

Market information management in product design

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Abstract: Facing a competitive environment, organizations have sought new strategies in their businesses, with emphasis on product development, in which design plays an important role. To handle this scenario, the organization needs to be responsive to consumer needs, new opportunities, environmental factors and competition. Such information is collected through market research to be later disseminated among all sectors of the organization and used to improvement or creation of new products. The aim of this study was to understand how the information collected on the market is managed in product development. In order to do so, a qualitative research in two large and medium sized organizations in Rio Grande do Sul was carried out. Through the observation of the product development process that begins with the market research and results in the final product, we identified how the search for market information is conducted as well as the role of the designer in the organizations which were studied regarding the three dimensions of the Design Management. In this research questions were also raised questions about the involvement and communication among the sectors responsible for market research and product design and the way the information processing stages are conducted in the organizations.

Keywords: design management, market research in product design, information processing.

1. Introduction

According to Kotler (2000), organizations are vulnerable to a scenario of constant changes in the market, such as the presence of a variety of products, changes in the tastes and needs of consumers, creation and provision of new technologies and, above all, the strong national and foreign competition. In this scenario, organizations have sought new strategies in their businesses to cope with the market competition.

The new product development (NPD) is considered one of the most important business processes to the competitiveness of organizations, being of vital importance to the increasing efforts to add value to their capacity for innovation (HARMSSEN, 2000). The design has a very important role in the development of new products, since it is related to the design of objects by determining the technical, formal and symbolic qualities of products (LOBACH, 2001). Besides its use as a means of optimizing products and services, design can also participate in improving strategic functions of the organization, as management of ideas, innovations, internal communications, as well as human resources and research and development work. Thus it can contribute to the continuous improvement of product quality, joining forces with the management area.

This union gives rise to the study called Design Management, which aims to manage the design at a strategic level, using it as a core competency in the management

environment in the organization. In the perspective of Design Management, according to Borja de Mozota (2011), the design, not only serves for the creation and production of products, but also as a management tool, which helps the organization to achieve its goals, taking key roles within the organization and across the sectors in the product development process.

The development of new products is linked to the innovation of the products and services of the organization that, in turn, need to be market-oriented and know how to manage the information collected in the whole product development process (PDP). According to Jaworski and Kohli (1990), Market Orientation (MO) emerges in organizations such as the implementation of the marketing concept and aims to adapt and keep up with market demands by the generation of intelligence; dissemination of intelligence; and responsiveness (JAWORSKI; KOHLI, 1990).

The search for information to generate intelligence occurs, among other ways, by means of market research, through which the organization seeks data on current and future customer needs, market opportunities and strengths and weaknesses of the competition. However, this information will be useful only to the NPD if disseminated and managed properly among all departments of the organization. Thus it can be worked and used in the

development of products, creating consistent answers to market intelligence.

According to Hultink et al. (2011), there is considerable growth of academic researches that prove the positive effect of the activities of market information processing on the performance of a new product. However, the successful use of this information will depend on the effective processing by the organization within all sectors involved in the NDP. According to Ottum and Moore (1997), the market information processing is related to the success or failure of the final product, so much so that its result will depend on how the organization manages this information along the process. Thus, the relevance of the study about the market information management on PD is highlighted.

This article seeks to present a reflection on the market information management by the organization in product development. From the data collected in a qualitative research in large/medium-sized Brazilian companies, the information flow is drawn, and the results are presented and discussed.

2. Literature review

The literature review is divided into three sessions, seeking to support the study and discuss the findings of the research. They are: Market Orientation, Market Information Processing and Design Management.

2.1. Market orientation

The discussion on the interaction of the organization with the market in business to achieve better organizational performance has been discussed for some time by the academic and professional field, particularly in marketing (NARVER; SLATER, 1990). In this sense, Jaworski and Kohli (1993) stated that organizations deal with market developments with regard to the needs and expectations of consumers in the delivery of services and high quality products, which require the monitoring of the market and ongoing responses of organizations. From this strategic process to investigate the needs and expectations of consumers in the market to generate competitive advantage, the concept of Market Orientation (MO) arises.

This concept originated in the 1980s, from the need to define the concept of marketing more clearly and operationally, when, by developing concepts and measurement studies of several renowned authors on the subject as Zaltman, Duncan and Holbek (1973), Narver and Slater (1990), Jaworski and Kohli (1990, 1993) and Deshpande, Farley and Webster (1993), the term gained its due importance.

