

IT STRATEGIC ALIGNMENT AS AN ENABLER OF MASS CUSTOMIZATION IN AN AUTOMOTIVE COMPANY

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Mass Customization strategy aims to provide products that are individually designed to meet customers' demand. A key part of this process is to understand what customers' preferences are and transform them into value-added products and services. In this context, information technology (IT) can be a key enabler of this strategy, establishing the interface between customer and organization. Through a case-based research approach in an automotive company, the present article investigated how IT systems, particularly internet-based solutions that interact with the consumer, enhanced the capacity to offer customized products. The influence of the alignment between IT and business strategies were also analyzed. The results showed that even in cases in which customization occurs just in the final stages of the production process, IT plays an essential role to enhance sales performance through a better elaboration of catalogues of alternatives that better fits customers' preferences and needs.

Palavras-chaves: Mass customization, Automotive Company, Information Technology, Customer's Preferences, Alignment

1. Introduction

Mass customization can be seen as a manufacturing strategy that industries have adopted as an answer to the market changes that were occurring, mainly in the late 1950s. The increases in product variety and competition – going more and more global due to the internet – forced companies to look and understand more carefully the market and the customer preferences rather than products as they were used to, in the mass production system (Da SILVEIRA *et al.* 2001; DURAY, 2002, 2006; PILLER *et al.* 2006; Pine II, 1993). In this new environment, information has become crucial to company success (HELMS *et al.*, 2008). The identification of customer needs and preferences and the ability to transform them into value-added offerings to the market have become points of differentiation. The challenge migrated from production efficiency to information efficiency that would allow providing personalized products and services, maintaining the low costs and prices (DURAY *et al.*, 2000; PILLER *et al.*, 2006).

A key point in the mass customization strategy is the customer's integration in the production process (Da SILVEIRA *et al.*, 2001; HELMS *et al.* 2008; PILLER *et al.* 2006; Pine II *et al.* , 1995; SALVADOR *et al.*, 2009), allowing customers to define how they want their product to be mounted. This interaction can vary from simple selection of options, already in the final stage of production (assembly and delivery), to their involvement in the early stages of production, influencing the design and manufacture of parts to develop unique products (DURAY, 2002, GILMORE and PINE II, 1997; KUMAR *et al.*, 2007; KURNIAWAN *et al.*, 2006; PRAHALAD and KRISHNAN, 2008). This last stage is called co-creation and the key enabler of it is Information Technology (IT), which through its applications, most of them based on the Internet, allows customers to interact with companies, which in turn use this channel to gather valuable information about customer's preferences and needs (Da SILVEIRA *et al.*, 2001; HELMS *et al.* 2008; PILLER *et al.*, 2006; SALVADOR *et al.* 2009).

However, some authors such as Helms *et al.* (2008), Pine II *et al.* (1995) and Piller (2004) discuss the fact that companies are not yet able to harness the full potential that IT can generate in the mass customization strategy. Laurindo (2008) says that the lack of alignment between IT strategy and business strategy might be one of the factors that prevent companies to capitalize over the IT potential. Henderson and Venkatraman (1993) suggested an alignment model that helps organizations to understand what the key elements to achieve alignment between business and IT are.

Based on the literature, this study empirically examined, through a case study in two companies in the automotive sector, the role of IT in the mass customization strategy adopted by them, the alignment between business and IT, in order to understand how IT contributes and helps the development of an options catalogue for consumer vehicles. In order to achieve the goals, first the theoretical background upon which the study is based is described, followed by the research methods, the scope within which the study is developed and finally the analysis and conclusions.

2. Definitions and related concepts

The literature on mass customization is quite extensive and ranges from the theoretical concept to the specific strategies of mass customization adopted by companies in various segments. Authors have specified that companies can adopt different strategies for mass customization, depending on the profile of its customers and on products and services offered

(Da SILVEIRA *et al.*, 2001; DURAY *et al.* 2000; LAMPEL and MINTZBERG, 1996; GILMORE and PINE II, 1997). Depending on the product offered to the market, more than one strategy can be taken by one company, as long as allowed by its internal structure (ASPEREN *et al.*, 2008; GILMORE and PINE II, 1997). Duray *et al.* (2000), Duray (2002) Mintzberg and Lampel (1996) in turn, argue that the point of customer integration in the production process, through the use of IT and modular systems, is a factor that determines which customization strategy the company should adopt. In the next sections, some of the mass customization strategies will be described that can be found in the literature and how IT and strategic alignment with the business can contribute to the success of mass customization.

