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THE USE OF CONCEPTUAL BUSINESS MODEL IN MANAGING INFORMATION TECHNOLOGY PROJECTS

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Abstract

The business model of an organization is an important strategic tool for its success, and should therefore be understood by business professionals and information technology professionals. By this context and considering the importance of information technology in contemporary business models, this article aims to verify the use of the business model components in the information technology (IT) projects management process in enterprises. To achieve this goal, this exploratory research has investigated the use of the Business Model concept in the information technology projects management, by a survey applied to 327 professionals from February to April 2012. It was observed that the business model concept, as well as its practices or its blocks, are not so well explored in its whole potential, possibly because it is relatively new. One of the benefits of this conceptual tool is to provide an understanding in terms of the core business for different areas, enabling a higher level of knowledge in terms of the essential activities of the enterprise IT professionals and the business area.

Descriptors: Business Model, Projects, Project Management, Information Technology.

1. INTRODUCTION

The term 'business model' is relatively new but has proved relevant to organizations. Despite the consensus in terms of its importance to the success of an organization, the concept is still unclear and vague, and there is little agreement regarding its composition facets (Al-Debei *et* Avison, 2010). The literature shows a clear lack of conformity in relation to their bases, and some researchers argue that the concept is underdeveloped (Magretta, 2002; Chesbrough *et* Rosenbloom, 2002).

First mentioned in an academic article in 1950 (Bellman et al., 1957 cited in Osterwalder *et al*., 2005) and then used by Jones (1960 *apud* Osterwalder et al., 2005), the business model started to be used prominently only in the late 1990. This rise coincides with the advent of the internet in business and becomes stronger with the development of the Nasdaq stock market (Osterwalder *et al*., 2005).

Such term has sometimes been used synonymously with corporate strategy, business process model or even business case (Al-Debei *et* Avinson, 2010). Leem *et al.* (2004) and Kallio *et al.* (2006) describe the components of the business model as a set of strategies. Magretta (2002) argues that the business strategy explains how organizations hope to do better than their rivals, while the business model describes how the parts of a business fit together. Perhaps the main reason behind this question is the evolution of the traditional way of doing business for the new concepts of digital market, which exhibit a high level of complexity and requirement of rapid change, both characteristics of the new economy (Al-Debei *et* Avinson, 2010).

Understanding this evolution and its trends helps identify opportunities and challenges so that these companies may step into and sustain themselves in this digital age environment. For organizations that want to move successfully towards the new economy, it is not enough to use web-based systems. They should also take an appropriate action strategy in relation to e-business and the ability to plan virtual systems and new business models. In addition, they need to plan the transition process, which relies on information technology (IT) as discourses Turban *et al.* (2004).

Business professionals must be able to formulate the vision clearly and inform what is expected of IT professionals.

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On the other hand, the team of information systems (IS) should be able to point out how information and communication technology (ICT) can improve the business goals of a company. However, business and IT teams sometimes seem to be very far away. Each manager intuitively understands how his business works, but in many rare cases he is able to communicate in a clear and simple way (Linder *et* Cantrell, 2000).

In turn, the IT team knows what ICTs are capable of accomplishing in terms of SI for the business areas of the company, but has trouble getting a strategic adjustment with the business team. Thus, the model can be the conceptual tool to capture, share and create a common understanding between the parties involved (Osterwalder *et al*., 2005).

Since the areas of business and IT share a common understanding in terms of the organization's business model, both can reflect together on how the objectives of the business strategy guide the changes in the model and hence in the information systems; or rather, how the evolution of ICT directs changes in the business model and the strategy of organizations.

Given this context and the importance of IT in innovative business models in the new economy, this article proposes the following research problem: what is the use of conceptual business model in IT projects? To answer it, it is established as the objective to verify the use of the model components in the IT project management process.

2. THEORETICAL FRAME OF REFERENCE

2.1. Business model (BM)

The term business model (MN) has to be used prominently by the late 1990s (Demil *et* Lecocq, 2010). Although its use coincides with the advent of the internet in business and accentuated with the development of the Nasdaq stock market for technology companies, this expression is not strictly related to the Internet. However, curiously, the number of times it appears in the media follows a similar pattern to the high of the Nasdaq stock index (Osterwalder *et al*., 2005).