The Market Orientation is an organizational behavior which consists of three specific activities: (1) generation of market intelligence, (2) dissemination of intelligence and (3) responsiveness. The first activity aims to create

market intelligence, that is, to find out information on the market, as current and future consumer needs and the reasons that compromise these needs, as competitors, suppliers and sociocultural factors. In the second, the information collected on the market is shared within the departments of the organization. And the last activity is where the answer to the information collected in the market and its implementation are developed. In this task, the organization makes decisions and promotes actions among its departments with regard to market intelligence, that is, the information acquired is transformed in answers to the needs raised (JAWORSKI; KOHLI, 1990).

To Zaltman, Duncan and Holbek (1973, p. 62 apud JAWORSKI; KOHLI, 1993) the Market Orientation is an innovative performance of the organization that consists of two phases: “(1) the initiation stage, namely, awareness and decision making, and (2) the implementation stage, namely, the implementation of the decision taken.” According to Jaworski and Kohli (1993), the two phases of innovative behavior correspond to the three activities raised by them in the development of the concept of Market Orientation in which the first stage concerns the generation and dissemination of intelligence and the creation of the organization’s response, and the second corresponds to the answer given by the organization.

In addition to this behavioral approach advocated by Zaltman, Duncan and Holbek (1973) and Jaworski and Kohli (1993), it is known that other authors, such as Narver and Slater (1990), see the Market Orientation as an organizational culture. Defining it as

[...] the organizational culture that most effectively and efficiently creates the necessary behaviors to generate a superior value for its customers and thus a continuous superior performance for the business [...] (NARVER; SLATER, 1990, p. 21).

The construct of Market Orientation, according Narver and Slater (1990) consists of three components: consumer orientation, competitor orientation and for cross-functional coordination, based on two decision pillars: focus on long-term and profit.

The consumer orientation means to meet the target market, the competitor orientation, on its turn, consists in discovering the strengths and short-term weaknesses of the organization’s competitors, as well as their strategies and long-term skills. And the cross-functional coordination refers to the administration of the efforts and actions of each department to manage to disseminate the strategic objectives across the organization to create value for the customer.

Through the various definitions and approaches of the construct Orientation Market among the authors quoted in this work, some considering it a behavior, others an organizational culture, it is possible to highlight some

common characteristics between the proposed definitions: the Market Orientation has the emphasis on the customer, on the market information and on the search for profitability.

Considering the concepts and definitions of the Market Orientation, it is understood that for an organization to be oriented for the market, it must be concerned in seeking information in the market about the current needs and expectations of its customers, and also to manage this information throughout the organization, sharing it with all sectors so that they it can be interpreted and translated by the organization into effective action in response to the needs identified in the market, resulting in customer satisfaction.

2.2. The processing of market information

To Veldhuizen, Hultink and Griffin (2006), the Market Orientation is achieved through the processing of the market information, since several studies on the use of market information have confirmed its positive relationship with the successful development of new products. However, information processing is considered a difficult field to manage, because many organizations fail to effectively absorb market information on new products (OTTUM; MOORE, 1997; VELDHUIZEN; HULTINK; GRIFFIN, 2006).

Ottum and Moore (1997) consider that the success or failure of the organization's new products is connected to the competence of the organization in the processing of market information, namely, the generation, dissemination and use of market information. In the view of Hultink et al. (2011), the acquisition of market information alone cannot be a sufficient condition for the performance of a new product, especially when this activity is the responsibility of just one person, for the "[...] understanding of new data can not always be totally understandable for a single person with their unique mindset, knowledge and experience." (HULTINK et al., 2011, p. 200).

Therefore, the market information should also be disseminated and used by the organization for the success of the PD. These two activities, as discussed by Ottum and Moore (1997), have faced great difficulty in the information processing, as organizations often concentrate the market information in a particular industry, such as Marketing or R&D, not allowing it to be shared by other parts of the organization, losing the contribution of more opinions and ideas about the generated information. Moreover, often due to the lack of knowledge, competence or management, organizations do not use the information that they themselves have generated and disseminated. These findings are worrying, since the use of information is the step that has the highest relation to the success of the new product in the processing of market information. And the lack of interpretation of the information by more than one sector in the dissemination of the information may hamper its use

in the PD as it misses applicability issues or quality of the data before its implementation (HULTINK et al., 2011).

