competence and dynamic capabilities, so the competitive advantage of long-term is the resource settings with managers using dynamic capabilities build sufficient for competitive advantage, time is central to the strategy and dynamic capabilities. In time this grand strategy is to have capacity of changing, evolution and sustainability.

REFERENCES

ADAMS, M. A. Oxford English Dictionary Online. **Library Media Connection**, v. 32, n. 2, p. 97, 2013.

ANDREEVA, T.; CHAIKA, V. Dynamic capabilities: What they need to be dynamic? **Victoria**, v. 10, p. 30, 2006.

BARNEY, J. Firm resources and sustained competitive advantage. **Journal of Management**, p. pp. 99–120, 1991.

BARNEY, J. Looking inside for competitive advantage. **Academy of Management Executive**, v. 9, n. 4, p. 49–61, 1995.

BARRALES-MOLINA, V.; BENITEZ-AMADO, J.; PEREZ-AROSTEGUI, M. N. Managerial perceptions of the competitive environment and dynamic capabilities generation. **Industrial Management & Data Systems**, v. 110, n. 9, p. 1355–1384, 2010.

BOWMAN, C.; AMBROSINI, V. How the Resource based and the Dynamic Capability Views of the Firm Inform Corporate level Strategy. **British Journal of Management**, v. 14, n. 4, p. 289–303, 2003.

BYGDÅS, A. L. *et al.* Transformative visualisation and emergent capabilities: experiences and insights gained from an activity-based view of intellectual capital. **International Journal of Learning and Intellectual Capital**, v. 1, n. 3, p. 262–281, 2004.

COLLIS, D. J. How valuable are organizational capabilities? **Strategic Management Journal**, v. 15, n. 1 994, p. 143–152, 1994.

DOMIK, G.; FISCHER, G. Coping with Complex Real-World Problems: Strategies for Developing the Competency of Transdisciplinary Collaboration. **Key Competencies in the Knowledge Society**, v. 324, p. 90–101, 2010.

DOSI, G. The nature of the innovative process. *In: Technical Change and Economic Theory*. [s.l: s.n.]. p. 221–238.

DOSI, G.; FAILLO, M.; MARENGO, L. Organizational Capabilities, Patterns of Knowledge Accumulation and Governance Structures in Business Firms: An Introduction. **Organization Studies**, v. 29, n. 8-9, p. 1165–1185, 2008.

DOSI, G.; NELSON, R. R.; WINTER, S. G. **The nature and dynamics of organizational capabilities**. [s.l: s.n.]. v. 23

EISENHARDT, K. M.; MARTIN, J. A. Dynamic capabilities: what are they? **Strategic Management Journal**, v. 21, n. 10/11, p. 1105–1121, 2000.

EISENHARDT, K. M.; MARTIN, J. A. Dynamic Capabilities: What Are They? **Strategic Management Journal Strat. Mgmt. J**, v. 21, p. 1105–1121, 2000.

FINE, C. H. Clockspeed-based strategies for supply chain design. **Production and Operations Management**, v. 9, n. 3, p. 213–221, 2000.

FLEURY, M. T. L.; FLEURY, A. Construindo o conceito de competência. **Revista de Administração Contemporânea**, v. 5, n. spe, p. 183–196, 2001.

HAGEDOORN, J.; WANG, N. Is there complementarity or substitutability between internal and external R&D strategies? **Research Policy**, v. 41, n. 6, p. 1072–1083, 2012.

HARGADON, A.; SUTTON, R. I. Technology Brokering and Innovation in a Product Development Firm. **Administrative Science Quarterly**, v. 42, n. 4, p. 716, 1997.

HELFAT, C. E. Stylized facts, empirical research and theory development in management. **Strategic Organization**, v. 5, n. 2, p. 185–192, 2007.

HELFAT, C. E. Dynamic Capabilities and Strategic Management: Organizing for Innovation and Growth. **R&D Management**, v. 41, p. 217–218, 2011.

HELFAT, C. E.; RAUBITSCHKE, R. S. **Product Sequencing: Co-Evolution of**

Knowledge, Capabilities and Products *Strategic Management Journal*, 2000. Disponível em: <<http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=4017337&site=ehost-live>>

HENDERSON, R.; COCKBURN, I. Measuring competence? Exploring firm effects in pharmaceutical research. *Strategic Management Journal*, v. 15, p. 63–84, 1994.