The BM concept remains diffuse and authors address various aspects, glancing through different lenses (Shafer *et al*., 2005). Figure 1 summarizes the settings and contexts of some authors cited in academic articles.

BM is not operated independently; however, it interacts with a strategy focused on creating value attributes for the company's evolution (Rodrigues *et al.*, 2013), as well as business processes, including the areas of support, such as IT. These intersections represent two critical points of transition to be followed by organizations, as shown in Figure 2 (Al-Debei *et* Avison, 2010).

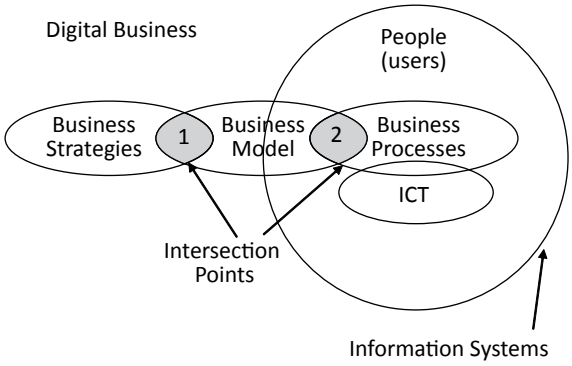

Figure 2. Business model vs. business processes vs. information systems
Source: Elaborated from Al-Debei *et* Avison (2010)

The first intersection point refers to the overlap of business strategy and business model. According to Porter (1980), business strategy is a way by which an organization is positioned in its industry, adopting one of the following generic strategies: cost leadership, differentiation or focus. However, at this stage, the organization translates its broader strategy into a more specific business architecture, involving, in addition to the value proposition, the operating system and the financial arrangements needed to achieve the goals and strategic objectives of the business. Thus, the BM, in the first point of intersection, is dependent on and derived from the business strategy (Al-Debei *et* Avison, 2010).

On the second point of Figure 1, the business model acts as a base system for business operational processes, including the IS. However, although business processes and IS are derived from BM, it does not define precisely how processes and IS are executed, thus allowing different design options of business processes and IS (Al-Debei *et* Avison, 2010). A BM does not express how value creation activities will take place, as this is an important goal for the modeling of business processes (Gordijn *et al*., 2000).

Business professionals must be able to formulate their vision and clearly communicate what is expected of IT professionals. On the other hand, the IS team needs to point out how ICT can improve the results of a company. However, business and IT teams sometimes seem very far away. Every manager understands intuitively how his business works, but he is rarely able to communicate clearly (Linder *et* Cantrell, 2000).

The IT staff understands what ICTs are able to accomplish in terms of Information Systems (IS), but there are difficul-

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Authors	Definition of Business Model	Context
Timmers (1998, p.4)	"The architecture for products, services and information flow includes the description of various business actors and their roles; a description of the potential benefits for the various business actors and revenue sources."	e-Business
Venkatraman *et* Henderson (1998, p.33-34)	"A strategy that reflects the architecture of a virtual organization along three main vectors: interaction with the customer, asset configuration and leveraging knowledge."	Estrategy
Linder *et* Cantrell (2000, p.1-2)	"The logic of the organization's core for value creation. The BM of a Profit -oriented organization explains how it makes money."	Estrategy
Gordijn *et al.* (2000, p.41)	"A BM explains the creation and the addition of value in a multiparty network of stakeholders, as well as the exchange of value among them."	e-Business
Amit *et* Zott (2001, p.4)	"A BM describes the content, structure and transaction governance in order to create value by exploring new business opportunities."	e-Business
Weill *et* Vitale (2001)	"A description of the roles and relationships between consumers, customers, allies and suppliers to identify a major product flow of information and money, and benefits for the participants."	e-Business
Stahler (2002, p.6)	"An existing BM or future business. A model is always a simplification of the complex reality. It helps to understand the basics of a business or plan how a future business should look like."	Estrategy
Chesbrough *et* Rosenbloom (2002, p.532)	"The BM provides a coherent framework that takes the characteristics and potential of technology as input, and converts them through customers and markets in economic output. The BM is therefore designed as a device that performs intermediation between technological development and the creation of economic value."	Estrategy and Technology
Magretta (2002, p.4)	"The BM has a logical story explaining who the customers are, what they value and how the company will make money by providing value to them at an appropriate cost."	Estrategy
Hedman *et* Kalling (2003, p.49)	"Term generally used to describe the key components of a business: customers, competitors, supply, organization activities, resources, supply and import of the production, as well as components of the longitudinal process to cover the BM dynamics over time."	IS and Estrategy
Leem *et al.* (2004, p.78)	"A set of strategies for the establishment and management of companies, including revenue model, high-level business processes and alliances."	Estrategy
Shafer *et al.* (2005, p.202)	"A representation of the adjacent logic of the firm and strategic choices for creating and value capture from a value network."	Estrategy
Osterwalder *et al.* (2005, p.17-18)	"A conceptual tool that has a set of elements and their relationships, allowing the expressing of the business logic of a specific firm. It is the amount of description that a company offers to one or more customer segments, as well as the architecture description of the firm and its network of partners for creating, marketing and delivering this value to generate profitable and sustainable revenue streams."	Estrategy e IS
Kallio *et al.* (2006, p.282-283)	"Means by which a company is able to create value for coordinating the flow of information, goods and services among the various industry participants, including customers, partners within the value chain, competitors and government."	Estrategy
Johnson *et al.* (2008, p.60-61)	"A BM consists of four intricate elements: value proposition for the customer, profit formula, key resources and key processes."	Estrategy
Rappa (2010, s.p.)	"A method for doing business by which a company can sustain itself, that is, generate revenue. The BM describes how a company makes money by specifying where it is positioned in the value chain."	e-Business
Zott *et al.* (2011, p.1038)	"It provides a systemic approach on how to do business, considering the activities that go beyond the boundaries of the firm, focused on value creation and capture."	Estrategy
Nielsen *et* Lund (2012, p.12)	"Consistency between the strategic choices of the company that enable relationships for creating value for the operational, tactical and strategic levels"	Estrategy