Considering the steps that correspond to the processing of market information, there are some authors with different definitions of the concept. To Veldhuizen, Hultink and Griffin (2006), the market information processing corresponds to the acquisition, dissemination and use of information on the DNP, part of the MO. Moorman (1995) defines it into four parts: acquisition, transmission of information, conceptual use and instrumental use. To Sinkula (1994), the market information processing is divided into four stages, which are procurement, distribution, storage and interpretation, considering it as an organizational learning process supported in the market that has a competitive advantage as a result.

Comparing the definitions of the stages of market information processing proposed by Sinkula (1994) with the three activities of the Market Orientation of Jaworski and Kohli (1996), some similarity may be noticed, since both concepts have the acquisition, interpretation and dissemination of information. However, according to Jaworski and Kohli (1996), there are different definitions in its relation because the in the MO there is a responsiveness step, which is not part of market information processing, as it finishes in the storage step in Sinkula's view (1994).

However, following the division of the stages of market information processing proposed by Moorman (1995), which are acquisition, transmission of information, conceptual use and instrumental use, Jaworski and Kohli (1996, p. 123) state that, in this view, "[...] this concept and the Market Orientation appear to be virtually identical [...]", as their steps much more similar than those defined by Sinkula (1994). The definition advocated by Veldhuizen, Hultink and Griffin (2006) on market information processing share the same similarity, divided into acquisition, dissemination and use of information, which in turn are those that most closely resemble the stages of Market Orientation. For this reason, we opted for the definition of Veldhuizen, Hultink and Griffin (2006) for the use of the market information processing construct in this paper.

2.3. Market information management and design management

With regards to the information management in the Market Orientation, there is one factor that may hinder its implementation, which is the difference between sectors of an organization and its interdepartmental dynamics, namely, how the sectors communicate and work together when they receive market information. In a survey conducted by Jaworski and Kohli (1993) with 452 organizations in the United States of America (USA), the results confirmed the importance of the connection between the organization's sectors for the dissemination of intelligence and response to

the market. However, it is already known that establishing the connection among professionals of different areas, such as Marketing and Design, for example, is not an easy task due to differences found in the way designers and administrators think and work (LIEDTKA, 2010; BORJA DE MOZOTA, 2011).

Despite the differences between these two disciplines, where the marketing is considered more objective and practical, and Design, more subjective and creative, according to Borja de Mozota (2011), in theory, these two areas share something in common in their duties in understanding the needs and desires of consumers and motives that influence them. However, in practice, due to the lack of knowledge regarding the definitions and the roles in these two areas, there is a certain misunderstanding in the relationship between these professionals, in which the designer is not aware of the other skills of professionals in marketing, in addition to the product specifications, and the marketing professional does not see the design as a strategic part of the organization, just as a result (BORJA DE MOZOTA, 2011).

According to Wolff (2012), in the organization, both in management and in design, the vision of the design activity as part of the organization's strategy is a relatively new subject. For a long time design was considered an activity related to the manufacture of products, where issues of form, function and aesthetics were their biggest concern.

In this context, the design is now used not only in the creation and production of products, but as a management tool for the organization, assuming other important internal roles as part of other processes such as idea, innovation and research and development management, which changes the organizational structure of processes of a company (BORJA DE MOZOTA, 2011).

This new role of design led to the study of the use of design within the organization to achieve success in product development, and consequently, a better performance. This study is called Design Management, and comes to help the organization to consider design as a productive force which operates in the three dimensions the design is composed with regard to its process and profession, namely: process, competence and strategy (WOLFF, 2012). Process refers to the design process and product development itself and the method the organization uses to create new products and services. Competence refers to the skills, actions and knowledge that the designer has to actually "design", that is, is connected to the way the design is performed and understood by the organization. Finally, the strategic dimension of design represents its use in a strategic vision of the organization (intention and the policies involved) to adjust and develop a competitive advantage. This dimension goes beyond the definition of the term and the profession because of its inclusion in the organizational environment,

where it will certainly be required to go through the Design Management, which considers its use as a strategy (WOLFF, 2012).