2.1 Strategies that enable mass customization

The concept of mass customization was popularized by Pine II (1993), in which its basic principle is to provide the customer with a product that is customized at a relatively low price (PINE II, 1993; PINE II *et al.*, 1993). As the concept was adopted by companies, they began to face difficulties to implement this strategy (GILMORE and PINE II, 1997; ZIPKIN, 2001).

In order to elucidate and develop ways to enable mass customization in the companies, some researchers have developed works, from which it is possible to extract some characteristics that define the strategies they adopt in order to enable mass customization. Some of these characteristics are shown in Table 1.

Features that enable mass customization	References
Customize services around standard products and services	Pine II, 1993; Spira, 1993; Wind and Rangaswamy, 2001
Create products and services that can be customized later	Gilmore and Pine II, 1997; Pine II, 1993
Develop responsiveness along the supply chain	Pine II, 1993; Wind and Rangaswamy, 2001
Use of modular components to provide variety	Duray, 2002; Lampel and Mintzberg, 1996; Pine II, 1993
Customize the packaging and the final presentation of a standard products	Gilmore and Pine II, 1997; Spira, 1993
Use of technology, flexible processes and organizational structure to deliver higher variety at lower cost	Da Silveira <i>et al.</i> , 2001; Helms <i>et al.</i> , 2008
The possibility of co-creation through customer interaction in the production process	Duray, 2002; Gilmore and Pine II, 1997; Wind and Rangaswamy, 2001

Table 1 – Enabling features for mass customization found in the literature

Among all these characteristics that can be found in the literature, it is possible to highlight two features that are present directly or indirectly in the strategies adopted to enable mass customization - (i) the use of modularity as a way to offer more variety and allow the postponement, which is delaying parts of the product assembly to the nearest point of the request (DURAY *et al.*, 2000; KUMAR, 2007; LAMPEL and MINTZBERG, 1996; MIKKOLA and SKJOTT-LARSEN, 2004; SALVADOR *et al.*, 2004) and (ii) the integration of customers in the production process (Da SILVEIRA *et al.*, 2001; HELMS *et al.* 2008; PILLER *et al.* 2006; PINE II *et al.* 1995 ; SALVADOR *et al.*, 2009), allowing the co-creation of the product through the use of IT (DURAY, 2002; GILMORE and PINE II, 1997; KUMAR *et al.* 2007; KURNIAWAN *et al.*, 2006; PRAHALAD and KRISHNAN , 2008).

Reinforcing these two points, Duray (2002) suggests a model of operational configuration combining these two strategies: the modularity and the moment at which customization occurs. The use of modularity is present in all cycles and the point of customer interaction in the production process determines the level and the point of customization. The more upstream is the customer engagement in the process, the greater the level of customization to be provided, the flexibility and complexity of the operation. Based on these

assumptions, the operational configuration model suggested by Duray (2002) has four categories (Figure 1) - (1) fabricators, (2) involvers, (3) modularizers and (4) assemblers. In fabricators and involvers, the customer interacts in the early stages of the production process, while in the modularizers and assemblers, the customer is involved just in the assembly or delivery phase.

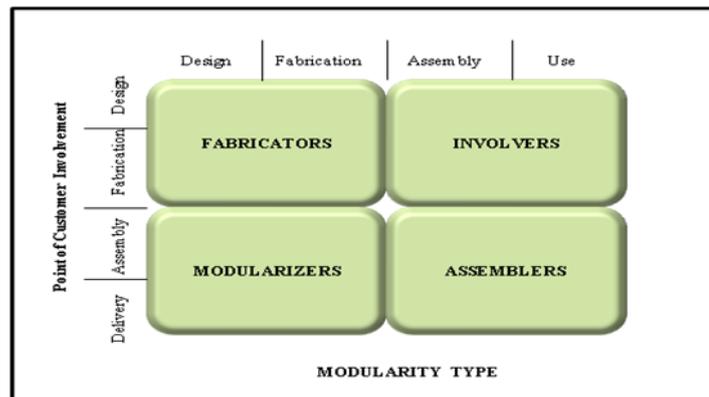


Figure 1 – Operational model configuration (DURAY, 2002)