Figure 1. Business model concepts and contexts
Source: Siqueira *et* Crispim (2011)

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ties to achieve a strategic fit with the business team. The BM may be the conceptual tool to capture, share and create a common understanding between the parties (Osterwalder *et al*., 2005).

Once the areas of business and IT share a common understanding in terms of the organization BM, they analyze together how the objectives of the strategy lead changes in the business model and hence the IS; or rather how the evolution of ICT directs changes in BM and in the strategy of the organizations. This statement is an extension of the Strategic Alignment Model of Venkatraman *et* Henderson (1993), which is defined in terms of four key areas of strategic choice: a) business strategy; b) information technology strategy; c) organizational infrastructure and processes and; d) information technology infrastructure and processes. The model addresses the strategic adequacy between the 'IT/IS strategy' and 'business strategy', and the functional integration between the 'organizational infrastructure and processes' and the 'IT/IS infrastructure and processes' (Osterwalder *et al*., 2005).

Figure 3 illustrates how the BM serves as a tool to conceptualize and illustrate a business strategy and its objectives. It could be integrated into the organization model (which represents the organizational infrastructure and processes) and IS model (representing the informational infrastructure, applications and user interfaces).

Osterwalder and Pigneur (2011) expose in Figure 4 the nine components, or blocks, of a conceptual business model, showing the logic on how an organization intends to generate value. The nine components cover four main areas of business: customers, offering (products/services), infrastructure and financial viability.

The nine blocks of BM form the basis for a useful tool called business model framework, as can be seen in Figure 5.

The table shown in Figure 5 aims to map the organization's value proposition(s). Such tool allows the drawing of new business models, future or intended, or even documenting existing models. Operationally, the picture works when printed on a large surface, so that various groups of people (stakeholders) can sketch together its entirety, thus promoting: discussion, understanding, creativity and analysis (Osterwalder *et* Pigneur, 2011).

2.2. Project management and IT

Project management should not be restricted to meeting timelines, budget targets and fulfilling requirements. It is necessary to go further, as it should be aligned to the organization's strategy on a tactical level (Shenhar, 2004). In addition, Shenhar *et* Dvir (2010) emphasize the strategic dimension of management, in which the effectiveness in generating competitive advantage is verified and in the innovation of the organizations through projects.

Muñoz *et al.* (2014) states that the correct project management can offer a real opportunity for the organization to be more efficient and effective. More convincingly, Mutka *et* Aaltonen (2013) proclaimed that the projects may even have a more significant effect on business directions, contributing to the remodeling of the company BM.