The design is seen both as a goal to achieve the objectives of the organization, as a means to solve management problems (BORJA DE MOZOTA, 2011). Wolff (2012) shares the same opinion, saying that the purpose of the Design Management is to manage the design as part of the strategy of the organization, including and also integrating skills, teams, processes and methods, as well as discovering how organizations use it day to day.

To achieve these goals, the Design Management should be part of the organization's mission and be linked to its management, as well as to the other sectors involved, such as marketing and research. According to Borja de Mozota (2011, p. 95), Donald E. Petersen, former CEO of Ford, states that "[...] the key issue in the management of the design process is to create the right relationship between design and all other areas of the corporation".

However, this issue is difficult to manage in the organization, since the focus of the manager is to work the company as a whole, and not each sector with independent goals. Subsequently, to make this possible, it is important that the organization incorporates a design culture, namely, a new way of thinking about this activity within the organization in a creative, integrated, strategic and comprehensive way, incorporating it in all processes of the organization. However, this awareness by the organization becomes a little complicated due to the lack of understanding and use of the design concepts systematically by the society and organizations (SANTOS, 2000).

3. Methodology

This research was developed in order to understand how the information collected on the market is managed by the organization in the development of products. The objectives were to clarify which area is responsible for the search for market information and product development within the organization; identify the flow of the information collected until it is used in product development; check how the market information reaches the PD team; and determine the perception of the team that uses the information collected about its importance with regard to the product development.

Regarding the strategy of research, it has an exploratory character and a qualitative approach. For the data collection the research technique was in-depth interviews, with a non-structured script, which was applied to six interviewees from large and medium-sized organizations of Rio Grande do Sul. The selection of the companies considered as a filter the criterion that they should work with product design and market research. The number of interviewees, as well as the number of organizations that were considered to this

data collection were defined according to the availability of companies that fit within the given filter and their willingness to participate.

Within each selected organization, three people were interviewed. In order to keep the identity of organizations and respondents confidential, they were represented by A1, A2 and A3, in the organization A, and B1, B2 and B3, in the organization B, as shown in Figure 1.

The organization A belongs to the shoe industry, it is a large-sized national and international organization, with around twenty thousand employees and is classified as an organization that works with business units.

The organization B belongs to three segments, which are: health, education and coatings. Its products have rubber and its polymers as the main raw material. It is considered a medium-sized company with approximately 700 employees. Unlike A, it works with a unified business format in which the products of its three business segments are worked together by the same parts of the organization, and are not treated as different businesses.

After the completion of the interviews, the data analysis was started, in which the transcription of the six interviews, the organization and analysis of the data was performed. To perform this step, the categorization technique of Bardin (2006) was used, whereby it was possible to divide the data collected in the research into four categories:

- (1) Organization and interviewees profile,
- (2) Market research in the organization
- (3) The process of the market information management and
- (4) The perception of the organization's sectors.

4. Results and discussion

Based on contributions found in the literature review of this study and in the analysis of the data found in this research, we present and discuss the results of the survey in the four categories explored in data analysis, comparing the data found for the organization A with the data for the organization B and relating them with the theory studied.

With regard to the category *profile of the organizations and interviewees* it is possible to notice that the sectors responsible for the market research in the organization A are in the business departments, represented in this work by department 1a, and also in the design department, represented by department 2a. Since according to the interviewee A3, designers also work with research, as the design used by the organization A in the PD is named “business” design, and not only “product” design. The market research in the organization B, on the other hand, is performed by three departments, which are the Research and Development, known as R&D, the Customer department and the Projects department. Regarding the departments related to product

Interviewees and roles		
A	A1	market expert
	A2	design supervisor
	A3	design coordinator
B	B1	R&D coordinator
	B2	coordinator
	B3	product analyst

Figure 1. Representation of the interviewees in the research. Source: Compiled by the authors (2015).

development, in the first organization the responsible department is the 2a, and in the second is the R&D.

Regarding the *market research*, which is the second category studied in the data analysis, the results showed that there are some peculiarities relating to the market information research, the type of research and the information collected in the studied organizations.