A crucial factor for the success of these strategies is information technology – IT (HELMS *et al.*, 2008; KUMAR *et al.*, 2007; PINE II *et al.*, 1995). IT solutions, mainly those that are Internet-based, are seen both in academia and among practitioners, as the great empowering factor for mass customization. It is through IT that external information can be captured and combined with the knowledge that the company owns, creating new products or options to be offered (HELMS, *et al.*, 2008). In the next section, this point will be better addressed by examining how IT has contributed to the advancement of mass customization.

2.2 IT as an enabler of mass customization strategy

The use of IT in the mass customization strategy is intense (GILMORE and PINE II, 1997; PILLER, 2004; PILLER *et al.* 2004; PILLER *et al.*, 2006; PINE II, 1993; PINE II *et al.*, 1993; PINE II *et al.*, 1995). It allows organizations to access resources that are globally located and also to coordinate their suppliers and partners (HELMS *et al.*, 2008; LAURINDO, 2008; PRAHALAD and KRISHNAN, 2008), collect valuable information about customers that are later translated into options to be offered by a catalogue or directly incorporated into the products (Da SILVEIRA *et al.*, 2001; HELMS *et al.*, 2008) and allows the customer to be a co-creator in the production process (DURAY *et al.*, 2000; DURAY 2002, 2006, GILMORE and PINE II, 1997; PILLER, 2004; PILLER *et al.*, 2006).

From these attributes, four variables can be identified that testify the mass customization from the effective contribution of IT - (i) customer interaction and monitoring, (ii) collection and analysis of customer's data, (iii) flexibility in the supply chain, and (iv) integration of the links in the chain.

Yet, in order to maximize the results, the integration and alignment between IT strategy and business strategy are essential for a successful implementation of a mass customization strategy. This point is detailed in the next section, along with the IT alignment models that exist today and help to highlight the importance of IT within organizations.

2.3 The strategic importance of IT and its alignment with business strategies

The strategic importance of IT to business success is described in the work of McFarlan (1984), Porter and Millar (1985) and later in Nolan and McFarlan (2005), in which the authors describe the evolution of IT, from a support function to assuming today a strategic role in organizations. However, a major concern that exists in IT management is its alignment with business strategies. Studies have shown that the alignment between IT and business

generates benefits not only for IT itself, but also to the whole business (CUMPS *et al.* 2009; HENDERSON and VENKATRAMAN, 1992; HIRSCHHEIMER and SABHERWAL, 2001). Another benefit of the alignment is a more focused and strategic use of IT that consequently leads to better performance in business (CHAN *et al.*, 2006).

This point was discussed in a survey conducted by MIT (Massachusetts Institute of Technology) in the 1980s, which generated one of the first models showing that revolutionary changes, involving IT investments, generate substantial benefits since the essential elements of the strategy, e.g. technology, structure, processes and people are aligned. Later, Henderson and Venkatraman (1993), based on this study, created the strategic alignment model, which now must be the most cited among all models of alignment (CHAN and REICH, 2007).

The concept of strategic alignment of Henderson and Venkatraman (1993) is based on two premises - (i) the economic performance is directly related to the ability of creating a strategic fit between the positioning of an organization in the competitive environment and appropriate infrastructure to support its implementation and (ii) this strategic fit is inherently dynamic. Therefore, strategic alignment is something that is in constant process of adaptation and change.

The strategic alignment model proposed by Henderson and Venkatraman (1993) identifies two forms of integration - (i) strategic integration, which is the link between business strategies and IT strategies, reflecting the external factors, and (ii) functional integration, which is the link between infrastructure and organizational infrastructure for IT, reflecting the internal factors. In the external domain, are the strategic decisions of a business organization that differentiate it from competition, while in the internal domain are the decisions about internal issues in order that the organization can obtain the necessary organizational competencies. In the business field, the adequacy of the external positioning and internal adjustments is what allows an organization to achieve better economic performances. In the IT field, it is also necessary to pursuit the match between the positioning of IT in the market and the internal infrastructure adjustments (Figure 2). The alignment model of Henderson and Venkatraman (1993) assumes that an effective IT management must seek a balance in the decisions taken among the four domains.