For the Project Management Institute (PMI), "A project is a temporary effort undertaken to create a product, service or unique result" (PMI, 2008, p.5). As for project management, "it is the application of knowledge, skills and techniques to project activities to meet their requirements" (PMI, 2008, p.8). In addition, Shenhar *et* Dvir (2010, p.16) claim that "projects are the engines that drive innovation of marketing ideas". Swanson (2012) also emphasizes that "projects are also propellants that cause organizations to be better, stronger and more efficient."

The foundation of PMI in 1969 is symptomatic in terms of evolution and formalization of the project management discipline in that period. But only from the 1980 the projects started to appear and gained greater strength. In 1985,

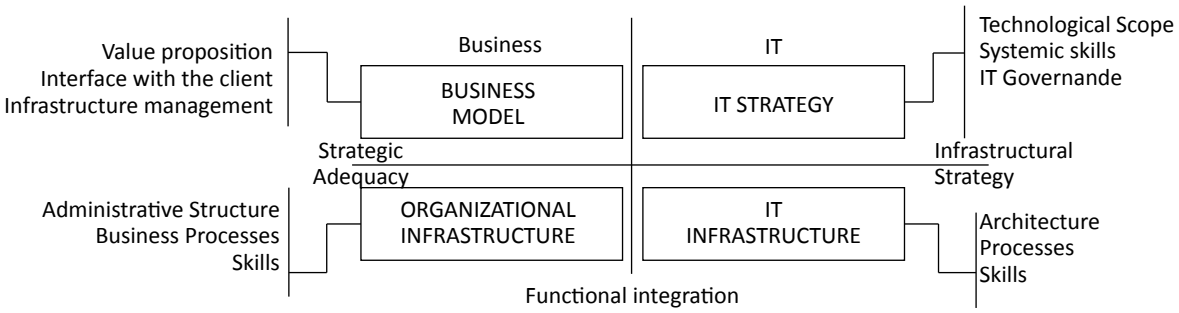

Figure 3. Alignment between business and IT/IS
Source: Elaborated from Osterwalder et al. (2005) Henderson et Venkatraman (1993

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Area	Block	Description
Offer	VO – Value offer	It provides an overview of the suite of products and services of the company; it represents value for a specific customer segment; It is the reason why the customer buys from a particular company and not from others. It is the way in which the company differentiates itself from its competitors, whether by low prices, differentiated products/ services, customer proximity, convenience, performance, and innovation.
Clients	CS - Consumer segments	It describes the customer segment(s) to which a company intends to offer value. An effective segmentation allows the company to allocate resources to target customers, who are more attracted by its value proposition.
	CN – Channels	It describes the means of communication, distribution and sales that a company has to interact with its customers.
	CR – Customer relations	It explains the types of links a company establishes between itself and its different customer segments. However, as interactions have a certain cost, companies must carefully define what kind of relationship they wish to establish with each segment.
Infrastructure	MR – Main Resources	Os RP ou competências essenciais são os elementos ativos para oferecer e entregar os elementos previamente descritos na proposta de valor. Os RP podem ser físicos, financeiros, intelectuais ou humanos. Podem ser de propriedade da empresa ou adquiridos de parceiros-chave.
	MA - Main Activities	They are the most important actions a company can take to operate successfully. As well as the MR, the MA is required to create and deliver the value proposition. They are differentiated depending on the BM and can be classified into production, problem solving, and platform/network.
	MP – Main Partnerships	It describes the network of suppliers and partners that put the BM to work. It is possible to distinguish four types of partnerships: strategic alliance between non--competitors; coopetition (strategic partnership between competitors); joint ventures to develop new businesses; and buyer-supplier relationship, to ensure reliable supplies.
Financial viability	R$ – Revenue Sources	It describes the way the company makes money through a variety of revenue streams resulting from value propositions offered successfully to customers.
	C$ - Cost Structure	It describes all the costs involved in operating a BM. Some, however, are more targeted by cost than others. Thus, it is interesting to distinguish between two broad classes of cost structure: a) directed by the cost and b) directed by value (many BMs are between the two extremes).