In the organization A, it is possible to understand that the information collected by the department 1a is quite different from the information collected by the department 2b. The data collected by the team of designers is qualitative and attentive to the more detailed look of the designer, focused on issues such as shape, concept, color and material, but also in the understanding, profile and way of life of the consumer, being characterized as a predominantly exploratory market research. The market information collected by the business sector, on the other hand, is more focused on data such as archetypes, prices, sales and targets, perception of tenants about the product and market, made through evaluations of the current scenario and the competition, being characterized as a quantitative research.

Another diverging point between these two sectors of the market research is the role that the information collected has for each department. For the market expert, this is directly related to the generation of new opportunities for one's business unit, always seeking the profit as the ultimate result of the NPD. The team of the department 2a, however, uses the information collected as a "tool", which added to the shared knowledge, skills and perception of the designers on the market, help in the development of products which are

more suitable to consumer needs, also generating profit for the organization, but through the added value of the product to the consumer and not only dependent in the price.

Overall, the information collected in the market research of the two organizations are similar, however, the organization B has a different way of collecting the information, through special projects with the user, involving them in the moment of the survey, as this does not happen only through the internal activities of R&D team, but also in conjunction with the support department, through actions and interaction activities with members and persons involved in their environment and in their place of living.

Among the literature review of this work, Jaworski and Kohli (1990) argue that the Market Orientation happens through the strategic processing of three different activities: generation of market intelligence, dissemination of intelligence and responsiveness. And when it comes to its application in the organization, it can only be achieved through the market information processing (VELDHUIZEN; HULTINK; GRIFFIN, 2006). Thus, there is a connection between the activities of the MO and the management of the market information for the product development.

Among the collaborations found in practice it can be identified through the flows structured with the interviewees on the *management of market information in the PD process* in both organizations, the third category, in which moments of this process occur the three activities of the MO in each organization, as shown in Table 1.

With respect to the flow of the organization A, the generation of market intelligence occurs mostly in the first

Table 1. Comparison of the MO stages with the PDP of the organizations.

MO Three sets of activities	Organization A	MO	Organization B	MO
<ul style="list-style-type: none"> ● Generation of market intelligence ● Dissemination of intelligence ● Responsiveness 	1. Market research		1. Repository of ideas	
	2. Portfolio Assembly		2. Initial assessment of the R&D team	
	3. Presentation of the results and scenarios		3. Overall assessment of the projects	
	4. Creation and opening of the briefing		4. Project planning	
	5. Preliminary study of the products		5. Data entry of the project	
	6. Creation and approval of the layout		6. Definition of the project schedule	
	7. Sketch meeting		7. Definition of the samples	
	8. 3D prototyping of the product		8. Assessment of the samples	
	9. Strategic pre-meeting		9. Development of the product, process and packaging	
	10. Strategic meeting		10. Registration of the items	
	11. Making of the color palette		11. Product certification	
	12. Prototype construction		12. Definition of the exit data of the product	
	13. Meeting for the final approval		13. Production	
	14. Creation of the matrix		14. Planning the launch and improvement of the product	
	15. Large-scale production		15. Release of the communication to the market	
			16. Periodic evaluation of the portfolio	

Source: Compiled by the authors (2015).

and second phase of the process, as well as in the fifth step. In the organization B, it happens on two separate occasions: in the beginning of the product project, in the generation and selection of the first ideas by the R&D team (first and second step) until the overall evaluation of the projects; appearing again only in the fifth stage, in which the data collection happens in the so called data entry.

The dissemination of market information with the team and other departments happens at various times during the process in the two organizations studied, however, about its frequency, specifically, it has more regularity in the stages of product development of the organization B, as they have more meetings throughout the process and involve more people in the execution of each phase. The greatest dissemination of information collected on the market in the organization B occurs in the assessment stages, corresponding to the second and third stages, and in the data entry step.

In the organization A, the moment of the most sharing of information collected on the market among the departments, especially departments a1 and a2, can happen in four stages of this process, from the second to the fifth stage. In the step named *portfolio assembly* the dissemination of the information collected by the business department with the design department happens, even if the whole team is not present at all times. The most dissemination of information takes place in the third and fourth stage as it is when everything that has been searched for the project of the new product is shared. Finally, the information is also shared in the fifth stage of the process, in the preliminary study of the products, in which the product designer presents a pre-project for the Business department and Branding and Communications. However, as reported by the design research coordinator, the step in which the results and scenarios are presented and in the creation and opening of the briefing may not occur in person, and thus the opportunity for a greater exchange of information between the departments may be lost.

