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Innovation and Business Model Prototyping in Industry Sector

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Abstract
In a dynamic business environment, innovation is very important for competitiveness. Prototypes serve to different purposes, both from a business and an engineering perspective. In businesses, prototypes are used for marketing research, cost analysis and to obtain customers` feedback about the aesthetics, ergonomics and theme of a product. Prototyping is used in engineering to provide manufacturing and assembly data, to investigate system integration issues and to develop analysis and testing strategies. Prototyping strategy represents the set of decisions that indicates what actions will be taken by managers to develop the prototype(s). The aim of this paper is to emphasize the importance of technological innovation, prototypes, prototypes strategies and business models in an uncertain market environment with the purpose to obtain competitive advantage and performance. The paper proposes an innovative business model that is dedicated to enterprises` managers. The business model prototyping is believed to be a source of gaining competitive advantage.

Keywords
prototype, business model prototyping, innovation, competitiveness

1. Introduction

In an uncertain market environment, enterprises have to develop new business models based on innovation. Managers should focus on "new technological possibilities, innovative products, changes in the supply chain management, optimized cost structures or unique resources" [1].The decision making process is an important topic in the management literature. This process involves strategies, prototypes strategies and business models. Regarding prototypes strategies and innovation management, it is interesting how such factors can be implemented in business models.

The aim of the paper is to illustrate the importance of technological innovation, prototypes, prototypes strategies and business models to obtain competitive advantage in an uncertain market environment. Also, the paper presents a business model prototyping that helps managers to develop their organisations through competitiveness and obtain performance.

2. Technological Innovation and Competitiveness

In a dynamic market, technological innovation represents a key source to obtain competitive advantage. Technological innovation refers to the "introduction in the market of a technologically new or significantly improved product or the application of a technologically new or significantly improved productive process, successfully responding to market demand. It is the outcome of the interplay of marketconditions on the one hand and of the possibilities to utilize the stock of technological and scientific knowledge" [2]. In any society market success or failure is determined by elements such as: "shaping creativity; innovation and competitiveness worldwide through: the partnership between governments, enterprises, research laboratories and other specialized bodies, universities and support services; the power of information and communication technology; the efficiency of management and organizational systems in production and trade; the international agreements, provisions and regulations" [3].

Competitiveness represents "people's, organizations' and nations' capacity to achieve high outputs and outcomes and in particular to add value using the same or lower input amounts" [3]. Competitive advantage is obtain when an enterprise implement "a value creating strategy not in simultaneously

being implemented by any other competitor" [4]. A sustainable competitive advantage is obtain when the enterprise implement "a value creating strategy not in simultaneously being implemented by any other competitor and when the other enterprises are unable to duplicate the benefits of the strategy" [4]. Successful innovation management requires attention at some aspects such as: "information on what can be done; information on how to do it; right decisions on what to do and how to implement them; assistance with planning and implementation; money to finance the necessary developments, together with advice on appropriate sources including grants; specific expertise on technological, marketing, management and organizational issues and permanent training and skills development at various levels" [3].

3. The Business and the Engineering Approach of Prototypes

Nowadays managers recognize the importance of innovation, the creative design process, the use fullness of prototyping in the successful product development and in the process of gaining competitive advantage in a dynamic business environment. Prototyping is recognized as an essential tool for successful product development and it is important for the engineering teams to determine how to get from the concept to the final product. Prototyping strategy represents "the set of decisions that dictate what actions will be taken to accomplish the development of the prototype(s)" [5].

The business approach emphasizes that prototypes are used to describe the customer` feedback on aspects like ergonomics, aesthetics and theme, as well as for marketing research and cost analysis [5]. There are some interesting key points that managers should take into consideration in the decision-making process of prototyping strategies: "prototypes are built towards the goal of meeting minimum design requirements, and that information gathered from prototype testing is useful; the goal of a prototype is to prove that the final product is viable in the real world but besides meeting performance requirements, this also includes meeting design requirements, such as the ability to properly integrate with existing systems; prototypes are intended to be focused on determining unknown quantities; being experimental, prototypes may end up with test results that indicate a final product is not yet ready to be developed, given current technologies; prototypes are designed and built around meeting a specific set of criteria" [5]. All of this suggestions should be applied by a good strategic leader and by a team of highly skilled employees.

Prototyping is usedby engineers "to provide manufacturing and assembly data, to investigate system integrationissues, to develop analysis and testing strategies" [5]. In engineering prototyping represents a whole process where the employees deal with "concept ideation and design methods or use of the virtual and physical systems (i.e. CAD modelling or CNC machining, FEA, CFD) to bring an idea into a visual or physical realm where analysis can be performed" [5]. The literature emphasizes some characteristics of prototypes: "they can be virtual or physical, can use similar or different manufacturing and assembly techniques than the final design, prototype manufacturing can be outsourced, rapid prototyped or completed in- house, prototypes can be of a single subsystem, of a set of subsystems or of the entire system" [5].

4. Business Model Prototyping

Business models refer to "the logic of the company- how it operates, creates and captures value for stakeholders in a competitive marketplace - strategy is the plan to create a unique and valuable position involving a distinctive set of activities" [6]. In addition, a business model contains a system of different elements. In general, the aim of a business model prototyping is "the description of sufficiently precisely designed business model prototypes assisting with decision finding with the aid of a business model to be implemented" [1].