Figure 4. Blocks of a business model
Source: Elaborated from Osterwalder *et al.* (2005), Osterwalder *et* Pigneur (2011)

<table>
<tr><td rowspan="2">Main Partnerships</td><td>Key Activities</td><td rowspan="2">Costumer Relations</td><td>Costumer Segments</td><td rowspan="2">Segmentos
de Clientes</td></tr>
<tr><td>Main Resources</td><td>Channels</td></tr>
<tr><td colspan="3">Cost Structure</td><td colspan="2">Revenue Sources</td></tr>
</table>

Figure 5. Framework business model
Source: elaborated from Osterwalder *et* Pigneur (2011, p. 44)

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the Total Quality Management Program (TQM) becomes the first ally of the project management (Kerzner, 2006). Second frame (1999 *apud* Rabechini Junior, 2005), its adoption has intensified especially in the 1990s, and was mentioned by many scholars as a compulsory subject in companies seeking to develop and maintain competitive advantages.

The guide of best practices of PMI, called PMBOK® (Project Management Body of Knowledge), was initially developed in 1987 as a white paper and in 1996 its first edition was launched. With voluntary contributions from academics and professionals, later versions of PMBOK® were launched in 2000 and 2004 (PMI, 2008).

From the year 2000, the support from the executives was expanded and global standards of excellence were defined for project management (Kerzner, 2006). Mergers and acquisitions worldwide have emerged, thus creating more multinational companies, placing the management of global projects as the challenge of the decade. In addition, models and project management maturity measurements begin to emerge to help companies in the implementation of strategic planning for its management, as indicated Ibbs *et* Kwak (2000); Kerzner (1999); PMI (2003); Carvalho *et al*. (2003); and Rabechini Jr. (2005).

However, companies do not realize the strategic planning for the management of projects with the same care and precision as the planning for new products and services. Nevertheless, the planning aimed at project management differs from other forms often be accomplished by the intermediate administrative level rather than at the executive level (Kerzner, 2006). However, Duarte *et al.* (2012) suggest the existence of common ground between the project management and IT project management.

In 2008, PMI launches the fourth edition of the PMBOK®. The established and unique standard in relation to the project management field has relationships with other disciplines such as program management and portfolio management. This guide sets out five process groups (or phases) of project management (Initiating, Planning, Executing, Monitoring and Controlling, and Closing) and nine knowledge areas (integration, Project Scope, Time, Cost, Quality, Human Resources, Communication, Risks, and Acquisitions), which refer to the integration of several key elements that are common to almost every project (PMI, 2008). In early 2013, a fifth edition is launched and a new area of knowledge arises - stakeholder management - which denotes the constant evolution of this area of knowledge.

The project manager is responsible for the success of the project (PMI, 2008; Kerzner, 2006, Duarte *et* al, 2013.) and is in charge of all aspects, including, but not limited to: a) development of the management plan of the project and all derivative plans; b) maintenance of the project on schedule and budget; c) identifying, monitoring and addressing risks, and d) providing reports of project metrics (PMI, 2008).

IT executives and project managers have considered the alignment between IT and business strategies as one of the main objectives of the area, by the new opportunity identification possibility and the competitive advantages based on IT solutions (Porter, 2001).

For organizations of the digital age using web-based systems it is not enough. There should also be an appropriate strategy and the ability to plan virtual systems as well as new business models that increasingly rely on IT (Turban *et al*., 2004). It is assumed that this is one of the reasons why the IT area is identified as number one within organizations in using project management methodologies, with 67.3%, followed by engineering with 41.4%, and production/operations with 33.7% (Pmsurvey, 2011).

In the view of Turban *et al*. (2004), the dependence on IT is a fact. In this sense, Smith *et* Crispin (2012) corroborate such thinking when exposing companies that do not have a flexible and balanced IT architecture, that is, an architecture adjusted to the double need for affordable costs to meet current business requirements and the ability to react to changes in the market in a quick way. Their survival may be threatened.

3. RESEARCH METHODOLOGY

This is an exploratory research, which uses a quantitative approach and the survey method. According to Gil (2010), the exploratory research aims to provide greater familiarity with the issue, in order to make it more explicit or build hypotheses.

The study universe is made up of organizations from various sectors in Brazil. The subjects are professionals who work in IT projects, and representatives of technology and business. The sample consists of 327 valid questionnaires among CIOs, project managers, program managers, department managers, engineers, analysts, consultants, among other positions.

Convenience was the sampling procedure adopted and it was complemented by the snowball method, i.e., it was asked to each respondent to indicate other professionals with similar profile to participate in the research, thereby generating a non-probabilistic sample as a result. In such proceeding, “the researcher uses subjective methods

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such as personal experience, convenience, expertise etc., to select the elements of the sample" (Hair Jr. *et al*., 2005, p. 246).