This reality is consistent with the statements of Ottum and Moore (1997) and Hultink et al. (2011), who say that organizations have faced obstacles in the processing of market information, especially with regard to the activities of dissemination and use of information, since the highest concentration of information is usually on only one department in the organizations, thus not being disseminated among the other sectors.

The last activity of the MO, responsiveness, concerns occasions when have the organization's final decisions are set to put into practice the actions among the departments involved in product design. In the first organization, they happen most frequently in the meetings to approve the new product in step six and in strategy meetings of stages nine and ten. The part that corresponds to the use

of information collected in the manufacture of the product in the organization A corresponds to the creation of the layout, 3D generation, color chart and product prototype until the final stage, the large-scale manufacturing of the final product.

In the second organization investigated, it can be said that the responsiveness capacity of the MO occurs in more steps than in the first, and the most moments of decision making among the departments for the product design happen in the following steps: planning of the project, definition and evaluation of samples and planning the launch of the product, and the stages of product development, process and packaging and production correspond to those in which the response to the market intelligence is implemented the most.

In regards to the latter category, the *perception of the organization departments*, it was verified that the understanding of the six interviewees regarding the market information used in the development of new products in their organization as well as the answers on their management in their departments.

The opinion of the interviewee about use of market information in the business department is different from the two interviewees in the design department due to differences in the type of information collected and the focus of the market research in each department. In the first department, the market research aims to bring information to build the portfolio and briefings of the new products to the organization, while in the second department, it seeks to better understand the briefing received by the first department to a better execution of the end product. However, when asking each interviewee on what information is most commonly used in the NPD in the organization A, both believe that the information collected by their department is the most used, the department 1a because it would be the beginning of the process and it is critical for the use by designers in the NPD, since the data collected by the business department is part of the construction of the briefing and the organization's products portfolio. And interviewed A2 and A3 because they consider the market information in their department (2a) is the information which is actually used by the designers when developing the product.

With respect to the investigation on the feedback on the survey of the organization A, it was reported to be little communication between the business and the design departments, as well as the lack of a stronger connection between these departments in the processing of the market of information during the PD, mainly in the dissemination step. This responds passively to the factor on the conflict between departments cited by Jaworski and Kohli (1990) and Veldhuizen, Hultink and Griffin (2006), who say that little or poor communication between departments in the NPD can exert a negative influence on the acquisition,

dissemination and use of information. This result was confirmed by the answers of the designers of department 2a.

In the view of the organization B, the information which is most used in the products is generated in special projects with the Support sector, in which the R&D acts as well. According to the R&D coordinator, these socio-cultural projects involve the user in creating the product, bringing much more than data on the use of the product, competition, shapes and colors, as the interaction of these people helps in understanding the real needs of consumers and clients of the organization. Among the items listed by the interviewees as the main needs of the department are: to improve the form of registration and storage of the collected information; find out who should be inserted in the PD process and how; and improve the commitment and responsibility of people in the way they work in the steps of the process.

Comparing the results obtained from the two organizations on the perception of interviewees, it is understood that there is a greater concern in improving the management of market information in the PD in the organization B and the design department of the organization A, mainly on the issue of the dissemination, quality of the market information and interdepartmental dynamics. According to Liedtka (2010) and Borja de Mozota (2011), the difference among the departments and how they communicate, as well as how they work together within an organization can influence the implementation of market information management the PD, since dealing with these issues is not an easy task for the organizations, especially when there are people of different areas such as Design, Marketing and Administration among the departments, which is the case of this research.

The information management in the PD process, on the other hand, is related to the Design Management, which encompasses the design as an integral part of the strategic decisions of the organization, engaging in the three following dimensions: process, competence and strategy (WOLFF, 2012). Comparing the definitions of these dimensions suggested by Borja de Mozota (2011) and Wolff (2010) with the results found in the survey, it is clear that in the organization A the design operates in the three dimensions. The a1 department is involved with the strategy part of the Design Management in the organization, because their tasks are related to business issues, decision-making and organizational goals. In the department 2a, the team of designers is responsible for the implementation of market information and execution of the final product, getting involved, therefore, on the competence and procedure steps in the Design Management. In the organization A, therefore, the Design Management occurs in the three dimensions reported by Borja de Mozota (2011) and Wolff (2010).

