

E-COMMERCE STRATEGIES: AN EXPLORATORY RESEARCH BASED ON THE VALUE CREATION PROCESS

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ABSTRACT

Using an integrated approach of relevant theories of value creation, four e-commerce strategies were identified: a cost leadership strategy based on technology and supported by strategic networks; a differentiation strategy with a marketing focus; a differentiation strategy through quality and process innovation, based on technical capabilities; and a flexible strategy supported by management information technology competencies, which uses outsourcing to fulfil market opportunities. The study also highlights the strategic role of information and technology in electronic environments and corroborates the need to integrate different strategy perspectives and theories, in order to better understand strategic issues in the context of e-commerce.

INTRODUCTION

E-commerce is growing fast and the use of Internet has a strategic importance for firms in order to sustain competitive advantages. The Internet is changing patterns of competition among companies, thereby creating new opportunities and simultaneously affecting the way well established firms traditionally conduct their business [20]. Some authors discuss if it constitutes a revolutionary change or an evolution allowed by new technologies, and if traditional theories are still valid [10]. E-commerce is fundamentally changing the customer value proposition, transforming the notion of value; technology innovations, such as the web, have accelerated value innovation in service dimensions of speed, convenience, personalization and price, thereby substantially changing the underlying value proposition [24].

The objective of this research is to identify e-commerce strategies and their characteristics, using an integrated approach of the following theories of value creation: value chains research, Schumpeterian innovation, the resource-based view of the firm, interfirm strategic networks, and transaction costs economics. A similar theoretical approach was considered to identify sources of value creation in e-business [1].

THEORY

The market-based view and the physical value chain

Porter [35] starts with the analysis of the competitive environment and industry attractiveness to determine a strategic positioning, introducing a five forces model to analyse the competitive environment. The combination of these forces (the rivalry among existing competitors; the bargaining power of suppliers; the bargaining power of customers; the threat of substitute products or services; and the existence of barriers to entry) determines the industry attractiveness and companies should adapt their strategy to their competitive environment. It is difficult to extract general conclusions about the impact of the Internet on the long-term profitability, because the power of each of the five forces differs from industry to industry; however, in a recent paper, Porter [37] identifies some trends, which are negative in the most part, related with the influence of the Internet in the industry structure. In short, he says that it is predictable an increase in the number of competitors and of the intensity of the competition, since barriers to entry are weak and the technology is becoming more available as time goes by; the power of customers also tends to rise because of low switching costs and higher familiarization with this technology. On the other hand, Internet is considered an opportunity to improve profitability, since it allows a greater proximity with customers that could be used to increase or differentiate the companies' offer.

In this perspective value creation is analysed at the corporate level [35] through the value chain concept, as a way to identify which activities a company should do and how they should be done, as well as the configuration of firms' activities that allow the addition of value to the product or service, improving their competitive

position in the industry. Value creation could be obtained by differentiation along the stages of the value chain or by reducing costs for the buyers. According to some authors the value chain concept has been reinforced by crescent sophistication and prevalence of technologies of information, particularly the Internet [26]. Porter considers that the competitive advantage is a result of low costs or differentiation, which combined with a narrow or broad strategic target, result in four generic strategies. For each strategy there is a correspondence to different activities, with the objective of value creation, along the several variables of the value chain. To obtain a sustainable competitive advantage a company should concentrate in only one generic strategy; however, he admits exceptional situations that make possible to develop more than one generic strategy (more differentiation and at the same time the possibility to reduce costs) , being one of them the introduction of a new technology or innovation. In his point of view [37] there aren't any electronic strategies, but only strategies, and he stresses that only by incorporating Internet in a global strategy will be possible to use this powerful new technology as a powerful force of competitive advantage. In his opinion, the modifications introduced by the Internet in the competitive environment support, to a higher extent, the necessity for companies to differentiate through a strategic positioning. Moreover, he considers that although Internet associated applications have an influence on the cost and quality of the activities, they are neither the only, nor the dominant influence: conventional factors, like scale, personal talent, product and process technology, also have an important role, remaining intact most of the sources of traditional competitive advantage. For Benjamin and Wigand [4] one of the main effects of the Internet is the reduction of transaction costs, and they identify four areas of opportunity and risk: the consumer will have maximum choice at a reduced price; lower coordination costs through the value chain; reduced costs of distribution; redistribution and potential reduction of total profits.

