

## Dynamic Capabilities and Entrepreneurial Orientation in the New Product Development

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### Abstract

*Recently, organizations should have several strategies to survive and to reach their objectives because environment and conditions change rapidly. Within the development on the technology, creating new products has also become compulsory. In this paper we propose that entrepreneur and its resources are very important factors of the economic system and society to foresee and initiate the changes in which the organizations exist to develop new products. In addition, dynamic capabilities were significant, transforming entrepreneurial resources into new product by entrepreneurship orientation. Dynamic capability is defined as the creation of difficult to imitate combinations of resources including effective coordination of inter-organizational relationships, on a global basis that can provide a firm a competitive advantage. Entrepreneurial orientation's (EO) dimensions are innovativeness, risk taking, and proactiveness in literature. We contend that EO effect new product development. The scope of the study is to examine the variables affecting the new product development. So we suggest that new product development is the integration of two focal construct dynamic capabilities and entrepreneurial orientation. After that a model will be developed and propositions will be presented.*

**Key words:** Dynamic capability, entrepreneurial resources, entrepreneurship orientation, new product development.

### 1. Introduction

In the dynamic markets of today, competitive advantage rests on the ability to constantly develop organizational capabilities that form the basis for products and services offered by the firm. For firms active in dynamic markets, new product development (NPD) is essential because it contributes to firm renewal as well as to competitiveness and growth of firms. To be able to develop high-performing products, firms depend on many different resources and capabilities (Frishammar et al., 2007). Entrepreneurial resources are one of the resources to respond effectively to such dynamic environments. Innovation represents a high degree of change and uncertainty, it would follow that dynamic capabilities are a necessary component of the new product process. Dynamic capabilities allow a firm to create new products and processes and respond to changing circumstances. Entrepreneurial orientation includes activities like innovation, searching for the opportunity and effectively utilizing resources (Fang et al., 2009). Hence, we argue that both dynamic capabilities and entrepreneurial orientation composed of entrepreneurial resources that allow a firm to generate new ideas for the creation of new products.

In literature the relationship between this variables are examined differently. Wu's study indicate that the theoretical interdependencies between entrepreneurial resources, dynamic capabilities, and start-up performance. Wu (2007) point out that abundant entrepreneurial resources have a tendency to increase the willingness of outside entities to enter into cooperative networks with the start up company and the effectiveness of firm cooperative network tends to enhance start-up dynamic capabilities. Lee et al. (2008) reviewed theory on entrepreneurial resources and dynamic capabilities, and the innovation literature. Lee et al. (2008) proposed that dynamic capabilities for innovation require managerial practices that include the deployment of entrepreneurial resources, and relational and decision support.

Jantunen et al. (2005) have examined the performance implications of a firm's dynamic capabilities and entrepreneurial orientation in an international context. Jantunen et al. (2005) findings indicate that a firm's entrepreneurial orientation and reconfiguring capabilities (which are component of dynamic capabilities) have an effect on its international performance and provide empirical support for the dynamic capability view of the firm. As indicated above this paper aims to contribute toward emerging theory on dynamic capabilities, focusing on identifying the components of entrepreneurial resources, dynamic capabilities and entrepreneurial orientation relevant to developing new products.

## **2. Literature Review**

### **2.1 Entrepreneurial Resources**

Entrepreneur resources are an entrepreneur's own resources and abilities (Wu 2007). In literature entrepreneurial resources may play a role in the capacity to respond effectively to dynamic environments differently. Wu (2007) determined three variables such as specialized know-how, financial capital and managerial ability to measure entrepreneurial resources. Mosakowski (1998) focuses on intangible entrepreneurial resources and defines them as the propensity of an individual to behave creatively, act with foresight, use intuition, and be alert to new opportunities but, he excludes superior knowledge and risk propensities from the current definition of entrepreneurial resources. Cetindamar (2005) found that in Turkey, entrepreneurs' financial resources at the start up phase of their businesses are banks, family and relatives, and foreign finance organizations. She also noticed that the most needed resources at the start up phase are market and demand research, technological support, qualified human resources, and marketing and advertising in Turkey.

