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Moreira de Souza, Elnivan; de Sousa Batista, Paulo César  
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## Strategic Antecedents and Consequents for the Performance of *E-Business* Companies

**Elnivan Moreira de Souza<sup>†</sup>**

*Christus University Center - Unichristus*

**Paulo César de Sousa Batista<sup>Ω</sup>**

*State University of Ceará - UECE*

### ABSTRACT

This article aims to examine the influence of the strategic background and of the business model elements on its value proposition, and to investigate the relationship between the value proposition and the performance of *e-business*. The research is supported theoretically by the Technological, Organizational and Environmental framework (TOE), derived from the Diffusion of Innovation Theory (DIT), for the Strategic Background (IFINEDO, 2011), by the Business Model theory (OSTERWALDER; PIGNEUR; 2010; SOUZA; BATISTA, 2014) and by the business performance literature (RAMANUJAN; VENKATRAMAN, 1987). We tested the proposed model with a sample of 252 observations, using the structural equation modeling. The main results indicate a partial influence of the strategic background in the value proposition through the constructs management positioning, organizational readiness, relative advantage and pressure from stakeholders. Relating to the business model, the constructs of market segmentation, customer relationships, capabilities, partnerships and revenue model influence the value proposition, which in turn affects positively the performance of *e-business* companies.

**Keywords:** Strategic antecedents. Business models. Performance. *E-business*.

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**\*Author for correspondence:**

<sup>†</sup>. Master in Administration and PhD Student in Administration by the University of Fortaleza - UNIFOR.

**Link:** Professor of the Administration Course at Christus University Center.

**Address:** Avenue Dom Luís, 911 – Aldeota – Fortaleza – CE – Brazil. Cep: 60160-230.

**E-mail:** elnivan@hotmail.com

<sup>Ω</sup> PhD in Economy by the University of Illinois.

**Link:** Adjunct Professor of the Post-Graduate Program in Administration of the State University of Ceará.

**Address:** Avenue Dr. Silas Munguba, 1700 – Campus Itaperi – Fortaleza – CE - Brazil. Cep: 60714-903.

**E-mail:** batista.pcs@gmail.com

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## 1 INTRODUCTION

**T**echnological development is changing the way companies do business. One of the main sources of these transformations is the Internet, which became of great importance for doing business (e-business) and to improve the productivity of economic activities in general.

Indeed, the use of the Internet in management processes gave origin to e-business, which favors the integration of communication technologies with business process and management practices (KOO et al., 2007; KALAKOTA; ROBINSON, 2005).

The Internet evolved from the condition of being an information and dissemination tool and of affordable online exchanges to become the actual business model of companies, characterized by global interaction of organizational activities.

Zhu, Kramer and Xu (2006) stressed that the economic impact of e-businesses are universal knowledge and its potential to transform business models, organizational structures, processes and relationships with customers and suppliers.

For all these aspects, there has been growing interest in the study of various dimensions of e-business. By analyzing the literature, we were able to identify two main focal points on e-business studies. The first focal point comprises the analyzes of e-business Strategic Antecedents, in the form of Organizational, Technological and Environmental (TOE) Contexts, in addition to the impact of these elements on corporate performance (IFINEDO, 2011; MARTINEZ-LÓPEZ; MARTINEZ-LÓPEZ, 2010; WEISBERG; TE'ENI; ARMAN, 2011). Specifically regarding the investigation of Strategic Antecedents (TOE), the contributions by Ifinedo (2011) and Bordonaba-Juste, Lucia-Palacios and Polo-Redondo (2012), who used well established scales on this construct, are of great importance for this study.

The second group of studies are related to the activities that comprise the Business Model (CHASTON; MAGLES, 2002; OSTERWALDER, 2004; OSTERWALDER; PIGNEUR; TUCCI, 2005; WU; MAHJAN; BALASUBRAMANIAN, 2003). In this respect, the contributions of greater relevance to this study are those by Osterwalder, Pigneur and Tucci (2005). These authors developed an analysis tool, for the study of companies such as Dell, Amazon.com and eBay, which is based on four pillars: Product, Customer Interface, Infrastructure Management and Financial Management.

In Brazil, Araújo and Zilber (2013) used this theoretical model in research conducted with small e-business companies. Santos, Seloti and Silva (2013) adopted the same model for research of traditional and gourmet bakeries. These contributions are relevant, but they did not contemplate the development of a scale to analyze the relationships of the model constructs.

With these information at hand, the authors of these research adopted as objectives: (i) to examine the influence of strategic antecedents and the constituent elements of the business model in its value proposition, and (ii) to investigate the relation between the value proposition and the corporate performance of e-businesses.

In pursuing the objectives, the research strategy we adopted was an applied survey to a non-probabilistic sample of 252 cases, of a universe comprised of managers, entrepreneurs and practitioners engaged in activities that use the Internet to do businesses. For the data analysis, we used descriptive statistics and multivariate data analysis, the latter comprised of exploratory and confirmatory factor analyses and structural equation modeling.

The relevance of this study can be explained by the economic importance of the e-business segment and the contribution that the model may offer to the improvement of these companies' management and the research in this type of business. In the macroeconomic dimension, the expansion of business conducted in online environment is highlighted, whose revenues grew from 0.5 billion (BRL) in 2001 to 28 billion in 2013 – an average increase of 430% per year and 5,600% accumulated over 13 years. There was an even greater adhesion of consumers via web transactions, with more than 51 million consumers purchasing, at least once in 2013, (growth of 21% over the previous year) with spending average of 350 BRL (E-COMMERCE.ORG, 2014).

In terms of management, the study provides resource to improve the understanding of the strategic background, the business model and the impact that both have on e-businesses' performance, in addition to presenting indicators that allow measuring the allocation of resources and guide strategic decisions, according to the influence of each construct on the company's performance.

As for the academic contribution, the study seeks to help fill the gaps observed in empirical studies on the following aspects: (i) integrated treatment of strategic antecedents, business model and performance; (ii) empirical application to statistically validate or reject the model proposed by Osterwalder; and (iii) indicators that measure the impact of

environmental variables (antecedents) and of each activity of the business model on the performance of e-business companies.

In addition to this introduction, this study is composed of three more sections and final considerations. In section 1, we present the theoretical support, the conceptual and theoretical research hypotheses. In section 2, the methodological aspects of the research. In section 3, we analyze and expose the results of the investigation. The article is closes with the final considerations of the research, indicating its limitations, the relevance of the results and suggestions for future research.