The authors propose a business model framework. The aim of the proposed business model is to permit the decision-maker to find the best strategy using prototypes to achieve performance, eliminate the competitors and gain competitive advantage. A business model prototyping "crystallizes customer needs and ability to pay, defines the manner by which the business enterprise responds to and delivers value to customers, entices customers to pay for value, and converts those payments to profit through the proper design and operation of the various elements of the value chain" [7].

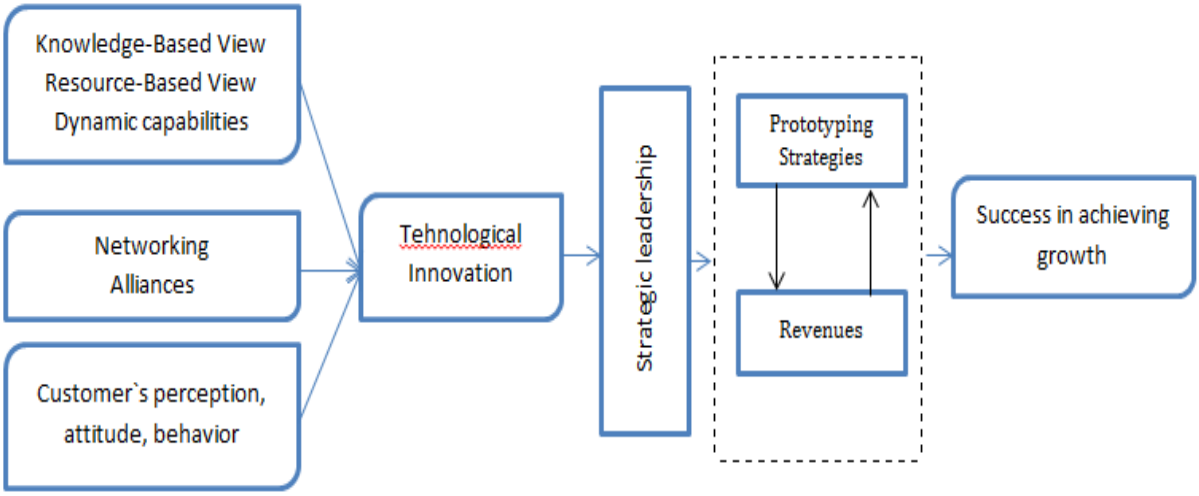

Fig. 1. Business model prototyping framework

The model illustrated in fig. 1 focuses on elements such as knowledge-based view, resource-based view, dynamic capabilities, networking, alliances, customers' perception, attitude and behavior, innovative processes, strategic leadership and prototyping strategies. Knowledge represents a "fluid mix of framed experiences, values, contextual information and expert insight that provides a framework for evaluating and incorporating new experiences and information" [8]. Resources define the resource-based view. Resources are defined as "the set of assets, capabilities, organizational processes, firm characteristics, information, knowledge, and so on that are under the firm's control, allowing the firm to conceive of and realize strategies intended to increase its effectiveness" [4]. The background of the resource-based view provides from David Ricardo's (1817) analysis of land rent. David Ricardo considered the influence of inelastic resources (such as land) on the firm's rent [9]. Dynamic capabilities represent "the firm's processes that use resources - specifically the processes to integrate, reconfigure, gain and release resources - to match and even create market change"[9]. Alliances are "cooperative agreementsbetween firms involving exchange, sharing, orcodevelopment of products, technologies, orservices" [10]. Nowadays, the "voice" of the consumer is the most important factor that influence the prototype. Technological innovation represents "a new technology that creates new products, hence new opportunities for the industry; this is the basic meaning of innovation and thereason it is important for economic growth as it creates business opportunities and conduce to changes in the society" [3]. Strategic leadership is the "ability to anticipate, envision, maintain flexibility and empower others to create strategic change as necessary" [11]. The first step in a project is typically "the construction of lab samples based on standard components ormodification of previous products - the prototype, a new product produced for the first time, serving practicaltesting and further development purposes" [12]. In an uncertainty market is necessary a good prototyping strategy. In addition "to technical motivated questions about durability, fit, finish, manufacturing costs, and industrial design, prototypes can answer questions about customer reactions, that is if the customer can evaluate the component in thisearly stage" [13].

5. Conclusions

Enterprises should be in a continuous process of innovation in order to improve their businesses and to be the leader on the market. Innovation refers not only to the birth of a new product, it includes all the stages, from the design to the evaluation of the way an idea, product, model or system is applied in practice.

An important conclusion of the paper is that, in an uncertain and competitive business environment, a business prototyping model must be built to respond to the customer`s needs. This involves to know customers` attitude, perception and behavior, to have a knowledge-based view and a resource-based view, alliances to develop businesses and powerfull dynamic capabilities. Tehnological innovation represents the key source to obtain and maintain competitive advantage. Innovation management

requires good strategies and a business model. In addition, the paper offers a business prototyping model that helps managers and leaders to take the best decisions according to their internal and external factors that influence the enterprises. The integration on different elements such as customers, resourses, networking, tehnological innovation, strategic leadership and strategic prototypes conduce to atractive revenues and a succesfull growth.

Further researches will focus on developing competitive business models for multinational organization, prototyping and business strategies. Also, the next study will focus on different sources of finance and on developing a sustainable an enterprise.

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