ITAMI, H.; NISHINO, K. Killing two birds with one stone: Profit for now and learning for the future. *Long Range Planning*, v. 43, n. 2-3, p. 364–369, 2010.

LADO, A. A; BOYD, N. G.; WRIGHT, P. **A Competency-Based Model of Sustainable Competitive Advantage: Toward a Conceptual Integration** *Journal of Management*, 1992. Disponível em: <<http://content.epnet.com/ContentServer.asp?T=P&P=AN&K=5978546&EbscoContent=dGJyMNxb4kSepq84yOvqOLCmrlGep69Srqa4SbWWxWXS&ContentCustomer=dGJyMPGrSUizqbZMuePfgeyx+Eu3q64A&D=buh>>

LADO, A. A.; WILSON, M. C. **HUMAN RESOURCE SYSTEMS AND SUSTAINED COMPETITIVE ADVANTAGE: A COMPETENCY-BASED PERSPECTIVE.** *Academy of Management Review*, 1994.

LAWLER, E. E. The New Pay: A Strategic Approach. *Compensation & Benefits Review*, v. 27, n. 4, p. 14–22, 1995.

LEONARD-BARTON, D. Core capabilities and core rigidities: A paradox in managing new product development. *Strategic Management Journal*, v. 13, p. 111–125, 1992.

MAHONEY, J. T.; PANDIAN, J. R. The Resource-Based View Within the Conversation of Strategic Management. *Strategic Management Journal*, v. 13, n. 5, p. 363, 1992.

MCCLELLAND, D. . Testing for competence rather than for “intelligence”. *The American psychologist*, v. 28, n. 1, p. 1–14, 1973.

MCKELVIE, A.; DAVIDSSON, P. From resource base to dynamic capabilities: An investigation of new firms. *British Journal of Management*, v. 20, n. SUPP. 1, 2009.

MCLAGAN, P. **Great ideas revisited. Competency models. Creating the future of HRD** *Training and Development*, 1996.

MIRABILE, R. J. Everything You Wanted to Know about Competency Modeling. *Training and development*, p. 73–77, 1997.

NELSON, R.; WINTER, S. An Evolutionary Theory of Economic Change. **Belknap Press: Cambridge, MA**, 1982.

NONAKA, I.; KENNEY, M. Towards a new theory of innovation management: A case study comparing Canon, Inc. and Apple Computer, Inc. *Journal of Engineering and Technology Management*, v. 8, n. 1, p. 67–83, 1991.

PAVLOU, P. A; SAWY, O. A EL. Understanding the ' Black Box ' of Dynamic Capabilities

1 Understanding the ' Black Box ' of Dynamic Capabilities. **Management Science**, v. 92521, n. 1, p. 239–273, 2005.

PAVLOU, P. A.; SAWY, O. A. EL. Understanding the Elusive Black Box of Dynamic Capabilities. **Decision Sciences**, v. 42, n. 1, p. 239–273, 2011.

PRAHALAD, C. K.; HAMEL, G.; JUNE, M. A Y. The Core Competence of the Corporation. **Harvard Business Review**, v. 68, n. 3, p. 79–91, 1990.

SOFTWARE ENGINEERING INSTITUTE. CMMI for Development, Version 1.3. **Carnegie Mellon University**, n. November, p. 482, 2010.

SPENCER, L. M.; SPENCER, S. M. Competence at Work: Models for Superior Performance. *In: John Wiley & Sons*. [s.l: s.n.]. p. 1–372.

TEECE, D. J. *et al.* Dynamic capabilities and strategic management. **Strategic management journal**, n. C, p. 509–533, 1997.

TEECE, D. J. Alfred Chandler and “capabilities” theories of strategy and management. **Industrial and Corporate Change**, v. 19, n. 2, p. 297–316, 2010.

TEECE, D.; PISANO, G.; SHUEN, A. Dynamic capabilities and strategic management. **Strategic management journal**, v. 18, n. 7, p. 509–533, 1997.

WERNERFELT, B. The Resource-Based View of the Firm. **Strategic Management Journal**, v. 3, n. June 1982, p. 171–180, 1984.

WINTER, S. G. Understanding dynamic capabilities. **Strategic Management Journal**, v. 24, n. 10 SPEC ISS., p. 991–995, 2003.

ZAHRA, S. A.; GEORGE, G. **Absorptive capacity: A review, reconceptualization, and extension** **Academy of Management Review**, 2002.