## **2 THEORETICAL SUPPORT, THEORETICAL-CONCEPTUAL MODEL AND HYPOTHESES**

The implementation of e-business is more than a simple adoption of Information System (IS), since it involves a deeper integration between the internal and external management process, a closer link with partner companies, suppliers and customers, as well as managerial and strategic advantages (LUCIA-PALACIOS et al., 2014). Koo et al. (2007) define e-business as a business activity via online networks, in special, via the Internet. The use of e-business can generate benefits such as cost reduction and acquisition of new skills. The decrease of costs can occur in the supply chain and in the form of distribution (CHAKRAVARTY; KUMAR; GREWAL; 2014). New skills can be acquired, such as the ability to reach and serve a group of consumers in greater geographic coverage and to react quickly to the preferences and demands of consumers (LAUDON; TRAVER, 2010).

Technological development led the Internet to evolve from being a tool of information dissemination and affordable online exchanges to become the actual business model of companies (KALAKOTA; ROBINSON, 2005). Companies change creating or adapting their business model in such a way that there is a global integration of organizational activities.

In seeking to understand the e-business phenomenon, the literature review revealed two theoretical focus of study. The former is directed to the efforts of identifying and analyzing environmental elements that influence the adoption of e-business and the corporate performance of the e-business. These studies brought to light a consolidated framework by the TOE acronym, which encompasses the Technological, Organizational and Environmental Contexts (IFINEDO, 2011; WU; MAHAJAN; BALASUBRAMANIAN, 2003; MARTINEZ-LÓPEZ; MARTINEZ-LÓPEZ, 2010; TEO; PIAN, 2003; WEISBERG; TE'ENI; ARMAN, 2011).

The second group of studies is related to the understanding of the dynamic and architecture used by these businesses. The new organizational arrangements that emerged with the use of internet/e-business technology gave rise to the term Business Model, whose centrality is the Value Proposition offered to customers (CHASTON; MAGLES, 2002; DASILVA, TRKMAN, 2014; MARKIDES; SOSA, 2013; OSTERWALDER, 2004; OSTERWALDER; PIGNEUR; TUCCI, 2005).

Based on these findings, and with the objective of unifying the two theoretical lines identified in the research, the investigation was guided by the theoretical-conceptual model shown in Figure 1 and the hypotheses underlying it.

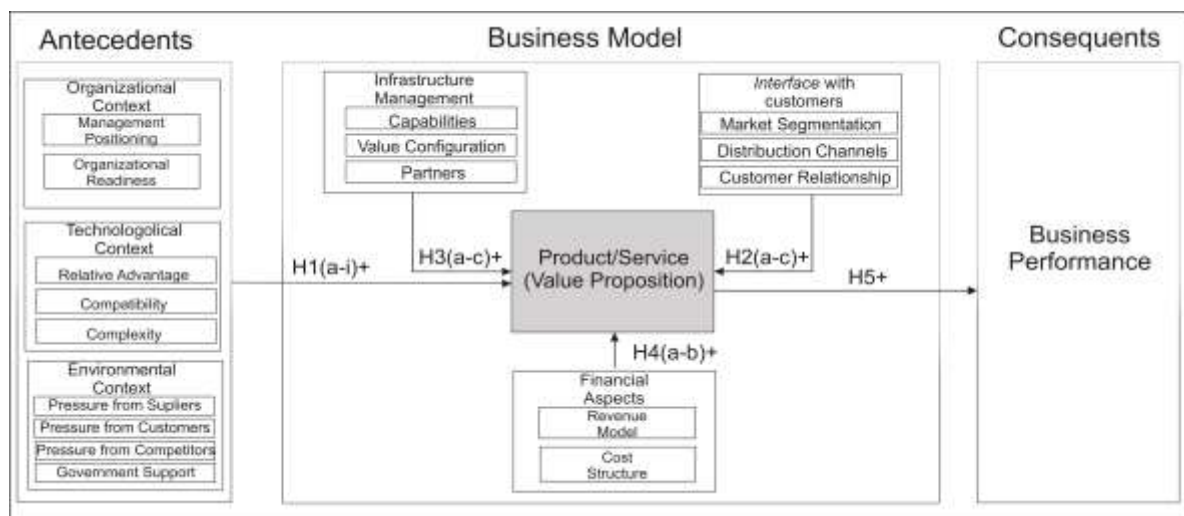


Figure 1 – Theoretical-conceptual model and research hypotheses

Source: Developed by the author based on Ifinedo (2011), Souza and Batista (2014) and Ramanujam and Venkatraman (1987).

## 2.2 STRATEGIC ANTECEDENT ASSOCIATED WITH E-BUSINESS

In the Organizational Context, Management Positioning and Organizational Readiness as influencing elements for the adoption of e-business. The first refers to the participation of senior management in the implementation of information systems. Jeyaraj, Rottman and Lacity (2006) found the support from the executive board to be one of the best predictors of the adoption of technology in innovations and information systems.

When senior management understands the importance of computer technology, the same tend to play a crucial role in influencing other members of the organization (IFINEDO, 2011). Conversely, when the support of management is low or nonexistent, acceptance and adoption of technologies do not take priority places in the organizational objectives.

Given these considerations, we formulate the following hypothesis:

**H1a – Management Positioning Positively Influences the Value Proposition.**

Organizational Readiness is defined by Iacavou, Benbasat and Dexter (1995) as the availability of resources needed for adoption of Internet/e-business technologies. These resources include not only material goods but also intangibles ones, like the human knowledge of information systems (IFINEDO, 2011, LUNARDI; DOLCI; WENDLAND, 2013). Companies with e-business experts are more likely to adopt technological innovations because they can develop their own web site or use specific technologies to improve the management of its supply chain (LIN; LEE, 2005). The absence of organizational readiness is the main harmful element to the implementation and development of e-businesses (LUNARDI; DOLCI; WENDLAND, 2013).

Based on these contributions, we formulate the following hypothesis:

**H1b – Organizational Readiness positively influences the Value Proposition;**

The Technological Context has its origin in the Diffusion of Innovation Theory (DIT) (ROGERS, 2003) and it is explained by the Relative Advantage, Compatibility and Complexity of Technologies constructs.