The virtual value chain

The value chain model introduced by Porter doesn't capture all the essence of the mechanisms of value creation in a context of e-commerce, due to the importance of the process of information flows treatment. Rayport and Sviokla [40] introduced a virtual value chain concept based on information. They consider the existence of two worlds: the one of physical reality (*marketplace*) and the other of virtual reality (*marketspace*), constituted by information, which does not substitute the first one, but complements it. For them, the processes of value addition in the physical and in the virtual world are different, although interdependent, making it necessary to understand each process to create and capture value in both markets in an effective way. The process of value creation in the virtual world involves gathering information, organizing it for the customer, selecting what is valuable, packaging (or synthesizing) it, and distributing it, determining a value matrix that allows the creation of new products and services, making easier to find consumer necessities. The ability to perform this process and act on information faster than the competition is a hallmark of all leading companies [6].

In e-commerce it is necessary to integrate two kinds of activities – the ones of the physical value chain and the ones that are built based on the information in the virtual value chain. Depending on products and services characteristics, the relative importance of the virtual value chain and of the physical value chain will be different [5]. In the physical value chain the information captured was only used as a support of the value-adding process, while in the virtual value chain the role of information is strategic: information has become as important as products and services themselves [18]. However, as more information about products and services becomes available for customers in an immediate way, and information is transmitted by the Internet, disintermediation occurs and traditional intermediaries become obsolete, and the logic that supported some industries, like travel agencies, becomes to disintegrate [43], while, at the same time, new ways of creating value are opened through new ways of connecting sellers and buyers (re-intermediation) and by innovative market mechanisms, like, for example, reverse market auctions.

The resource-based view

Edith Penrose [33] was the first to recognize the importance of resources utilization for the competitive position of the firm. Wernerfelt [45] has contributed to the formalization of this theory, referring that firm performance depends directly on its products and indirectly on the resources that originate them. However, the resource-based view has gained a body with Jay Barney [3], who develops the arguments of Penrose [33], Rumelt [41] and Wernerfelt [45]. The firm is seen as a bundle of resources and capabilities and the unique combination of

specific resources and capabilities, which should be heterogeneous, rare, durable and not easy to copy or to buy, constitutes the source of value creation. Firms have portfolios of heterogeneous resources, acquired through history, accident or design, and this heterogeneity is responsible for the variability observed in the financial performance [34]. Through this perspective could be determined which resources a company should develop internally, and by analysing a firm resource position it would be possible to assess if there are conditions to build a sustained competitive advantage.

The dynamic capabilities perspective [44], which corresponds to a firm capacity to integrate, build and reconfigure intern and extern competencies in order to adapt rapidly to changes in the competitive landscape, constitute an interesting development of the RBV theory. They explain how different combinations of competencies and resources could be developed, implemented and protected to create value. The term dynamic refers to the capacity to renew competencies and achieve congruency with a business environment in constant change, which requires innovative answers, when time-to-market is critical, technologic change moves fast and it is difficult to determine the future evolution of the market.

The resource-based view in the context of virtual markets

With the development of virtual markets it is possible to explore even more relationship capabilities and to enhance complementarities between firm resources and capabilities, namely on-line and off-line capacities, leading to new ways of value creation. However, although technological resources are a valuable resource, when they are considered in resource-based view logic they don't explain a significant variance in the customer service process performance [38]. Technological resources appear to be easy to copy and they seem to be the kind of investment firms must do if they want to have a focus on the customer. Moreover, previous research of IT resources suggest that only the capacity to manage IT can represent a source of competitive advantage [30], although IT could be used to leverage complementary intangible resources linked to the business or to human resources and add value. Intangible resources, being socially complex and hard to understand and copy, have a higher probability of determining a competitive advantage than tangible resources [3]. For example, an intangible resource like a firm reputation can be a strategic resource since it proportionates access to financial capital [12] and when the quality of a product or service is uncertain customers tend to rely on a firms reputation [20].