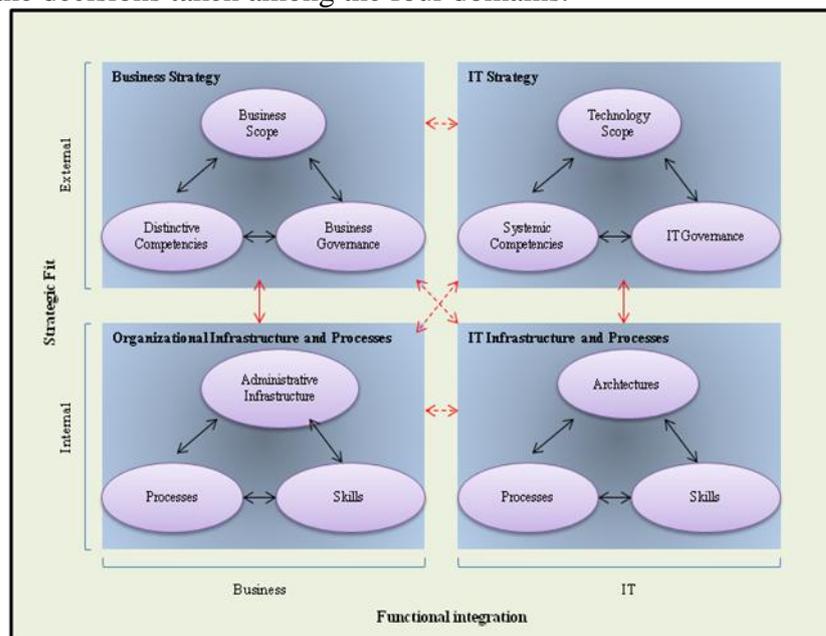


Figure 2 – Strategic alignment model (adapted from Henderson and Venkatraman, 1993)

Strategic alignment, however, is not a simple task. Because of its dynamism and complexity, involving different parts of a company, the challenge of achieving this alignment is considerable. There is also a great diversity in definitions about alignment, which contributes to the difficulty of companies to succeed in this endeavor. Some of those definitions that can be found in the literature are - to manage IT in a way that reflects the business management (SAUER and YETTON, 1997 *apud* CHAN and REICH, 2007) and the way IT supports the mission, goals and plans contained in the company's strategic plan (LUFTMAN and BRIER, 1999 ; REICH and BENBASAT, 1996). However, for the purposes of this study, the Henderson and Venkatraman (1993) definition was adopted - alignment is the extent of adjustment and integration of business strategy, IT strategy, business infrastructure and IT infrastructure within the four domains described above.

3. Methodological procedures

The present paper is part of a broader study that intends to study the adoption of mass customization in Brazilian companies, classifying them into the Duray's (2002) configuration and seeking to answer the following general research question – how is IT used to become the enabler of the mass customization strategy, focusing the customer interaction point? From this overall objective, this paper focused on the quadrant denominated “Assemblers” in the Duray's (2002) operational configuration model, in order to investigate two of the variables raised during the literature review: (i) customer interaction and monitoring and (ii) collection and analysis of customer's data. The alignment between IT strategy and business strategy was also considered to understand its contribution to the success of mass customization. The field investigations were made in two automotive companies, and the results were confronted with the works of Alford et al., (2000) and Yassine et al., (2004) that describe the mass customization strategy in this industry and its particularities.

In order to raise the main concept about mass customization and the IT influence in this strategy, an extensive literature review was made. Case study approach was chosen as the methodological approach, once it is appropriate to investigate phenomenon that are contemporary where the context is important and the researcher has no influence in the phenomenon (SOUSA and VOSS, 2001; VOSS *et al.*, 2002; YIN, 2005). The research nature is qualitative and the purpose is exploratory, in order to allow the examination of the concepts related to the phenomenon and to discover new facets of the phenomenon being studied (FORZA, 2002; VOSS *et al.*, 2002).