Relative Advantage is the degree to which a technology is perceived as being better than the one being currently used (ROGERS, 2003). The benefits perceived by the use of new technologies influence the adoption of e-business as well as business performance (LUCIA-PALACIOS et al., 2014). Therefore, we formulate the following hypothesis:

**H1c – Relative Advantage positively influences the Value Proposition.**

Compatibility is defined as the degree to which an innovation is perceived as being consistent with the existing values, past experience and the needs of potential users (ROGERS, 2003). In summary, this construct expresses the evaluation of the degree of congruence between the new technology and the various aspects of the business and with the situation in which the new technology will be used. The importance of compatibility in predicting results of technology acceptance was also supported in other empirical studies (AGARWAL; PRASAD, 1997; IFINEDO; 2011). Therefore, the following hypothesis states:

**H1d – Compatibility positively influences the Value Proposition.**

The Complexity of Innovations is described as the degree to which a perceived innovation can be relatively difficult to understand and use (ROGERS, 2003). Consistent with DIT, the acceptance of an innovation is inhibited when it is perceived by the user as complex to be adopted. Daniel and Grimshaw (2002) proved that technologies perceived as less

complex tend to raise greater support and acceptance among adopters than the more complex ones. Thus, the complexity is related to the perceived degree of difficulty in the process of innovation, as well as in the capacity of organizational restructuring required for its implementation (MAKAME; KANG; PARK, 2014). Therefore, we formulate the following hypothesis:

**H1e – Complexity positively influences the Value Proposition.**

In the Environmental Context, the pressure from Stakeholders, which include customers and suppliers Competitors and the support offered by the Government.

The introduction of stakeholders as applicants and captors of value in their interaction with the company opens an opportunity to better investigate this relationship (GARCIA-CASTRO; AGUILERA, 2015). The pressures from external stakeholders are also important for the adoption of e-business (CHAKRAVARTY; KUMAR; GREWAL; 2014; DEL AGUILA; PADILLA, 2008; CHONG et al., 2009). Suppliers and customers can exert great pressure, because they know that the benefits and advantages of these technologies are maximized when more people use them (LUNARDI; DOLCI; WENDLAND, 2013). Furthermore, if suppliers and customers are users of these technologies, the company will be under pressure to adapt their processes and management, in case it wishes to continue its relationship with these stakeholders (GARCIA-CASTRO; AGUILERA, 2015). Otherwise, the company will assume the risk of isolating itself in the market. Thus, the following hypotheses are formulated:

**H1f – Pressure from Suppliers positively influences the Value Proposition;**

**H1g – Pressure from customers positively influences the Value Proposition.**

As for the competitive pressure, there is a growing rivalry in an environment where new technologies have relevant influence and actions of competitors are unpredictable (PAVLOV; EL SAWY, 2010). In markets with high competition, obtaining updated information is seen as a basic requirement to support management decisions and technological innovation activities (CHAKRAVARTY; KUMAR; GREWAL; 2014). Thus, the following hypothesis is formulated:

**H1h – Pressure from competitors positively influences the Value Proposition.**

Government Support refers to the assistance provided by the government authorities to promote the use of innovative information systems in businesses. Studies examining the



relevance of government support for the adoption of technology have produced mixed results (IFINEDO, 2011). For example, GIBBS; KRAEMER (2004) and CHAU; HUI (2001) present the existence of a significant relationship between government support and the probability of companies adopting innovations, including the use of Internet/e-business technology. Based on these studies, we formulate the following hypothesis:

**H1i – Government Support positively influences the Value Proposition.**

### 2.3 THE BUSINESS MODEL AND E-BUSINESS

The concept of business model does not have a clear and unequivocal definition in the literature, which has made studies on the subject difficult. More than that, this expression has been misunderstood and improperly used over the years, both by practitioners and scholars. It has often been confused with other popular terms of management literature, such as strategy, business concept, revenue model, economic model, or even business process modeling (DASILVA, TRKMAN, 2014).

The construction of the business model enables companies to deploy e-business activities, this being defined as the complex function of business processes, business applications and organizational structure required to achieve high performance. Strategies, structures and systems must be aligned for the success of virtual business (MARKIDES, 2013). Companies often have strategies that do not line up properly their structures and systems, which leads to poor performance in the implementation phase of electronic businesses (EPSTEIN, 2000). An integrated strategy should direct the investments required to develop the necessary infrastructure, not only in terms of information systems, but mainly of human resources and appropriate processes to support the virtual operation. In these circumstances, the business model concept is relevant as guidance of the company architecture for the delivery of value.

Osterwalder (2004) proposes a framework for the formulation of business models of any kind, albeit stressing that his model is more suitable for companies making intensive use of technologies because it contributes to the alignment between business, organizational and technological strategies. The Business Model proposed by this author is composed of four pillars which are divided into nine elements which constitute the scope of companies' activities.

The product/service, first pillar, is a central element in the Ontological Business Model proposed by Osterwalder, Pigneur and Tucci (2005), for it expresses the Value Proposition

presented by the company to the market and it conditions all activities to be performed. The Value Proposition presented in the Business Model, can be understood as the statement of benefits that are delivered by the company to its customers and other stakeholders (MCNAMARA; PECK; SASSON, 2013).

The other three elements are the Market Segmentation, Distribution Channels and Customer Relationship, selected from the customer interface area. This area refers to the way the company presents itself to the market, as it actually reaches its customers and how it interacts with them (CHAKRAVARTY; KUMAR; GREWAL, 2014; OSTERWALDER, 2004; OSTERWALDER; PIGNEUR, 2010).

According to Osterwalder and Pigneur (2010), effective targeting allows a company to better allocate investment resources to target customers who will be more attracted by its Value Proposition, In addition to assisting in the decision-making process of choices of distribution channels. In view of the above, we formulate the hypotheses H2a and H4b, in relation to the influence of the business model elements on the Value Proposition:

**H2a – Market Segmentation positively influences the Value Proposition.**

The Distribution Channel corresponds to the means by which the organization can contact the customer. The activities of this construct that will interconnect Value Proposition and Market Segmentation. Its purpose is to make the right quantities of the right products or services available for the right income at the right time reach out to customers, for the right people, subject to cost, investment and flexibility constraints (MAKAME; KANG; PARK, 2014).

Thus, the following hypothesis is formulated:

**H2b – Distribution channels positively influence the Value Proposition.**

The activities associated with Customer Relationship define the type of connection and the strength of the relationship the company has with the client (OSTERWALDER; PIGNEUR; TUCCI, 2005). The profits of relationships with customers are the lifeblood of all businesses, and can be reached by the acquisition of new customers, increasing the profitability of existing customers and the relationships lasting length of time (CHAKRAVARTY; KUMAR; GREWAL, 2014).

Given these considerations on the relationship with the customer, we have the following hypothesis:

**H2c – Customer Relationship positively influences the Value Proposition.**

The Infrastructure Management is the dimension that describes what skills are necessary to promote the Value Proposition, in line with the Customer Interface (ARAÚJO; ZILBER, 2013). In other words, it specifies the capabilities and resources of the business model, its owners and suppliers, as well as the activities that it performs and how they are related.