Market-based view vs. Resource-based view

Traditionally the main approaches of analysing strategy formulation, the market-based view and the resource-based view, were considered to be fundamentally different. The market-based view starts with an external analysis by assessing the industry attractiveness to determine a strategic positioning [35] and focus on activities as a source of competitive advantage, suggesting that firms excel because of what they do. On the other hand, the resource-based view begins with an internal analysis, assessing which are the firm competencies that could allow a competitive advantage in a specific industry, to formulate a strategy. It defends the primacy of resources and corporate capabilities as a source of competitive advantage [3] [41] [45], suggesting that firms excel because of what they are. Points of contact between these two perspectives have been highlighted in recent studies [22], and their complementarities have been suggested, even by Porter [36]. A research conducted by Ray, Barney and Muhanna [39] refers to the common ground between the two, and suggests that the understanding of the relation between firm resources and the efficacy of its routines and business processes could lead to a better explanation of firm performance.

Innovation in the context of virtual markets

Schumpeter [42] considers innovation the main source of value creation. Technological change and new combinations of resources are, in his perspective, drivers of the development of new products, new services and new production methods, and entrepreneurship in the context of organizations is fundamental to the recognition, organization and conduction of change. The concept of creative destruction emphasizes how some rents are appropriated by entrepreneurs, when a technological change occurs, and how the rents diminished as long as the innovations become to generalize. First movers enjoy temporarily monopolistic rents while

competitors can't copy them or find a substitute. Hamel [19] defends that innovation, and not e-commerce, is the main driver of Silicon Valley, which he defines as the power of 'i'.

The developing of virtual markets brings new opportunities of innovation which matches the concept of creative destruction, although it can not characterize by itself the process of value creation in these markets. They expand the notion of innovation, since they enlarge firm and industry boundaries, involve new mechanisms and new transaction methods (not only new products and production processes) and allow new forms of collaboration between firms. The concept of dynamic capabilities [44] is related with the organization processes which could capitalize the effects of innovation, as it is defined by Schumpeter. Examples of this are product development, making strategy decisions, alliances formation, knowledge creation and transfer of capabilities [15].

Strategic networks

Nowadays there are alternatives to the ownership and control of resources, which don't compromise the sustainability of value creation, and the concept of cooptation is spreading, with many firms cooperating and competing at the same time. New business environment demands new kinds of business relationships, and that 'co-opetive' partnerships have emerged as a more effective response to changed environmental threats and opportunities [48]. Moreover, as the economic environment became more competitive, strategic networks gained relevance in the process of value creation. They allow access to information, markets and technologies [17], generate economies of scale and scope [43], reduce risks, facilitate learning and knowledge transfer [2]; [14]), shorten time-to-market [25], improve transactional efficiency and reduce asymmetry of information [17], and can proportionate credibility and legitimacy to participants and leverage the identification of new opportunities [11]. The main value of strategic partnerships is that they enable access to resources and capacities to entrepreneurs, which allow them to compete in the market [31]. In particular, external networks can have great value since they can be an opportunity to learn new capabilities [2]. However, in spite of virtual markets making easier to access to resources and capabilities through strategic partnerships, value preservation and therefore value creation could be more difficult to sustain, since the access to substitute resources could also be available to competitors.