Katila et al. (2008), imply that entrepreneurs need firstly financial resources to prosper the venture than need complementary resources (marketing and manufacturing) to develop and commercialize products for new firms. Kristiansen (2004) determined categories of resources which supplied through social networks and needed by the entrepreneur to succeed are motivation, ideas, capital, information, market access, "bureaucratic goodwill" and trust. Lee et.al. (2008) suggests that entrepreneurial resources deployment is one of the component of managerial practices which are required in dynamic capabilities for innovation. The key distinguishing characteristics of entrepreneurial resources include proactiveness, integrative skills, and intrinsic motivation for innovation creation activity. Misangyi et al. (2008), suggest that institutional entrepreneurs are social actors who use the "economic, cultural, social, and symbolic resources" available to them to actively define, justify, and push the theory and values underpinning the practices of a new institutional order.

Westhead et al. (2005) express that portfolio and serial entrepreneurs collect several entrepreneurial resources (i.e., skills and knowledge) but some novice entrepreneurs maybe associated with these entrepreneurial resource deficiencies (i.e., skills and knowledge), which may impact on their behaviour as well as their inclinations and performance contributions. They also imply that in Scotland, portfolio entrepreneurs highlighted the importance of human capital resources but a relatively higher proportion of serial entrepreneurs did not have access to those financial resources. A review of the literature shows that entrepreneurial resources are discussed in different ways. In this paper entrepreneurial resources are based on Wu's (2007) study and are explained with the following variables such as "financial capital, managerial ability and specialized know-how". A key task for entrepreneurs is to mobilize financial resources so that the venture can prosper (Katila et al.2008). In the literature, the researchers have dealt with financial capital from different points of view.

For instance, Cetindamar (2005) determined financial resources such as banks, family and relatives, and foreign finance organizations; Misangyi et al. (2008) considered as economic; Katila et al. (2008) took free cash flow; Kristiansen (2004) discussed with capital in their studies. In this paper, financial capital can refer as an entrepreneurial resource comes from banks, family, relatives or foreign finance organizations. In review of the relevant literature, it is seen that managerial ability has been addressed in different ways. For example, Katila et al. (2008) focuses on marketing and manufacturing; Wu (2007) considers managerial ability; Mosakovski's (1998) paper includes behave creatively, act with foresight, use intuition, and be alert to new opportunities; Cetindamar (2005) discusses managerial abilities with market-demand research, and marketing- advertising. In this paper marketing, estimated demand and creativity are determined as managerial ability.

In the case of entrepreneurship the specialized knowledge is often knowledge about opportunities created by the environment or a new product or even the opportunities of a potential new product (Alvarez et al., 2001). In the other studies in the literature, specialized know-how, components of entrepreneurial resources, has been investigated even more. For instance, Cetindamar (2005) took technological support, qualified human resources; Westhead et al. (2005) dealt with skills and knowledge; Kristiansen's (2004) paper includes information as specialized know-how. In this research specialized know-how comprises of information technology, know-how and skills and can either be explicit such as in technology or tacit which is personal and more difficult to communicate or imitate (Alvarez et al., 2001).

## **2.2 Dynamic Capabilities**

In volatile environments dynamic capabilities may reconfigure the firm's idle or decaying resources or recombining them in innovative ways like developing new products. In literature many authors use Teece et al. (1997) definition of dynamic capabilities as "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments". Their focal concerns are resource accumulation, replicability, and inimitability of organizational capabilities. A review of the literature shows that dynamic capabilities definition has been investigated with learning perspective by several authors. Zollo and Winter's (2002) dynamic capability definition is "learned and stable pattern of collective activity through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness".