Wilden et al. (2013) describe the capabilities as repetitive patterns of action in the use of assets to create, produce and offer products and services to the market. Thus, a company has to have a set of capabilities, in order to provide its Value Proposition and obtain top performance. These resources depend on the goods or the company's resources (PETERAF; STEFANO; VERONA, 2013), and they increasingly outsourced to partners, using e-business technologies to maintain tight integration, which is necessary for a business to function efficiently. Having presented the main concepts and aspects of capabilities, we introduce the following hypothesis:

**H3a – Capabilities positively influence the Value Proposition.**

The main purpose of a business is to create value that customers are willing to pay for. This value is the result of a configuration of activities and processes inside and outside the organization (GARCIA-CASTRO; AGUILERA, 2015). The value of the configuration shows all necessary activities and the links between these, in order to create value for the customer. Thus, we have the hypothesis:

**H3b – Value Configuration positively influences the Value Proposition.**

Partnership is a voluntary initiative agreed between two or more organizations with the goal of creating value for customers. In the context of e-business, there are several names for these new forms of strategic networks in the process of creating value, among them the b-webs, fluid and flexible organizations and value networks (NALEBUFF; BRANDENBURGER, 1997). The appearance of such business networks significantly improved the range of possible organizational arrangements for value creation (GULATI, 1998). As a result, companies should reflect on what kind of resources the partner could leverage on their business model and on their own competencies. Therefore, we formulate the following hypothesis:

**H3c – Partners positively influence the Value Proposition.**

The Financial Aspects are the last block of the framework proposed by Osterwalder (2004). It is transversal because all the other pillars influence it. The Financial aspects consist of the Revenue Model and Cost Structure. Together, these factors determine the financial situation of the company and its survival ability in the competitive market. The Revenue Model measures the ability of a company to transform into cash and incoming revenue flows, the value offered to customers. It may be composed of different flows with different pricing mechanisms (DASILVA, TRKMAN, 2014; OSTERWALDER; PIGNEUR, 2010). Thus, we have the hypothesis:

**H4a – The Revenue Model positively influences the Value Proposition.**

The last element is the Cost Structure. This structure measures all costs generated by the company, in order to create, sell and deliver value to its customers. It sets price for all resources, goods, activities and relationships of the partners network and exchanges (OSTERWALDER, PIGNEUR, 2010). Therefore, we formulate the following hypothesis:

**H4b – The Cost Structure positively influences the Value Proposition.**

## 2.4 BUSINESS PERFORMANCE

Business Performance is a complex and multifaceted phenomenon, and is an issue that has received great attention in conceptual and empirical studies. For Barney (1991), the concept of business performance represents a general perception of the firm's results, resulting from a comparison of the value generated by an organization, using given capital, with the value that the owners of this capital hope to obtain.

Unlike the one-dimensional concept provided by the neoclassical economic model, the performance of companies offers a great variety. The differences between companies' performance can derive from unique resources and expertise of a specific company and from holding a privileged and protected position from the market structure. However, the performance of companies can also be explained by the relevance to a particular type of industry or economic shocks in particular years (BRITO; VASCONCELOS, 2004).

Regardless of the approach, the fact is that the information and performance evaluation are organizational tools translated to the flexibility in identifying future directions in the shortest period of time. By performance analysis, organizations can measure their survivability and continuity in view of the requirements of the internal and external environment which they are inserted in. The development of a management process which improves the translation necessarily requires the development of a systematic effort to design,

redesign and implement systems to measure and evaluate performance (SINK; TUTTLE, 1993).

Among the many existing scales to measure performance, we opted to use the scale developed by Ramanujam and Venkatraman (1987), recently adapted by Parnel (2011) and already validated and used in Brazil by Almeida and others (2013). Given the above and the common approach to the Business Performance construct in strategy research (WILDEN et al., 2013), we have the last hypothesis and possibly the most relevant one to this research:

**H5 – The Value Proposition positively influences the Performance.**

### **3 METHODOLOGICAL ASPECTS**

#### **3.1 POPULATION, SAMPLE AND RESEARCH DESIGN**

Based on the understanding that e-business consists of business activities favored by the use of the Internet (Koo et al., 2007), the world of research included managers entrepreneurs and practitioners engaged in activities using the Internet and related technologies for doing business. In this universe, we used a non-probabilistic sample of 252 cases.

As to the objectives, the research is explanatory since its main purpose is the investigation of the relationship between the strategic background, the activities of the business model and business performance. With regard to procedures, the research strategy combines bibliographical research and survey, in this case with the use of qualitative variables, the five-point Likert type. Survey respondents were selected by accessibility (MARTINS; THEÓFILO, 2009; BABBIE, 2001).

#### **3.2 DATA COLLECTION INSTRUMENT AND CONSTRUCTS MEASUREMENT SCALES**

For the fulfillment of the proposed objective we used, in a way that was adapted for the antecedents, the scale by Ifinedo (2011) (Table 1). For the Business Model, we used the scale by Souza and Batista (2014), which was developed based on studies by Osterwalder (2004), Osterwalder, Pigneur and Tucci (2005); and Osterwalder and Pigneur (2010) for Business Models (Table 2) and to measure business performance (Table 3) the scale developed by Ramanujam and Venkatraman (1987).

Regarding the Business Model, according to the bibliometric study by Zott, Amit and Massa (2011) on the application of the concept in empirical research and theoretical tests, we did not identify works of quantitative nature, which studies the statistical relationships of their

theoretical constructs. This same research also indicates the model by Osterwalder and Pineur (2010) as one of the most widespread in the academic and professional field.