In the organization B, on the other hand, it was revealed that even without realizing it, the Design Management is applied. Since the R&D is formed by a multidisciplinary

team, who work in the product design, as well as in the coordination and monitoring of all stages of the NPD, and also taking part of the strategic decisions of the organization, aligned with the organization's goals and culture. It can therefore be said that it applies Design Management on the processes and strategy, but not in the competence area.

As, although the R&D "designs products", it does not have, today, a professional graduated in Design their your team, just outsourcing occasionally in radical innovation projects. It is clear, therefore, that it does not have much knowledge about the specific role of the professional with a background in design, as one of the interviewees presented difficulties to understand what a designer does when they were asked whether in their organization they worked with designers, thus ignoring the competencies of the professional in question. This may happen due to the fact that while the R&D is involved in PD in conjunction with the third-party designer, they do not work in the same place. This does not favor the use and familiarity with the specific creative features that this professional has and that could certainly contribute to improvements in the organization's DP process.

5. Conclusions

In order to study how the market information is managed by the organizations in the product development process, a qualitative research was carried out, in which six people were interviewed of medium/large-sized organizations working with product design and market research.

In the literature review about Market Orientation, Information Processing and Design Management, important contributions were sought among the authors who discuss and investigate these matters. These collaborations helped in the comprehension of the results found in the data analysis, which allowed us to answer to the objectives outlined in this study.

As to elucidate in which department the search for market information and the product development is located within the organization, it was noted that the search for market information may be either in the department responsible for the product design as the sales or business department of the organization. As for the location of the department in charge of the PD, it can be said that the product design is performed by one department only, but this might be the same department that carries out the market research in the organization, as happens in the two organizations which were studied.

Regarding the identification of the flow of the market information until the final product in the organizations, it was found that to identify it, first it is necessary to know the stages of the organization's product development process, as the information management in the PD is directly linked to the product design process. Secondly, when comparing

the steps of the PD flow of each organization established in the research, it was possible to recognize in general the following flow: the collected information enters the organization through the stages related to market research, goes through stages that correspond to the assessment of the business or project, in which it is previously analyzed by the department responsible for the collection and then evaluated in the team, involving other people and departments, being recorded and saved in some way. After, it is disseminated to the sectors responsible for specific stages of the process, when the information is divided into parts, to then be assimilated, interpreted and used by the people involved in the PD.

Studying in more depth how the information collected on the market is shared on the steps for each organization, the third objective of the study was reached, which is to see how the market information gets to the department responsible for the product development. It was found that the information is shared and delivered in different ways to this department in the two organizations that were studied. It can therefore be concluded that information is shared in a simpler and indirect way, without much contact, by e-mails and phone calls or by a more direct way with more personal contact, in meetings with the participation of more people, internal meetings with the department's own staff or in more interactive meetings, such as sharing workshops. As to its delivery format, it can be anything from a simple internal report without a specific document template for recording the data, or more standardized forms, structured by type of information. This way information is passed through the departments during the PD can influence in its use, because once the data collected in the market research is summarized in a phone call or email, some important information of the research may be lost, in addition to not allowing for a sharing of ideas and new knowledge among the people of the departments involved in the project, thus possibly harming the outcome of the final product.

As to the verification of the way the team that uses the market information sees its importance for the product development within the organization, it was proved that the gathering of market information is critical to the success of the final product and the organization's performance. However, with regards to the positioning of the departments with respect to the use of the information for the PD, there was some disagreement among the market research and design departments in the first organization, as each department believes that the data collected by them is considered the most efficient for the product development process.

This disconnection found among the departments from the first organization studied on the importance of the information, added to the complain of the designers regarding the data collected shows that the lack of

integration between these two departments at the time of collection and the little communication between them during the PD steps affect the use of marketing information on the product design, as well as the dissemination of such information during the process. The two departments of different areas, which have therefore different skills and visions, and collect different types of information in the market, should join forces and generate a higher quality of the data collected for the PD, resulting, thus, in products which are more consistent to the consumer needs and business of the organization.