According to Zollo and Winter's (2002) paper, dynamic capabilities arise from learning mechanisms; they compose the firm's systematic method for modifying operating routines. Zahra et al.'s (2006) model also indicates that organizational knowledge and substantive capabilities determine which dynamic capabilities are necessary to adapt to emerging condition to influence organization's performance. Besides Zahra et al.'s (2006) model, Nielsen (2006) connects the three key dynamic capabilities of "knowledge development, knowledge (re)combination and knowledge use" to the different knowledge management activities of the firm. Ferdinand et al. (2005) also discuss dynamic capability from an organizational learning perspective. Luo (2000) suggest that capability; "possession (distinctive resources), deployment (resource allocation) and upgrading (dynamic learning)" are components of dynamic capability to gain competitive position for international expansion of firms. Weerawardena et al. (2007) deal with organizational learning theory and proposed that small firms aspiring to accelerated internationalization must develop a strategic set of dynamic capabilities.

In addition to Weerawardena et al. (2007) and Luo (2000), Jantunen et al. (2005) have examined the performance implications of a firm's dynamic capabilities in an international context. Jantunen et al. (2005) found that the success in implementing reconfiguring capabilities (which are component of dynamic capabilities) is positively related to firm's international performance. Reconfiguring capabilities composed of—implementation of new or substantially changed company strategy – implementation of new kinds of management methods– new or substantially changed organization structure, marketing method or strategy and technological equipment or manufacturing process– substantial renewal of business processes and production/manufacturing processes.

We identify dynamic capabilities as a set of specific and identifiable processes, or as a pool of resources that firms can integrate, reconfigure, renew and transfer their controllable resources (Yung-Ching et al., 2006).

## **2.3 Entrepreneurial Orientation (EO)**

EO refers to a firm's strategic orientation, capturing specific entrepreneurial aspects of decision-making styles, methods, and practices (Wiklund et al., 2003). In other words it is the processes, practices, and decision-making activities that lead to new entry (Fang et al. 2009). Entrepreneurship researchers have often considered Miller's (1983) study that EO as possessing three main components; proactiveness, innovativeness and risk taking. Lumpkin and Dess (1996) added two more dimensions to EO, autonomy and competitive aggressiveness. In this study, we will base on Miller's (1983) dimensions of EO. Innovativeness, reflects a tendency to support new ideas. novelty, experimentation, and creative processes, thereby departing from established practices and technologies. Proactiveness refers to a posture of anticipating and acting on future wants and needs in the marketplace, thereby creating a first-mover advantage vis-a-vis competitors. Risk-taking is associated with a willingness to commit large amounts of resources to projects where the cost of failure may be high (Wiklund et al., 2003).

## 2.4 New Product Development (NPD)

NPD is the process of bringing a new product to market, including idea generation and idea screening, concept development and testing, business analysis, prototype and market testing, technical implementation, and plans for product commercialization and launch (Leonard Barton,1992). The NPD context has two types of NPD capabilities (functional competencies and dynamic capabilities (Danneels 2002), which are proposed to influence competitive advantage in NPD (Pavlou et al.,2006). According to Yung-Ching et al. (2006) NPD's project performance are composed of cost analysis, benefit analysis, NPD successful ratio, product quality, process improvement and technology innovation.