ORGANIZATIONAL CONTEXT	MANAGEMENT POSITIONING	
	CO_PG1	Management is interested in the use of Internet/e-business technologies on operations
	CO_PG2	Management supports the implementation of Internet/e-business technologies on operations
	CO_PG3	Management has a clear vision on the use of Internet/e-business technologies in the company
	CO_PG4	Management internally discloses the need for the use of internet/e-business technologies in the company
	ORGANIZATIONAL READINESS	
	CO_PRO1	The company knows how information technology can be used to support its operations
	CO_PRO2	The company has a good understanding of how Internet/e-business technologies can be used in its businesses
	CO_PRO3	The company has the technical and managerial skills needed to implement Internet/e-business technologies
	CO_PRO4	The company's values and standards prevents adopting Internet/e-business technologies in their operations
TECHNOLOGICAL CONTEXT	RELATIVE ADVANTAGE	
	CT_VR1	Internet/e-business technologies enable the company to manage its operations efficiently
	CT_VR2	Internet/e-business technologies improve the quality of the business operations
	CT_VR3	Internet/e-business technologies improve the efficiency of business operations
	CT_VR4	Internet/e-business technologies allow the company to carry out operations more rapidly
	COMPATIBILITY	
	CT_CB1	The use of Internet/e-business technologies is compatible with the company's type of business
	CT_CB2	The use of Internet/e-business technologies fits the way the company operates
	CT_CB3	The use of Internet/e-business technologies fits the work style of the company
	COMPLEXITY	
	CT_CX1	The use of Internet/e-business technologies requires a lot of mental effort
	CT_CX2	The use of Internet/e-business technologies ends up being frustrating for the company
	CT_CX3	The use of Internet/e-business technologies is too complex for the company's operations
ENVIRONMENTAL CONTEXT	PRESSURE FROM COMPETITORS	
	CA_PCP1	The company is aware that competitors are ready to do business over the Internet
	CA_PCP2	The company receives pressure from competitors to adopt Internet/e-business technologies
	CA_PCP3	Competitors already use Internet/e-business technologies
	PRESSURE FROM STAKEHOLDERS	
	CA_PCL1	The company is aware that customers are ready to do business on the internet
	CA_PCL2	The company receives pressure from customers to adopt Internet/e-business technologies
	CA_PCL3	Customers demand using Internet/e-business technologies to do business with the company
	PRESSURE FROM SUPPLIERS	
	CA_PFO1	The company is aware that the suppliers are ready to do business on the internet
	CA_PFO2	The company receives pressure from suppliers to adopt Internet/e-business technologies
	CA_PFO3	Suppliers demand using Internet/e-business technologies to do business with the company
	GOVERNMENT SUPPORT	
	CA_SG1	The government provides incentives for the company to adopt Internet/e-business technologies
	CA_SG2	The company receives pressure from the government to adopt Internet/e-business technologies
	CA_SG3	The government plays an important role for the company to adopt Internet/e-business technologies

Table 1 – Constructs and Strategic Background Measurement Variables

Source: Adapted from Ifinedo (2011).

The scale used to measure the business model followed the taxonomy and ontological names proposed by Osterwalder (2004) (Table 2).

VALUE PROPOSITION		
PROD/SERV.	PS_PV1	The product/service that the company offers perfectly meets the needs of customers
	PS_PV2	Products/services offered by the company are known for their quality
	PS_PV3	The price of the product/service of the company has significant impact on the value proposition
	PS_PV4	The company offers a product/service considered as innovative
	PS_PV5	The life cycle of the product / service offered by the company is relatively short (less than 1 year)
MARKET SEGMENTATION		
CUSTOMER INTERFACE	IC_SM1	In the company there is a clear definition of the market segment that it serves
	IC_SM2	The market segment that the company serves is directly linked to the product/service that it offers
	IC_SM3	The company is already recognized in the market because of the product/service that it offers
	DISTRIBUTION CHANNELS	
	IC_CD1	The company uses the Internet to deliver products/services
	IC_CD2	The company uses more than one mechanism to deliver products/services
	IC_CD3	The company's operations are integrated with the logistics (delivery of products)
	IC_CD4	The type of client that the company serves is considered when choosing distribution channels
	CUSTOMER RELATIONSHIP	
	IC_RC1	The company adopts a personalized relationship with customers
	IC_RC2	Customers put their trust in the company/brand
	IC_RC3	The relationship with customers is based on high switching costs (e.g. software replacement)
	IC_RC4	The company can retain and maintain a good relationship with customers
CAPABILITIES		
INFRASTRUCTURE MANAGEMENT	GI_CP1	The company can make good use of the resources it has to offer differentiated products/services
	GI_CP2	The company knows how to use machines, buildings and equipment to produce quality products/services
	GI_CP3	The company knows how to use the knowledge and team skills to generate innovative products/services
	VALUE CONFIGURATION	
	GI_CV1	The company uses in an integrated manner all the operational activities
	GI_CV2	The company seeks to add value by incorporating new products/services
	GI_CV3	Products/services offered by the company are difficult to copy
	PARTNERSHIPS	
	GI_PA1	The company establishes partnerships to purchase cheaper products/services
	GI_PA2	The company forms partnerships to reduce environmental risks and uncertainties
	GI_PA3	The company forms partnerships to acquire new resources such as machines and equipment
	GI_PA4	The company forms partnerships to acquire new capabilities such as patents, trademarks and know-how
REVENUE MODEL		
FINANCIAL	GF_MR1	The company earns revenue through the sale of products/services
	GF_MR2	The company earns revenues by receiving loan interest
	GF_MR3	The company earns revenue from advertising products/services from partner companies
	GF_MR4	The company earns revenue by receiving commissions
	COST STRUCTURE	
	GF_EC1	The company knows the participation of each item of its cost structure
	GF_EC2	The company regularly monitors the cost of its activities
	GF_EC3	The company's costs are compatible with the costs of major competitors
	GF_EC4	The company's cost structure is compatible with the business model that it adopts

Table 2 – Constructs and Business Models Measurement Variables

Source: Souza and Batista (2014).

In order to measure the business performance, qualitative variables were used based on the satisfaction scale with the performance achieved, developed by Ramanujan and

Venkatraman (1987) and adapted by Parnell (2011), composed of five measurement variables (Table 3).

**Table 3 – Construct Performance Measurement Variables**

PERFORMANCE	
DES_1	Sales Volume Growth
DES_2	Revenue Growth
DES_3	Market share
DES_4	Profit Margin
DES_5	Net Profit

Source: Ramanujan and Venkatraman (1987)

### 3.3 COLLECTION PROCEDURES AND DATA DESCRIPTION

Data were collected in November and December 2013, in events on innovation, entrepreneurship, startups, social media and digital marketing through printed and electronic questionnaires.

Respondents were asked about the strategic antecedents, formed by Organizational, Technological and Environmental contexts (IFINEDO, 2011), business models, comprised by the dimensions Product/Service, Customer Interface, Infrastructure Management and Financial Management (OSTERWALDER, 2004; OSTERALDER; PIGNEUR; TUCCI, 2005) and business performance (RAMANUJAN; VENKATRAMAN, 1987).