Transaction cost economics

The transaction costs theory identifies the efficiency of transactions as the main source of value creation. The development of this theory has focus on the identification, explanation and mitigation of contractual risks, with the main purpose of minimizing costs, assuming that individuals and firms have opportunistic behaviours, need assets with a given frequency and that some assets that are unique must be acquired to achieve personal and corporate objectives. This theory was used to justify options to internalize transactions that could be conducted by markets, although Coase [9] objective was not to predict which specific transactions should be done within the firm, but to explain why economic activity was conducted by companies. For Williamson [47], one transaction has value by itself, since it reflects the most efficient option to perform it and constitutes a source of transactional efficiency. Williamson [46] suggests that value creation derives from the attenuation of uncertainty, complexity, asymmetry of information, and the conditions of the negotiation. According to this perspective the threat of opportunism increases the costs of transactions and firms exist to attenuate the risks of opportunism, achieving efficiency gains.

The Internet allows not only the reduction of direct costs of economic transactions, but also the indirect costs, such as adverse selection, since it facilitates the access to information, as well as the establishment of relations between different entities [27]. The theory of transaction costs could help explain the way consumers relate with e-commerce companies, because there is a stronger lack of trust related with agents' behaviour than the one that is observed in traditional channels [7], which justifies the existence of firms like PayPal that are used as intermediaries, suggesting that trust is a crucial resource that e-commerce firms must develop in order to achieve a competitive advantage. Moreover, the quality of some products, such as the ones that belong to the 'look and feel' category, is difficult to access through the internet, which requires a stronger effort to promote safety and reputation, to reduce consumers' fears [32].

However, the transaction cost theory has some limitations, since it ignores the attributes of resources and management skills, and forgets that activities related with innovation, whose efficiency in a dynamic perspective, sometimes defies the logic of hierarchical controls defended by Williamson as a way to offset opportunistic behaviour [16]. According to Madhok [29] an integration of transaction cost economics with the resource-based view would better explain the sources of competitive advantage.

METHODOLOGY

Sample and data collection

A list of Portuguese internet companies was created with the help of ACEP – Associação de Comércio Electrónico em Portugal (Portuguese E-Commerce Association), including the most relevant e-commerce players in Portugal. Moreover, a search was conducted through the internet, using the search engine AEIOU introducing the term 'site de comércio electrónico' or 'lojas on-line', and other sites referred in a previous Marktest study. The list was filtered, by eliminating repeated names, sites that don't correspond exactly to an e-commerce company, foreign firms' sites and the ones without contacts. In the end, a list of 188 Portuguese internet companies was built, and a survey was sent to each one of them, by e-mail, between the 15th of June and the 15th of October of 2007. Along that period several reminders were sent in order to maximize the replies. The message was not received by 11 sites, which were excluded. From the remaining 177, fifty-two answers were received, from which 49 were considered valid for analysis purposes. This number of replies, which represents 28% of the total, was considered satisfactory since it includes major players in different industries, with different backgrounds (company size; previous experience in traditional channels; incumbents vs. start-ups), and with different e-business models.

Instrument

The research instrument was based on the Dess and Davis [13] model, which was built to determine the applicability of Porter's generic strategies. The model was modified to include the other theories and concepts in order to consider relevant processes of value creation in e-commerce. Some questions were rewritten to include services, as well as products, and the variable 'Forecasting market growth' was substituted by the variable 'Meeting the delivery date' (the same has been done in the paper "Time-based differentiation – an old strategic hat or an effective strategic choice: an empirical investigation" [21]). As a whole a survey of 37 items, corresponding to competitive methods was used and a seven points Likert scale [28] was applied, to evaluate the importance of each one, in order to determine e-commerce strategies. The survey was previously applied to five e-commerce executives to test the content validity and adjust the text in order to clarify the interpretation of the questions.

Factor analysis

As this study has an exploratory nature, factor analysis was used to identify the underlying e-commerce strategies, which is shown in the importance attributed to each of the competitive methods considered in the survey. To measure the sample adequacy the Kaiser-Meyer-Olkin (KMO) statistics were considered. The statistical analysis was performed using SPSS 15.0 for Windows, which provides the overall KMO as a single statistic, being the KMO values for individual variables derived from the anti-image correlation matrix. The purification of the scale measures was done by excluding individual variables with scores below 0,50. For factorial extraction I used the Principal Components Analysis method, which transforms a set of correlated variables into a set of uncorrelated variables. To select the components three criteria were considered: eigenvalues (account of variance explained by each factor) above 1.0; percentage of variance explained; and interpretation. An orthogonal rotation was performed, using the varimax method proposed by Kaiser and Rice [23], to make easier to assign the description of the factors and make them more interpretable.