## 3. Conceptual model and Propositions

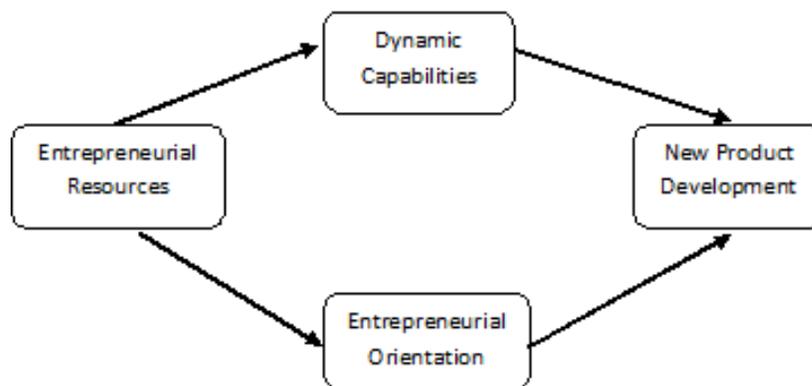


Figure1. Conceptual Model

### 3.1 Entrepreneurial Resources and Entrepreneurial Orientation

Wu (2007) argue that entrepreneurial resources can be acquired conclude entrepreneurial successes. West et al. (2008) proposed that the elements of an entrepreneurial orientation are a significant initial resource for communities gestating entrepreneurial economic activity. The behaviors of established firms have the characteristics of risk aversion and rational decision making in contrast, entrepreneurial activities often involve high risks and uncertainties. Established firms usually determine their entrepreneurial activity based on available resources. The easier established firms can acquire resources, the stronger their EO (Fang et al.,2009). This means that entrepreneurial orientation requires the utilization of large quantities of resources, so having access to these resources makes EO stronger. Lee et. al (2007) found that there is a positive relationship between entrepreneurial orientation and knowledge management capability. In our model, management capability is a variable of entrepreneurial resources therefore we can say that there is a relationship between entrepreneurial resources and EO.

Moreover, Moreno et al. (2008) suggest that the availability of financial resources (one of the component of entrepreneurial resources) will moderate the relations between entrepreneurial orientation and firm's growth, between entrepreneurial orientation and strategy, and between strategy and growth. They found that the availability of resources will moderate the EO–firm strategies relation, in such a way that the availability of resources will allow the most entrepreneurial firms to make more intense use of a prospector strategy, of strategies involving the development of new products–technologies, and of the strategy of attending to new needs–markets. The availability of resources will moderate the EO–firm growth relation, in such a way that the availability of resources will allow the most entrepreneurial firms to obtain higher growth rates.

Wiklund et al., (2003) propose that, a firm well endowed with knowledge-based resources (market and technological knowledge to discovery and exploitation of opportunities) will perform even better if it has an EO that promote a willingness to capitalize on its knowledge-based resources by engaging in entrepreneurial activities. They found that market and technological knowledge to discovery and exploitation of opportunities are positively related to firm performance and that EO enhances this relationship.

We suppose that specialized know-how (one of the components of entrepreneurial resource in our model) includes market and technological knowledge so we can say that there is a relationship between entrepreneurial resources and EO.

We therefore propose that entrepreneurial resources comprise of financial resource, managerial ability and specialized know-how related to entrepreneurial orientation:

P 1: Entrepreneurial resources are positively related to entrepreneurial orientation

### **3.2 Entrepreneurial Resources and Dynamic Capabilities**

In general, entrepreneurs face rapidly changing and highly uncertain environments. As a result, they must be able to respond quickly and effectively to extensive changes in a wide range of external conditions. "Dynamic capabilities reflect the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments" (Teece et al., 1997). In our paper we suggest that entrepreneurial resources are important tools for dynamic capabilities to develop new products. In literature entrepreneurial resources may play a role in the capacity to respond effectively to such dynamic environments, in several ways. Zahra et al. (2006) define dynamic capabilities as the abilities to reconfigure a firm's resources and routines in the manner envisioned and deemed appropriate by its principal decision-makers. Zahra et al.'s (2006) model indicates that a firm's entrepreneurial activities are the starting point for the conception, development, configuration and maintenance of dynamic capabilities.

Lee et al. (2008) suggest that dynamic capabilities for innovation require managerial practices that include the deployment of entrepreneurial resources, and relational and decision support. Lee et al. (2008) propose that dynamic capabilities are not routines, but comprise managerial practices involving first, the selection of entrepreneurs who take on the primary task of assembling and integrating the resources needed to create innovations. Wu (2007) proposed that as an intermediate variable dynamic capability is between entrepreneurial resources and firm's start-up performance. In Wu's (2007) study initial stage of the firm's; "resource integration capability (e.g., Teece et al., 1997; Eisenhardt et al., 2000), resource reconfiguration capability (e.g., Teece et al. 1997; Eisenhardt et al. 2000), learning capability (e.g., Luo, 2000) and ability to respond to changes" are variables of dynamic capabilities. Wu (2007) found that the more abundant the entrepreneur's resources the greater the start-up's dynamic capabilities. This discussion leads us to propose the following:

P 2: Entrepreneurial resources are positively related to dynamic capabilities.