**Table 4 - Profile of Surveyed Companies**

Profile	Frequency	Percentage (%)
<u>Activity Sector</u>		
Trade	68	27.0
Industry	43	17.1
Online Service	27	10.7
Financial Service	20	7.9
Traditional Service	52	20.6
Advertising	5	2.0
Other	34	13.5
Missing	3	1.2
<u>Time of the Company in the Market</u>		
0 to 5 years	80	31.7
6 to 10 years	40	15.9
10 to 20 years	41	16.3
> 20 years	84	33.3
Missing	7	2.8
<u>Annual revenue (R\$)</u>		
Up to 60.000,00	40	15.9
60.000,01- 360.000,00	33	13.1
360.000,01-3.600.000,00	54	21.4
3.600.000,01 a 12.000.000,00	37	14.7
> 12.000.000,00	74	29.4
Missing	14	5.6
<u>Number of Employees</u>		
0 to 19	89	35.3
20 to 99	52	20.6
100 to 499	31	12.3
> 500	73	29.0
Missing	7	2.8



Regarding the time of companies in the market, there is a higher incidence of young companies (up to 5 years, 31.7%) and companies in the market for longer than 20 years (33.3%), while companies in the market between 6 and 10 years and between 10 and 20 years presented relatively close numbers (16%) (Table 4).

#### 4 RESULTS PRESENTATION AND ANALYSIS

For the treatment of data we used the software Statistical Package for the Social Sciences (SPSS), descriptive statistics modules, factor analysis and scale reliability tests and the Analysis of Moment Structures (AMOS) for the construction of the measurement and structural models.

##### 4.1 EXPLORATORY FACTOR ANALYSIS AND SCALE CLEANING

The Exploratory Factor Analysis (EFA) took place through the analysis method of the main components and varimax orthogonal rotation. The criteria adopted for the EFA demanded extracted communality of the items greater than 0.4, Bartlett's sphericity test, significant at the 0.05 level, and the Keiser-Meyer-Olkin (KMO) greater than 0.50 (HAIR et al., 2009). The internal reliability analysis was used for calculating the Cronbach's alpha coefficient. As a criterion of choice, we used the classification by Hair et al. (2009).

To verify the discriminant validity, the factors of the constructs were transformed into variables and their correlations were extracted. Zero values indicate the difference between the constructs (COSTA, 2011). Once these procedures were done, it was necessary to remove six variables from the scales as they did not fit in the theoretical group (factors) nor in the statistical criteria: CO\_PRO4, CA\_PCL1, PS\_PV5, IC\_RC3, GI\_CV3 e GF\_MR1.

The EFA for the Environmental Context dimension constructs was done keeping the theoretical constructs initially proposed. We hoped that four factors would emerge, however, only three did. The variables from the group CA\_PCL were divided into two factors. The variables CA\_PCL2 and CA\_PCL3 grouped together with the variables of the CA\_PF group. The CA\_PCL1 variable was grouped with the variables of the CA\_PCP group. We verified that the variable CA\_PCL1 does not have theoretical adherence in relation to the variables of the CA\_PCP construct; therefore, we decided to remove this variable from the analysis. The CA\_PCL2 and CA\_PCL3 variables were grouped with the CA\_PFO construct and, for analysis purposes, these new items were renamed as Pressure from Stakeholders (CA\_PSK). This taxonomy is the same used by Del Aguila and Padilla (2008), Chong et al. (2009) and Gao, Liu and Wu (2010) and Bordonaba-Juste, Lucia-Palacios and Polo-Redondo (2012), comprising in the same construct pressure from Customers and Suppliers. The variable

CA\_PCL2 was renamed as CA\_PSK1, CA\_PCL3 as CA\_PSK2, and CA\_PFO1 as CA\_PSK3, CA\_PFO2 as CA\_PSK4, and CA\_PFO3 as CA\_PSK5.

The constructs of the Infrastructure Management dimension also underwent adjustments. The EFA presented only two factors instead of three. The variables GI\_CV1 and GI\_CV2 were grouped in the factor of the GI\_CP variables. The variable GI\_CV3 presented communality of 0.111 and was not grouped with any factor. By analyzing the affirmatives of the construct GI\_CV, we can verify that the variables GI\_CV1 and GI\_CV2 are associated with capabilities more than they are with the value configuration. Thus, the GI\_CV construct was dissolved. The variable GI\_CV3 was excluded, the variables GI\_CV1 and GI\_CV2 were incorporated to the construct GI\_CP being named GI\_CP4 e GI\_CP5, respectively.

Table 5 shows the factor structure of the constructs used in this study.

<b>Table 5 - Factorial Structure of Constructs</b>					
Dimension	KMO	Variance Explained	Construct	Scale Items	Cronbach's Alpha
Organizational Context	0.827	68.60%	Management Positioning	4	0.839
			Organizational Readiness	3	0.743
Technological Context	0.839	72.60%	Relative Advantage	5	0.874
			Compatibility	3	0.895
			Complexity	3	0.763
Environmental Context	0.807	67.66%	Pressure from Competitors	3	0.771
			Pressure from Stakeholders	5	0.895
			Government Support	3	0.833
Product/Service	0.644	54.20%	Value Proposition	4	0.690
Customer Interface	0.741	60.65%	Market Segmentation	3	0.640
			Distribution Channels	4	0.736
			Relationship with Customer	3	0.717
Infrastructure Management	0.850	62.58%	Capabilities	5	0.831
			Partnerships	4	0.821
Financial Management	0.713	64.73%	Revenue Model	3	0.674
			Cost Structure	4	0.830
Performance	0.819	72.36%	Performance	5	0.904

#### 4.2 A CONFIRMATORY FACTOR ANALYSIS AND MEASUREMENT MODEL

The objectives of the CFA are to verify the factorial structure proposed and explore if any significant changes are necessary. By running the model, we verified that the aggregate values of the CFA returned some indexes below what is recommended by the literature. The  $\chi^2/df < 3$ , significance level at 0.99 and RMSEA < 0.08, however, the IFI, TLI and the CFI were below 0.90 (HAIR JUNIOR et al., 2009).

In calculating the full model, five variables presented factor loadings below 0.50— the PS\_PV3, PS\_PV4, IC\_CD3, IC\_CD4 and the IC\_SM3 —, and all were removed. The next step was the re-specification by the covariance of the residual errors identified in the reports of the modification indexes of the AMOS<sup>tm</sup> (BYRNE, 2010). The results indicate that the chi-square differences were statistically significant, then the re-specified models replaced the original models of the seventeen constructs. After these adjustment procedures, there was an improvement in the indicators, with the IFI, TLI and CFI (Table 6) greater than 0.90 (HAIR JUNIOR et al., 2009).