The snowball method has found a niche in applications in which respondents are located by means of the reference network, and may or may not be selected using probabilistic methods (Cooper *et* Schindler, 2003). The questionnaire was submitted to a pretest with 12 professionals

A pre-test with a sample of 12 subjects was carried out. Participants were selected by professional profile and ease of researcher access. "The smaller number of respondents may be four to five individuals and the higher should not exceed thirty" (Hair *et al*., 2005, p.230). According to Babbie (1999, p. 303), "every research manual suggests some kind of test to the research design, before the larger study."

This study made use of LinkedIn® social network for dissemination and search for respondents, focusing on the required professional profile. Data collection took place between February-April 2012.

With the aid of SPSS software, it was decided to perform Categorical Principal Components Analysis (CATPCA) intrabloc using the *eigenvalue* rule above '1', along with the coefficient α (alpha) by Cronbach. Such parameters had the purpose to verify whether the constituents of practical factors are associated with each other and whether they represent a single concept, thus ensuring unidimensionality (Hair *et al*., 2006). For exploratory studies, the acceptance of the data sets with Cronbach α above 0.60 is suggested (Hair *et al.*, 2006).

The survey instrument was composed of nine constituent components of the business model of Osterwalder *et al*. (2005), operated by means of variables termed herein 'MOD_n', as shown in Figure 6.

	Variable	Components of the Business Model
BUSINESS MODEL	MOD_1	Value Proposition
	MOD_2	Customers Segment
	MOD_3	Channel
	MOD_4	Customer Relations
	MOD_5	Key activities
	MOD_6	Key Resources
	MOD_7	Main Partnerships
	MOD_8	Cost Structure
	MOD_9	Revenue Sources

Figure 6. Research tool variables
Source: The authors

An ordinal scale was used in the research, namely, a non-metric scale of the *Likert* type scale (0 - I do not know/not applicable; 1 – never; 2 – rarely; 3 – sometimes; 4 – frequently; and 5 – always). The median is the most appropriate measure of central tendency for applications with ordinal scale (Hair *et al*., 2005; Malhotra, 2006).

4. PRESENTATION AND ANALYSIS OF RESULTS

4.1 Main considerations in terms of the characterization of respondents

Of the 327 respondents, a higher incidence of male workers (73.7%) was observed. The age pattern, with high incidence of individuals aged between 31 and 50 years (74.3%), is consistent with the high level of education, as 69.1% of respondents reported having complete post-graduation. Most of them belong to the IT field (73.4%), a fact consistent with what is observed in organizations, which means finding in the IT project staff a greater number of members of this area and a smaller group representing the business/administration areas.

Most respondents have a managing function (64.5%), the highest incidence being as a project manager (26.3%), followed by program/portfolio manager (11.9%) and functional manager (11.3 %). However, the analyst position (19%) comes second in the overall functions ranking. It was also noted that almost half of the respondents (49.2%) is in the current company for over five years.

4.2 Main considerations in terms of the characterization of organizations

As for the business sector in the organizations, we may highlight the financial sector (36.4%), formed by banks, insurance, pension and other financial services; followed by the IT sector, with 22.9%. Most respondents (89.9%) state that the organization in which they operate have some process or formal systematics for project management, and 57.5% assert that such a system is in place for over five years. As for the best project management practices, 59.9% said they use the PMI.

As for the area responsible for the selection, prioritization and monitoring of IT projects, the Project Management Office (PMO) was the most cited area (52.6%). However, in the organizational structure aspect, the distribution is fairly homogenous. Nevertheless, it is noteworthy that 27.8% of professionals say that the structure is functional or departmentalized, one of the most traditional forms, followed by the projectized (24.2%), a contemporary structure in which the projects are predominantly strategic to the organization.

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4.3 Analysis of results

With the aid of the use of Categorical Principal Components Analysis (CATPCA), the intrabloc dimensionality of the construct was observed, i.e., we sought a single factor with *eigenvalues* higher than '1' in the set of practices (construct) of the business model (MN). "The unidimensionality test means that each scale should consist of multiple items, with high loads concentrated in a single factor" (Hair Jr. *et al*., 2006, p.111). A list of nine variables that make up the construct is given in the Table 3 of the Methodology section.