### **3.3 Dynamic Capabilities and New Product Development**

Dynamic capabilities are the ability to reconfigure functional competencies to address turbulent, changing or dynamic environments (Teece et al., 1997). The dynamic capabilities perspective argues for the constant state of modification and renewal of capabilities because of exploration capabilities may directly influence the importer's market performance. In a rapidly changing environment, firm should develop new technologies and change its resource structure to adapt to new environmental opportunities because existing organizational practices and routines may reduce firm's flexibility to adapt to new changes. So dynamic capabilities related to product innovation are central to continued corporate survival (Yalcinkaya et al., 2007).

Empirical evidence in NPD shows that firms with dynamic capabilities influence developing new products Yung-Ching et al. (2006) suggest that DC positively relates to NPD project performance in biotechnology industries. According to them, dynamic capabilities composed of networking, knowledge management system and information communicational technology. Relationship between these capabilities and NPD are investigated. It has been proven to be statistically significant in relation to the NPD project performance. Yalcinkaya et al. (2007) paper, both exploration and exploitation capabilities are considered dynamic capabilities. Their results indicate that exploration capability positively and significantly influenced the degree of product innovation but exploitation capability has a negative, direct effect on the degree of product innovation.

Based on these analyses, we propose the following:

P 3: Dynamic capabilities are positively related to the new product development.

### 3.4 Entrepreneurial Orientation and New Product Development

Most of the research focuses on the relationship between EO and new product development. Researchers have long identified this linkage. For example, Li et al. (2006) found that EO is useful to Chinese firms to promote improvement of NPD. Similarly, Frishammar et al. (2007) find out a positive relation between innovativeness and NPD performance but they do not find a relationship between risk taking and proactiveness and NPD performance. Likewise, Lee et al. (2007) and Lassen et al. (2006) also determine that risk taking and proactiveness has a highly significant impact on new product or process innovation. In addition, autonomy and competitive aggressiveness was included to EO and was proposed that stimulator to the development of radical innovation (Lassen et al. 2006). On the other hand, Avlonitis et al. (2007) found that only proactiveness is an important contributor to the performance of new products. As a result, they suggest that the more SMEs enhance this EO component the higher the performance of their new products is. Moreno et al. (2008) propose that the greater the firm's entrepreneurial orientation, the greater will be the degree of launching of new products–technologies. Consequently, risk taking, proactiveness and innovativeness as components of EO provide important incentive for firms to achieve great improvement in NPD. We finally propose that EO is increase the development of new product:

P 4: Entrepreneurial orientation is positively related to the new product development.

### 4. Conclusions

This study clearly demonstrated that organizations should have several strategies to survive and to reach their objectives because environment and conditions change rapidly. Within the development on the technology, creating new products has also become compulsory. So in this paper we examine the variables affecting the new product development. We suggest that new product development is the integration of two focal construct dynamic capabilities and entrepreneurial orientation. We propose that dynamic capabilities and entrepreneurial orientation require the utilization of large quantities of resources. In other words, entrepreneurial resources which effect dynamic capabilities and entrepreneurial resources are needed to develop new product. To explore relationships between these variables, a model was developed (Figure 1) and propositions were presented.

Based on the theoretical exposition observations, it can be firstly concluded that entrepreneurial resources are positively related to entrepreneurial orientation (Moreno et al.,2008; Lee et al., 2007; Fang et al.,2009). Secondly, entrepreneurial resources are positively related to dynamic capabilities (Wu,2007; Lee et al., 2008). Thirdly, dynamic capabilities are positively related to the new product development (Yalcinkaya et al.,2007; Yung-Ching et al., 2006). Finally, entrepreneurial orientation is positively related to the new product development (Lassen et al., 2006; Frishammar et al., 2007; Avlonitis et al., 2007). This study has limitations which should be addressed in future research. Our research is limited by theoretical study. Future research can be extended with the methodology. A field research or comparative case analysis may be conducted within the framework of the model developed. So the model can be tested to explore the relationship between entrepreneurial resources, entrepreneurial orientation, dynamic capabilities and new product development well. We believe our in-depth qualitative work has provided a foundation for future research that can extend our insights about the underlying components of entrepreneurial resources, entrepreneurial orientation and dynamic capabilities for new product development.

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