**Table 6 – Statistical Adjustment Indices of the Re-Specified Model**

Chi-square ( $\chi^2$ )	Degrees of freedom (df)	$\chi^2/df$	p	IFI	TLI	CFI	RMSEA
2,218.921	1.554	1.428	0.000	0.915	0.900	0.912	0.041

Given that there were considerable changes in the constructs, we chose to again perform the procedures of convergent and discriminant validity through metrics of composite reliability (CR), average variance extracted (AVE) correlation of constructs.

Thus, by using the confirmatory factor analysis statistical technique, in order to verify the validity of the constructs and to assess whether the sets of indicators used were measuring what they should theoretically measure in terms of reliability, convergent and discriminant validity we can conclude that the results were consistent in all the constructs of the model.

#### 4.3 THE STRUCTURAL MODEL AND HYPOTHESIS TESTING

The Structural Equation Modeling is a statistical method used to achieve a confirmatory framework, by means of hypothesis testing and the theory structural analysis (BYRNE, 2010). The hypothetical model can be tested statistically in simultaneous analysis of all variables to determine the consistency of the data. In terms of indicators, for the acceptance of the hypothesis, the Critical Ratio (C.R.) should be greater than 1.64 for  $p \leq 0.10$ , greater than 1.96 for  $p \leq 0.05$ , both for tolerable acceptance, and ideally, it should be greater than 2.58 in order to meet the adequate significance of  $p \leq 0.01$  (HAIR JUNIOR et al., 2009; BYRNE; 2010).

The hypotheses H1a, H1b, H1c, H1d, H1e, H1f, H1g, H1h and H1i refer to the relationship between the Strategic Antecedents (independent variables) and the Business Model (dependent variables). In Table 7, we verify that out of the eight constructs, four presented significant relationship with the Value Proposition. Therefore, hypotheses H1a, H1b, H1c and H1f-g were not rejected. Thus, we conclude that Management Positioning, Organizational Readiness, Relative Advantage and Pressure from Stakeholders positively influence the Value Proposition.

**Table 7 – Hypotheses test between Strategic Antecedents and Value Proposition**

Independent Variable		Dependent Variable	Estimated	S.E.	C.R.	P	Hypothesis	Status
CO_PG	→	PS_PV	0.175	0.085	2.074	0.038**	H1a	A
CO_PRO	→	PS_PV	0.278	0.092	3.010	0.003***	H1b	A
CT_VR	→	PS_PV	0.167	0.101	1.647	0.100*	H1c	A
CT_CB	→	PS_PV	0.051	0.081	0.627	0.531	H1d	R
CT_CX	→	PS_PV	-0.095	0.088	-1.077	0.281	H1e	R
CA_PSK	→	PS_PV	0.132	0.061	2.161	0.031**	Hf-g	A
CA_PCP	→	PS_PV	-0.100	0.096	-1.050	0.294	H1h	R
CA_SG	→	PS_PV	-0.082	0.062	-1.331	0.183	H1i	R

Notes: \* $p \leq 0.10$ ; \*\* $p \leq 0.05$ ; \*\*\* $p \leq 0.01$ ; A=Hypothesis not Rejected; R= Hypothesis Rejected.

In Table 8 we present the results of the hypothesis test H2a, H2b, H2c, H3a, H3c, H4a and H4b, referring to the relationship between the business model constructs. According to Osterwalder and Pigneur (2010), business model elements should be directed to impact the Value Proposition. It should be highlighted that hypothesis H3b was not tested, considering that the three observable variables of the Value Configuration, in the EFA, one was excluded, and the other two were incorporated to the Capabilities construct. The hypothesis test revealed that 5 elements positively influence the Value Proposition. They are: Market Segmentation, Relationship with the Customer, Capabilities, Partnerships and Revenues Model. Only Cost Structure and Distribution Channels presented no significant relationship with the Value Proposition.

**Table 8 – Hypotheses test between the Constructs of the Business Model and Value Proposition**

Independent Variable		Dependent Variable	Estimated	S.E.	C.R.	P	Hypothesis	Status
IC_SM	→	PS_PV	0.178	0.090	1.985	0.047**	H2a	A
IC_CD	→	PS_PV	-0.054	0.047	-1.136	0.256	H2b	R
IC_RC	→	PS_PV	0.588	0.116	5.061	0.001***	H2c	A
GI_CP	→	PS_PV	0.242	0.098	2.481	0.013**	H3a	A
GI_PA	→	PS_PV	0.121	0.062	1.957	0.050**	H3c	A
GF_MR	→	PS_PV	-0.133	0.065	-2.048	0.041**	H4a	A
GF_EC	→	PS_PV	0.058	0.085	0.684	0.494	H4b	R

Notes: \* $p \leq 0.10$ ; \*\* $p \leq 0.05$ ; \*\*\* $p \leq 0.01$ ; A=Hypothesis not Rejected; R= Hypothesis Rejected.

In Table 9, we present H5, which is the last hypothesis tested. As all the activities of the business model should impact the Value Proposition, this one should therefore, positively influence Business Performance. It is what Table 9 shows, demonstrating statistically that the Value Proposition positively influences the Business Performance.

**Table 9 – Hypotheses Test between the Value Proposition Construct and Performance**

Independent Variable	Dependent Variable	Estimated	S.E.	C.R.	P	Hypothesis	Status
PS_PV	→ DES	0.300	0.083	3.603	0.001***	H5	A

Notes: \* $p \leq 0.10$ ; \*\* $p \leq 0.05$ ; \*\*\* $p \leq 0.01$ ; A=Hypothesis not Rejected; R= Hypothesis Rejected.

#### 4.4 DISCUSSION OF RESULTS

We verified in the hypotheses testing that the Organizational Readiness, Pressure from Stakeholders, Management Positioning and Relative Advantage, in this order of importance directly influence the Value Proposition of e-business activities. In practice, it implies stating that the company must: (i) prepare itself internally to implement these activities; (ii) map how stakeholders (customers and suppliers) influence the purchase of its products and services; (iii) have a management that is positioned in favor of the use of Internet/e-business technology in their management processes and finally, (iv) use technologies that are safe and easy to use. The correct combination of the practice of these activities is to be able to promote a Value Proposition that is unique and difficult to copy. In the theoretical and research aspect, the results are interesting as they contribute to the prevailing notion that this field of research is in its infancy and there are still gaps to be explored, especially with regard to the understanding of non-compliance of the constructs Compatibility, Complexity, Pressure from Competitors and Government Support. The great challenge is to find out if there are other antecedents that may impact the Value Proposition.