The company selection criteria considered: companies that can be classified into one of the quadrants of the operational configuration model designed by Duray (2002); and companies that use IT to enable mass customization and companies that are representative on its productive sector. The data collection followed an approach of semi-structured interviews that were conducted with directors and managers from IT and marketing departments. The interviews were transcribed in a report format, which were later sent to the companies to be validated, in order to increase the internal validity.

4. The case study

Both companies investigated have been present in the Brazilian market for over 50 years. They have manufacturing facilities around the country and their product lines include trucks, SUVs and consumer vehicles. The mass customization or the personalization of a vehicle is mostly through a catalogue of options offering (ALFORD et al., 2000; Da SILVEIRA et al., 2001). Therefore, the success factor is the accuracy in the creation of these options for each car model. Both companies present similarities in many points, but the way the companies understand IT importance in mass customization strategy and the way they

understand mass customization *per se*, show some differences. The description of the cases, followed by results are presented in the next item.

4.1 The context of company A

There are three main points of interaction with the customers - the web site, the CRC (customer relationship center) and the dealers. The distributors are still the primary point of contact with the customer. The web site was implemented about ten years ago, when the company realized that more and more consumers were using the Internet as a means of communication with companies. A little later, a section called “Build your car” was created, the main objective of which was to give to the customers information such as colors and options available for the car they were looking for and an idea of price and finance options, before they went to the dealers to close the deal.

With the advance of technology, information about customer choices, preferences and needs gathered by the web site and the dealers could be stored in a database and used to base their catalogue of options to be offered to the customers, focused campaigns and specific offerings. This point was also addressed by several authors such as Helms *et al.*, 2008; Pine II *et al.*, 1995; Piller and Möeslein, 2002 and Wind and Rangaswamy, 2001 that say that the accuracy in collecting the customer’s information and in translating them into their products is one of the ways to succeed in a mass customization strategy.

The data collected are worked through a data mining system that identifies niches, consumer profiles, preferences and opportunities. Part of these works are developed by the Company A’s marketing staff and the other part is developed by an outside marketing partner. This information, combined with the marketing demand in order to increase sales, become the basis for the elaboration of the catalogue of options to be offered to customers.

Some car configurations sold this way, mainly cheaper and more popular ones, are generated based on the information about customer needs. Although IT is not directly linked to the catalogue of options creation, it provides the basis which the marketing staff uses to create new options in a more accurate and quicker way.

4.2 The context of company B

Company B makes a distinction when talking about mass customization – when selling a standard vehicle for the general customer, they treat it as personalization. They treat as mass customization when the vehicles are sold to specific fleets, such as taxis, ambulances, government vehicles, rental companies and vehicles for persons with physical disabilities. In the first place, the personalization part will be treated and then, what the company considers mass customization.

Although the web site of Company B was developed about 15 years ago, the use of this resource as a channel of communication with clients began only around 2000. During this period, a rival automaker had released a social networking site with the customer, where it made available not only information about the company and its vehicles, but allowed the reservation of a vehicle by the consumer. After this process, the consumer went to a dealer just to close the deal and establish the financing options. This action caused a movement in the market, which led company B to realize that it should also make use of the Internet as a channel of communication with customers. From this moment on, Company B provided a page named “Build your car”, which over the years went through a number of changes until it became what it is today.

Company B considers to be channels of interaction and monitoring of customer the e-mail (contact us), chat, CRC (Customer Relationship Channel), 0800, dealers and website (Configure your car). All data relating to customers obtained through these channels are stored in a database for later use by the company on marketing and sales, as well as

preparation of catalogs that best fit the preferences and needs of Brazilian consumers. In this company, options catalogue creation is centralized in the headquarters. These catalogues are then sent to the regions that make their adjustments to fit the country characteristics. The two main channels from where the company gathers information to make the adjustment and regionalization of the catalogue are the web site and the dealers.