Ideally only one factor should present eigenvalue above 1 (Hair Jr. *et al*., 2006). However, it was noted that two factors had eigenvalues above '1', indicating that the practices suggested in research to construct the 'business model' do not present unidimensionality, according to the data of the sample.

Therefore, the observation of the degree of explained variance of each variable on the first factor was followed. After two executions of the CATPCA, a new analysis was performed, but this time without the MOD_5 and MOD_8 variables; the new configuration then presented seven variables.

Table 1 shows the final factor loadings of the variables that make up the construct in descending order.

Table 1. Factor loadings - Business Model

Business Model Construct		
Variable	**Question No.**	**Factor loading**
MOD_4	4	0,8255
MOD_2	2	0,7976
MOD_3	3	0,7835
MOD_1	1	0,7489
MOD_7	7	0,7077
MOD_6	6	0,6762
MOD_9	9	0,6499

Source: The authors.

The variables MOD 5 (question '5 - IT Projects enable the structure, processes and the required organizational resources') and MOD_8 (question '8 - IT projects seek organizational efficiency and process optimization in order to reduce costs') were dropped for not sharing the variance needed to create the unidimensionality of the construct under analysis.

Table 2 details the counting, and the median percentage of each practice (variable), which formed the unidimensionality of the construct business model.

It is observed that the issues 2 and 7 had higher median (equal to 4), that is, for most participants, these practices are 'often' and 'always' performed. However, in the other issues there is a frequency decline; most respondents stated that these practices are 'rarely', 'sometimes' or 'often' exercised.

5. CONCLUSION

The emergence of project management is a response to the requirements of the current business environment in which IT projects should be aligned to company goals in order to deliver significant business benefits. Thus, one of the biggest challenges in management is to develop and improve the ability to compose a portfolio of suitable IT projects in order to contribute to the achievement of the results and benefits of the company. To do so, establishing criteria, rules and procedures that align the project portfolio to the organization's business model is one of the factors of great influence for business success.

A business model describes the rationale of creating, delivering and capturing value by the organization. The challenge is that this concept should be relevant, simple and intuitively understandable, and at the same time it should not oversimplify the complexity of running a business, as proposed by Osterwalder *et* Pigneru (2011).

It is to be noted that, during the pre-trial phase of the field research conducted in this study, we observed that, according to the target audience, this concept and its practices or its building blocks are relatively new; hence the need for inclusion of the response option '0-do not know / not applicable' in the questionnaires.

The organizational structure is a factor of the organization environment, which can affect the availability of resources and influence how projects are conducted. Organizational structures range from the functional to the projectized ones, including several matrix or hybrid structures (Kerzner, 2006; PMI, 2008).

In the projectized organizational structure, projects are predominantly strategic to the organization. However, the sample data of this study showed very even distribution between organizational structures (projectized, strong matrix, balanced matrix, weak and functional matrix). At the top of the ranking, the functional or departmentalized structure appears with 27.8%, followed by projectized, with 24.2%. These two structures together, although distinct, totaled 52% of the respondents claim. According to the PMI data, most organizations focuses on the functional or departmentalized structure (39%) and on the balanced matrix structure (29%) (Pmsurvey, 2011).

In response to the organizational demands where the portfolio of IT projects is under the careful eyes of executives

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Table 2. Descriptive analysis of the construct business model

	Modelo de negócios						
	Question – Practice Do not know / Not applic able	**Quantity and Percentage (%)**					
		Never	**Raraly**	**Some times**	**Frequently**	**Always**	
41	In projects involving products/ services, the 'value proposition' of the organization is widely discussed and understood between project participants.	34 10,4%	13 4,0%	53 16,2%	117 35,8% ●	90 27,5%	20 6,1%
42	IT applications have custom functionality in accordance with the profiles of their customers and the needs of the 'target customers' are prioritized.	20 6,1%	6 1,8%	36 11,0%	80 24,5%	150 45,9% ●	35 10,7%
43	IT projects covering all distribution channels of products / services with which the organization operates, exploring and respecting the specific characteristics of each one.	28 8,6%	5 1,5%	32 9,8%	101 30,9% ●	132 40,4%	29 8,9%
44	The type of relationship that the organization wants to establish with their target customers is discussed in the project scope definition.	26 8,0%	10 3,1%	50 15,3%	93 28,4% ●	124 27,9%	24 7,3%
56	In defining the scope of IT projects, there is a clear understanding of the essential business activities.	4 1,2%	4 1,2%	36 11,0%	121 37,0% ●	135 41,3%	27 8,3%
57	In the development of IT projects involving the value chain of the organization (suppliers, customers and internal structure), the aim is to achieve integration with the IS of the partners.	11 3,4%	7 2,1%	48 14,7%	92 28,1%	139 42,5% ●	30 9,2%
59	IT projects seek to implement innovative elements in information systems that allow the generation of extra revenue for the organization	12 3,7%	9 2,8%	43 13,1%	113 34,6% ●	124 37,9%	26 8,0%