In the Business Model, we found that the Relationship with the Customer, Capabilities, Revenue Model, Market Segmentation and Partnerships, in this order of importance, directly influence the Value Proposition. The Relationship with the Customer had the highest CR (5.061), which means that this construct is the one with the greatest impact in the Value Proposition. That is, in addition to the technological expertise necessary to create, develop and maintain e-business activities, relationship continues to be valued and the automation of business processes cannot replace it completely. The human element will continue being present and has significant impact.

Capabilities was the construct that presented the second highest CR (2.481), these are directly associated with the proper use of tangible and intangible resources present in the company, thus presenting a close relationship with the RBV (BARNEY, 1991).

In e-business activities, many businesses are characterized by the diversity of revenue sources. In addition to the traditional ones, received through the sale of goods and services, companies use Internet/e-business technologies to “monetize” their ideas. A revenue model

itself does not define how a company creates value in its entirety, but how revenue is appropriated by the company. Having a revenue model itself does not define the business model of a company, although it is an important component of a business model (DASILVA; TRKMAN, 2014).

Market Segmentation also seems important for the formation of the Value Proposition, because it will direct the company to its target audience and will allow consumers to experience it.

Partnerships, in a coherent manner with the current context of interaction and constant sharing of information, are presented as relevant for Value Proposition. It is this rich and extensive relationship network provided by the Internet, and more specifically, through social media, the basis of partnerships of modern organizations. Knowing how to choose and maintain the right partnerships is an important element to induce and maintain Value Proposition.

Distribution channels and cost structure showed no significant relationship with the value proposition. This result deserves to be analyzed in greater depth, particularly with regard to distribution channels, because some authors consider the Internet to be a distribution channel (HONGSHUANG; LI; KANNAN, 2014).

Finally, the last hypothesis to be tested checks the influence of the Value Proposition on Business Performance, which ended up being confirmed. This result is important in that it can contribute to the acceptance of a new performance measurement logic. It is very common that managers measure their performance only analyzing financial data, i.e., the end, without properly understanding the means, that is, how the management process was performed. The results, however, suggest that to achieve a satisfactory performance companies need, first, to achieve a unique and differentiated value proposition.

## **5 FINAL CONSIDERATIONS**

This study aimed to examine the influence of strategic antecedents and the elements that constitute the business model in its value proposition and only then, the relationship between the value proposition and performance of e-business companies. To this end, we identified and validated a scale for measuring the strategic antecedent and business model and elaborated a structural model to verify the relationship between the constructs of the strategic antecedent, business model and business performance.

Albeit this study not being a new research, its results present as a contribution to the literature on e-business a validated scale for strategic antecedents. Furthermore, the theoretical-conceptual model applied allowed a methodological approach for these types of businesses, based on structural equation modeling to verify the relationship between the constructs. It presents, in this regard, the contribution in seeking to simplify strategic relationships developed in e-businesses, by using a mathematical model.

Of the eighteen hypotheses, sixteen were tested and ten were confirmed. Two hypotheses were not tested due to changes in the constructs of Strategic Antecedents and Business Models in the statistical stage. The study's initial proposal contemplates the use of seventy variables in the model, however, after the steps of scales validation and the re-specification of the structural model, eleven variables were excluded, with fifty-nine (59) being kept in the final measurement model.

This first study made evident that the Value Proposition is influenced by the Strategic Antecedent, specifically Management Positioning and Organizational Readiness, comprised in the Organizational Context. Therefore, the positive attitude of upper management associated with the organizational preparation, influences the Value Proposition. Regarding the Technology Context, only Relative Advantage influences Value Proposition. It is inferred, therefore, that a technological advantage compared to other companies also impacts positively on the Value Proposition. With regard to the Environmental Context, Pressure from Stakeholders, comprised in customers and the suppliers, positively influences the Value Proposition, but this did not occur with the pressure from Competitors and Governments support, which do seem to be relevant to the Value Proposition. We concluded that, managerially, the aspects related to the context of the internal dynamics of e-business companies are more important to influence the Value Proposition than the external aspects, that do not depend exclusively on companies concrete actions.

In the analysis relating to the Business Model, out of the seven hypotheses tested, five were significant, thus partially confirming this theory. Only Distribution Channels and Cost Structure have shown not to influence the Value Proposition. Customer Relationship was the construct with the highest CR and the only one with significance level at 0.99, i.e., it is the one with the most influence on the Value Proposition. The managerial implications of these results indicate that, in order of importance, Relationship with the Customer, Capabilities, Revenue Model, Market Segmentation and Partnerships influence the Value Proposition.

The last hypothesis tested verifies whether Value Proposition influences e-businesses' Business Performance. This hypothesis was also confirmed. Therefore, managing elements of the Strategic Antecedents and Business Models that presented a significant relationship with the Value Proposition lead to a superior performance.

Although this study has contributed to theoretical and empirical levels, there are some limitations that need to be reported. The first refers to the sample, which was taken predominantly in the city of Fortaleza/CE. The use of the electronic questionnaire was intended to achieve responses from other states, however, this strategy was not effective because of subjects' resistance, resulting in less than 10% of the observations collected.

These limitations undermine the generalization of the study results, including hypothesis testing, for what we suggest expanding the research to different states in Brazil as a strategy for getting generalizable results.

The second limitation relates to the hypothesis not confirmed in the research. It is evident that the model proposed in this study must undergo reformulations, in order to increase assertiveness in understanding the operation of Internet/e-business activities.

We suggest, for future investigations, that adjustment be made to the scales in this study, aimed at strengthening its explanatory power, in addition to replicating this study in other states of Brazil, comparing between the perception of corporate professionals in states considered more and less developed, comparison between data collected in Brazil and in other developing countries and/or developed countries.

Methodologically, we suggest the use of other statistical techniques such as MANOVA, Discriminant Analysis and Logistic Regression. Thus, one can understand what led to rejection of some the hypotheses in this study. Complementarily, one can also incorporate moderating and mediating variables into the model, such as culture, activity sector, company size and time length in the market.

In terms of management, the findings of this research may guide managers to base their decisions. The managerial practice shows that the Canvas tool, conceptual basis of the business model used in this article, is used without proper knowledge of its elements and the impact it causes the Value Proposition.

Under the academic aspect, this work contributes by empirically proving that there is a relationship between some elements of Strategic Antecedents with the Value Proposition, as well as demonstrating that the theory being developed on business models are empirically



validated, and at last, the study's main contribution, which is, the Value Proposition influences the performance of e-business companies.

## CONTRIBUTIONS BY THE AUTHORS

**Elnivan Moreira de Souza:** the article and result of the research that realized as part of his dissertative work.

**Paulo César de Sousa Batista** contributed to the construction of the model and the development of the work, as part of the orientation of the first author in his dissertative work.

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