Nowadays, when a consumer enters the page "Build your car," and goes through all stages, including their preferences as to the vehicle and inform the interest in purchasing the car, it is directed to a dealer, indicated by the consumer and also to the automaker. At this moment, the tracking of this information begins to identify whether the dealer contacted the consumer, if the customer actually went to the dealer and if the deal was closed or not. Interests about the competitors' cars are also collected and stored, in order to identify, for each vehicle model and for each region, which is the most important competitor and what marketing activities would be more effective in each situation.

None of these actions would be possible if the data collected were not properly treated. Today, this company has a data mining system that along with marketing decisions, more effective actions can be taken. Information such as customers considered Vip (Very Important Person), the period in which a consumer usually buys a new car, the consumer profile for a particular vehicle, the most requested optional for each type of vehicle, and so on are quickly made available to the marketing staff so the actions launched are most effective. This database is integrated to a CRM (Customer Relationship Management), which connects all factories and dealers, so that everyone has a unique vision and this facilitates communication between the parts involved.

However, despite all this technology that allows custom actions, the purchase of a personalized vehicle is almost always left aside, mainly because of the characteristic of the Brazilian consumers that usually wish for a vehicle immediately. Unlike the profile of an European or even American consumer that accepts, for example, waiting a while for a vehicle that has his/her preferences, the Brazilian consumer prefers to purchase a vehicle that is available in stock and usually does not wait for the one that has the items that were previously set. This behavior, in the opinion of Company B, makes the functionality of the page "Build your car", only a way to collect data to understand the consumer's preference.

The other front where Company B operates in a very representative way is to these to special fleets, such as taxi, ambulance, government and vehicles for persons with physical disabilities. Company B calls this channel mass customization, because effectively, the customer asks for a special configuration in the vehicles and they are produced in large volumes. In these cases, there is a special line in the company to meet each of the specifications asked. On the web site, there is an area dedicated to these special customers, which in some cases, besides information, can add features to their needs. The technology here is used in two places - in the design and project, through systems such as 3D-CAD and in the communication between the automaker and suppliers. The design and project of the modifications in the car are sent directly to the suppliers so they can deliver customized modules to be assembled. In these cases, according to the classification of Alford *et al.*, (2000) the company could be classified into what is called "core customization," where the design, manufacturing and the distribution are customized to the customer needs.

4.3 The IT role from the perspective of strategic alignment between IT and business

The strategic alignment between IT and business within the strategy of mass customization in the company studied was tested throughout the process of case studies. To guide this part of the investigation, some company attributes that indicate the existence of the alignment, found in the literature, were taken into consideration. They are: (i) knowledge

about the corporate strategy (CHAN and REICH, 2007; REICH and BENBASAT, 2000), (ii) agreement on the importance of the alignment (HENDERSON and VENKATRAMAN, 1993) and (iii) clarity in its role within the company (CHAN and REICH, 2007).

In both companies, there are systematic efforts to communicate the business strategies to the entire organization. And in this process, IT is present from the beginning. The strategic planning rounds occur initially in the corporate level, involving both the headquarter and the regional facilities. After this round, each region deploys the planning in the regions and then in the countries. Since the first round, the IT staff is present and in those actions where technology is necessary, they provide all the resources mapping, the infrastructure present and needed. In some cases, resources are allocated outside in order to fulfill the needs. This initiative is consistent with the assumptions made in the strategic alignment model of Henderson and Venkatraman (1993), who argue that the economic performance of an organization is directly related to the ability to create a strategic fit between business strategy and infrastructure and organizational processes and this strategic fit is in a constant process of adaptation and change.

The strategic planning process that the company designs every year was mentioned in the two companies as a point of alignment between the areas. In this process, all areas, including IT, working together, analyzing their strategy and any action that somehow involves systems, the IT area is involved in the next planning steps. In the specific case of Company A, the IT staff is acknowledged as having knowledge of all company processes.

The perception of the importance of alignment between IT and business occurs naturally. In any marketing activity that affects sales, both IT and organizational infrastructure are analyzed in order to verify if the actions planned will be supported. Any of these actions are only formalized and executed after being validated by IT, regarding resources, security systems and compliance with the standards required by the company. Henderson and Venkatraman (1993) argue that this step is essential to ensure the internal coherence and link between the external field (business strategy) and internal domain (the underlying IT infrastructure and organizational infrastructure) that will specify its capacity to support what is being requested.