Source: the authors.
Notes: ● Median. N=327

who make sure that all the investment made will certainly bring benefits to the business (Swanson, 2012), the implementation of project management offices (Project Management Office - PMO) creates mechanisms that will, for example, enable the tracking and monitoring to check whether the executed projects are aligned to the model and business strategies of organizations. In this study, the PMO was indicated by 52.6% of respondents as the area responsible for the selection, prioritization and monitoring of IT projects. PMI surveys (Pmsurvey, 2011) with 754 companies in Brazil showed that 46% of companies have a corporate PMO and that there is a growing demand for PMOs by areas. Of those who already have PMO by department, the IT area ranks first with 57.2% of the opinion of respondents, followed by engineering (28.3%).

The statement number 1, which notes the discussion of the organization's value proposition, received a relatively low score for its relevance (median = 3). The value proposition should be widely discussed in all projects involving the products and services offered to customers in all, or almost all, project development phases, in order not to 'lose' focus on what brings income to the organization.

Another question of similar importance is related to practice 6, which deals with the understanding of the essential activities of the organization, which also earned a median score equal to 3. The essential activities, or also called key activities are the most important actions a company can take to operate successfully.

According to the profile of the sample, more than half of respondents, whose education is high, has a managing function and 49% of them have been working in the company for over five years. It was expected that these assertions reached higher scores.

The low scores in the practices surveyed suggest that organizations still do not exploit the potential benefit of its BM. The BM is a conceptual tool and provides an understanding in terms of the mutual core business between the different areas of the organization and between dif-

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ferent subjects and levels, culminating in a leveling of the knowledge at an acceptable level for the understanding of the core activities of the company. From this arises the possibility of adding innovative technology in the IS aimed to generate profitable and sustainable revenue streams.

Regarding the assertions that scored higher punctuation, the number 2 - 'IT applications have custom functionality in accordance with the profiles of their customers and the target customer needs are prioritized' - may eventually be explained by the widespread installation of CRM (Customer Relationship Management) applications in organizations, thus contributing to the effective communication between the organization and its customer segments. However, the assertion 7 – 'in the development of IT projects involving the value chain of the organization we seek to integrate the partners' information systems' – can be understood by expanding the applications type B2B (Business to Business), B2C (Business to Consumer), and SCM (Supply Chain Management).

Considering that the field survey came from a convenience sample, that is, not probabilistic, the results now achieved cannot be extended to all companies in Brazil. It also emphasizes a natural limitation of the descriptive cross-sectional studies. The data collected in a given period, if collected at another time, may show different results. However, it is suggested that organizations can take advantage of the earned results. Especially those who do not even draw the potential benefit of this conceptual tool that can provide a mutual understanding of the core business across different areas, culminating in a leveling of the knowledge of the essential activities of the company between IT professionals and the business district.

Given the nature of the research, there was great care in the selection of professionals for this research in terms of the qualification of the professional profile based on education, length of service and experience in project management; however, it was not possible to discern the line of the business of the attending organizations. Because of this, the sample was pulverized in various sectors of the economy.

Regarding the theoretical framework, academic studies and business surveys have become increasingly more relevant and consistent with the business speed. This research sought a theory evolution, without, however, claiming to exhaust the subject. Thus, as regards to theory, the search for other studies that are more extensive in relation to themes addressed or from adjacent areas is recommended for future research; regarding the empirical research, it is suggested that some characteristics of the companies are considered in addition to the profile of respondents selection: a) define an industry sector; and b) consider the geographic location of the business units or between headquarters and branches in order to investigate the influence of the organizational culture.

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