6. References

- BARDIN, L. **Análise de conteúdo**. Lisboa: Edições 70, 2006.
- BORJA DE MOZOTA, B. **Gestão do design**: usando o design para construir valor marca e inovação corporativa. Porto Alegre: Bookman, 2011.
- DESHPANDÉ, R.; FARLEY, J. U.; WEBSTER, F. E. Corporate culture, customer orientation, and innovativeness in Japanese firms: a quadrad analysis. **Journal of Marketing**, v. 57, n. 1, p. 23-27, 1993. <http://dx.doi.org/10.2307/1252055>.
- HARMSSEN, H. Company competencies as a network: the role of product development. **Journal of Product Innovation Management**, v. 17, n. 3, p. 194-207, 2000. [http://dx.doi.org/10.1016/S0737-6782\(00\)00039-4](http://dx.doi.org/10.1016/S0737-6782(00)00039-4).
- HULTINK, H. et al. Market information processing in new product development: the importance of process interdependency and data quality. **IEEE Transactions on Engineering Management**, v. 58, n. 2, p. 199-211, 2011. <http://dx.doi.org/10.1109/TEM.2009.2034254>.
- JAWORSKI, B. J.; KOHLI, A. K. Market orientation: the construct, research propositions, and managerial implications. **Journal of Marketing**, v. 54, n. 2, p. 1-18, 1990. <http://dx.doi.org/10.2307/1251866>.
- JAWORSKI, B. J.; KOHLI, A. K. Market orientation: antecedents and consequences. **Journal of Marketing**, v. 57, n. 3, p. 53-70, 1993. <http://dx.doi.org/10.2307/1251854>.
- JAWORSKI, B. J.; KOHLI, A. K. Market orientation: review, refinement, and roadmap. **Journal of Market-Focused Management**, v. 1, n. 2, p. 119-135, 1996. <http://dx.doi.org/10.1007/BF00128686>.
- KOTLER, P. **Administração de marketing**: a edição do novo milênio. 10th ed. São Paulo: Prentice Hall, 2000.
- LIEDTKA, J. Business strategy and design: can this marriage be saved? **Design Management Review**, v. 21, n. 2, p. 6-11, 2010. <http://dx.doi.org/10.1111/j.1948-7169.2010.00059.x>.
- LÖBACH, B. **Design industrial**: bases para a configuração de produtos industriais. São Paulo: Edgar Blücher, 2001.
- MOORMAN, C. Organizational market information processes: cultural antecedents and new product outcomes. **Journal of**

- Marketing Research**, v. 32, n. 3, p. 318-335, 1995. <http://dx.doi.org/10.2307/3151984>.
- NARVER, J. C.; SLATER, S. F. The effect of a market orientantion on business profitability. **Journal of Marketing**, v. 54, n. 4, p. 20-35, 1990. <http://dx.doi.org/10.2307/1251757>.
- OTTUM, B. D.; MOORE, W. L. The role of market information in new product: success / failure. **Journal of Product Innovation Management**, v. 14, n. 4, p. 258-273, 1997. [http://dx.doi.org/10.1016/S0737-6782\(97\)00013-1](http://dx.doi.org/10.1016/S0737-6782(97)00013-1).
- SANTOS, F. A. **O design como diferencial competitivo: o processo de design desenvolvido sob o enfoque da qualidade e da gestão estratégica**. Itajaí: Univali, 2000.
- SINKULA, J. M. Market information processing and organizational learning. **Journal of Marketing**, v. 58, n. 1, p. 35-45, 1994. <http://dx.doi.org/10.2307/1252249>.
- VELDHUIZEN, E.; HULTINK, E. J.; GRIFFIN, A. Modeling market information processing in new product development: an empirical analysis. **Journal of Engineering and Technology Management**, v. 23, n. 4, p. 353-373, 2006. <http://dx.doi.org/10.1016/j.jengtecman.2006.08.005>.
- WOLFF, F. **Sistemática de avaliação da gestão de design em empresas**. 2010. 233 f. Tese (Doutorado em Engenharia de Produção)-Programa de Pós-graduação em Engenharia de Produção, Universidade Federal do Rio Grande do Sul, Porto Alegre, 2010.
- WOLFF, F. **Gestão de design: modelo conceitual e sistemática de avaliação**. Porto Alegre: UniRitter, 2012.
- ZALTMAN, G.; DUNCAN, R.; HOLBEK, J. **Innovations and organizations**. New York: John Wiley and Sons, 1973.