In the words of Company B marketing manager:

"IT is fundamental to our actions. Pursuing the alignment between the strategies of both departments is the beginning of a successful action. Today, thanks to the technology available, it is possible to make targeted actions, protecting and maximizing their investment in marketing activities, the return of which has been much better than in previous years. Although personalization is not the strength of our market, the fact that we know the profile of consumer preferences and the competition, facilitates the creation of attractive options for some cars and to launch actions targeting niche customers and regions."

5. Analysis of the results

In the automotive industry, mainly when it means consumer vehicles, the customization offering occurs only by changing or adding some optional items, all of them pre-determined by a catalogue. Therefore, the intensity of IT use in this process is limited, once it does not participate directly in the creation of those catalogues. However, the IT role is intense before the catalogue creation, by providing (i) data about the customer's preferences and profiles, and (ii) systems that meet the requirements of marketing, especially when it

involves more traffic on company website. These characteristic are mentioned in the work of Da Silveira et al. (2001) that describes the activities and points of interaction between customer-manufacturer. The definition of a catalogue of options is developed based on the analysis of customer's past demands and preferences. In the customization of specific vehicles, such as in the case of fleets, governments, etc., IT is heavily used to streamline communication between the automaker and its suppliers in order to provide customized vehicles.

The alignment between IT and business occurs in the strategic planning rounds, in which plans from both areas – business and IT – are presented in order to align the priorities and look for a better fit between the needs and the available resources. In the case of Company A, this planning process is a little more decentralized, thus the regions have a little more autonomy in drawing the specific actions that fit the region reality. Company B is more centralized, hence all actions and systems have to be validated from the headquarters. There is a movement to standardize all the systems around the world. In their vision, this step will provide more independence, agility, transparency and will allow better knowledge exchange between peers. In their opinion, it will facilitate the alignment process within the company. The IT influence in the mass customization or personalization process is not direct. However, in both cases, IT contributes to the availability of information about customers, the existence and maintenance of a database and systems that streamline communication. These resources have impacts on the level of success of the campaigns, increased supply of new catalogs and greater agility in the process of launching new offerings in the market than the company has experienced in recent years. Pine II *et al.* (1995) describe that interactivity and technology associated with database applications such as data mining and business intelligence allows organizations to have access to an enormous amount of valuable data about needs and preferences of its customers. This point is also reinforced by Hart (1994) which states that information can be analyzed to guide the creation of products and services that can translate the customer needs through the use of IT.

6. Limitations and conclusion

The generalization of this analysis cannot be proven through only two studies, although in the case of the automobile companies, due to its operational characteristic, it might be possible that certain similarity can be found within the sector. However, more studies must be conducted to increase the external validity. In both cases, the characteristics of the Brazilian consumer and market were mentioned as being a limiter for a broader personalization of the vehicle - which does not occur in European and American markets, where both the production volume and the consumer profile allow greater customization of vehicles.

The strategy of mass customization in an automotive industry, most of the time, occurs by offering options through a catalog, especially in cases of final consumer vehicles. In this case, the more accurate the preparation of the options catalog, targeted campaigns and special offers, the greater the chance of selling them, which directly impacts the company's results. To be able to quickly have accurate data becomes one of the key factors for the success of these activities. When considering specific vehicles for fleets, governments, vehicles for people with physical disabilities, etc., the customization occurs in the early stages of the production process. Technology, in these cases, acts in the early stages of design and communication between the parties involved. Thus, in relation to mass customization,

depending on the aspect that is being analyzed, it can be placed either in the "Optional customization" or in the "Core customization", in Alford *et al.*, (2000)'s classification.

This study showed that in both companies, IT is intensely used to capture customer information, to work them through a data mining system and to translate it into vehicles that carry options that were most demanded by consumers. The alignment that exists between IT and business is reflected in the close relationship that exists between the areas, facilitating the integration of both strategic and operational issues, which ensures that IT systems will support the requirements encountered in business strategy (HENDERSON and VENKATRAMAN, 1993). The gains for the company through this alignment can be translated into offerings and optional catalogues that better fit the customer needs and wants, more targeted campaigns and increase in sales.

Further studies should be performed in order to deepen the analysis about these issues.

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