RESULTS AND CONCLUSION

After suppressing ten variables, a KMO of 0,826 was obtained, revealing a good measure of sample adequacy. The factor analysis resulted in the extraction of four factors that explain 69 per cent of the variance, which

corresponds to four e-commerce strategies. The loadings attributed to each competitive method allow a characterization of each strategy by using the theoretical background previously referred.

The first factor corresponds to a cost leadership strategy through technology, supported by strategic networks and by the use of specialized complementary assets. Firms adopting this kind of strategy invest in developing new technologies and exploit technological advancements to reduce costs and collect manage and analyze data. They develop economies of scale through strategic networks, as well as economies of scope, and they improve efficiency by reducing transaction costs. However, it is also important the capability to manufacture/perform specialty products/services and the ownership of specialized complementary assets, which seems to indicate that there is some degree of specialization and reveals the importance of resources and capabilities to pursue of this kind of strategy. Therefore, this strategy doesn't correspond to a pure cost leadership strategy, such as it is defined by Porter, and incorporates different perspectives and theories, namely the market-based view of the firm, the resource-based view, the strategic networks theory and transaction costs theory, and emphasises the importance of technology, which can act as a link or integrator between them.

The second factor corresponds to a differentiation strategy with a focus on marketing with characteristics that fit well in the generic strategies framework proposed by Porter and it is in line with the market-based perspective. The competitive methods of most importance in this strategy are the brand identification, innovation in marketing techniques and methods, advertising and reputation within the industry. Moreover, it is important to assess customer needs, through the development of information systems, and to define products/services based on them. Furthermore, the information analysis is relevant for insight and opportunities. It is also important in order to pursue this strategy to have products in high price market segments and to have a broad range of products.

The third strategy could be qualified as a differentiation strategy through quality and process innovation. Like the first strategy this one is supported by several perspectives and theories, since it has characteristics not only of Porter's differentiation strategy, but also of the resource-based view, due to the importance attributed to technical capabilities and managerial IT skills, and partially of the Schumpeterian view of innovation, although the balance between innovation and quality seems to be more driven to quality. Logic appears to be one of continuous improvement, optimizing quality, and not one that causes a discontinuity. This strategy focus on the development of new products/services, pursuing innovation in manufacturing/service processes, with experience/trained personnel and product/service control, searching for continuous improvement in production/service process and developing and refining existing products/services. The theory that best explains this kind of strategy seems to be the one of dynamic capabilities, which emphasizes the need for innovative answers through the reconfiguration of intern competences to compete in a business environment in constant change. Moreover, building on Cho [8], this strategy seems to be committed at the same time with quality, which is critical to increase customer satisfaction and customer loyalty, and with innovation, which is crucial to create new markets and earn new customers, enhancing at the same time profitability and growth prospects. Furthermore, a firm capability to balance these two options relies on its intangible resources, which are an important driver of heterogeneity.

The fourth strategy, which could be called a flexible strategy, relies on managerial IT skills and on the analysis of information for insight and to assess best markets and detect the most profitable opportunities. The identified opportunities are then fulfilled by outsourcing some activities, which allows mixed strategies, as well as an enlargement of firm boundaries. The threats usually associated with the use of outsourcing, namely the risk of damaging service level, could justify the importance given to customer service, which could offset some of the potential problems of this kind of strategy. The disintegration of the value chain described in the literature review and the resource-based view are the perspectives that best support and explain this flexible strategy, where the capacity to manage Information Technology and the use of outsourcing are sources of competitive advantage.

References available upon request