

## **PROJECT MANAGEMENT PROCESSES IN BRAZILIAN DESIGN COMPANIES: RESEARCH BASED ON CASE STUDIES**

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### **1. Introduction**

Throughout the last decade the Brazilian government has invested on design significantly, primarily as a means of strengthening the Made in Brazil trademark abroad, providing Brazilian products with a competitive edge. The opening of new undergraduate and graduate courses funded by the Federal Government and via the Innovation Statute are part of such investments.

It is well known that the utilization of design can generate and implement a corporate culture that may positively affects the image of an organization. It contributes to the success of the enterprise, to sell products, to provide services for local and global markets, to ensure the quality in long-term production, to motivate staff, to improve competitive advantage, to satisfy customer needs, as well as to foster a trustworthy image in the market. However, a company may reap these benefits more wisely if it is able to manage adequately the design stage of its products or services development stage (Borja de Mozotta, 2003). This context favors the development of scientific studies and the application of recognized management techniques from other areas.

After the creation of a design graduate course in the author's university, a research group was assembled to develop studies in the project management field. The initial research stage focused on how local design offices managed their product development processes. Only afterwards was the focus changed to how they managed their design processes. Such dichotomy stems from the work of [Topallian, 1986], according to which Design management consists of administering all aspects involving design at two distinct levels: the first, at the strategic level of the company, and the second, at the project execution level. Therefore, the research strategy was devised after noticing that it would be easier to understand how offices managed design if the product development processes were understood first.

Another important point for the development of the present research is that, despite the relevance of the project management for a company, it is not mentioned very often on the majority of studies on design management. A survey through the Design Studies Journal, in the last five years, showed that the number of published works approaching project management practices is nearly null, although the scope of these studies is centered on the management field. Design Studies was selected since it had the largest impact factor among the relevant journals catalogued by the Coordination for the Improvement of Higher Education Personnel (CAPES - Brazil).

Works in the design area with the aim of implementing or using project management practices in the market are even rarer when the search is conducted among Brazilian companies. The importance of the development of an efficient project management process as a way to achieve the strategic objectives in a company is not a novelty for anyone. Based on this fact and on the incentive policy from the Brazilian government to turn Brazilian products more competitive in the international market,

it is important to develop a research to investigate how design offices, in Brazil, have been developing their management processes.

The results of this research will guide future actions to stimulate the use of consolidated management practices in design offices. Therefore, the aim of this article is to present the main result of a year-and-a-half research based on case studies in design offices located in the city of Porto Alegre, Brazil. This study was an attempt to verify how offices develop their project management process, since a gap in the state of the art of design management research was identified.

## 2. Background Research

According to the *IPMA Competency Baseline*, project management became a discipline with great development and visibility not only within the civil construction or in defense strategies. Project management is also found in areas such as organizational development, product development, legislation projects, educational projects, social projects, research, events, political projects and in various sectors of the economy (IPMA, 2006). For Kerzner (2002), project management may be defined as planning, programming, and control of a series of integrated tasks in order to successfully achieve the objectives and benefit the participants. A crucial question arose during the analysis of background research: considering the definitions and the focus on development displayed by the design offices studied, do the offices really know or use project management techniques in the development of their products?

[Turner, 1993] sees project management as a process through which a project is successfully accomplished. According to the author, a traditional view defines project management as a knowledge group of techniques and tools. Assuming an alternative view, however, Turner defines project management in terms of managerial processes that are necessary to develop a project in a predictable way. For [Cardinal and Marle, 2006], project management consists of a number of concepts, methods and tools that guide the process from the beginning up to the end, with resources oriented towards the realization of the objectives and result delivery. As it can be seen through the works of Turner, Cardinal and Marle, the use of project management techniques can become one of the main elements in the efficient development of a project.

## 3. Research Method

During the development of the research method it became evident the need of an understanding of how design offices and services providers from the south of Brazil managed their projects. Therefore it would be important to interview many offices from the South of Brazil as a means of verifying their development stage in the use of project management practices. However, when one tried to determine the total population of design offices, it was verified that no complete database existed among the many class associations, a situation that affected data confidence. Therefore, the strategy was reviewed. First a baseline research was undertaken so as to detect the design offices in the city of Porto Alegre, State capital and host of the University where the research occurred. In this perspective, the study did not aim at generalizing the research results, but focused on verifying whether there was any systematic knowledge on project management practices in the design offices. Such results are fundamental to guide an ampler study, involving a greater number of offices. It was assumed that experienced offices would be more interesting since they would have time to evolve managerially. The diagnosis was conducted through an in-depth interview with design offices with ten years of experience in the segment. Moreover, at least one office from each design area was selected. The offices operate in four (Graphic Design, Packaging Design, Environment Design, and Product Design) out of the five areas covered by this research.

For the diagnosis, a data collection tool, based on the PMBOK (2004) practices was developed. PMBOK was selected out of the many project management methods since there was a largely experienced Project Management Institute in the city of the study. It was therefore assumed that offices with more than ten years of experience were aware of the management practices present in the PMBOK (2004).

The result of the diagnosis showed that all offices had poor knowledge about the topic. Two offices were not even aware of the American Standards for project management, registered under the number

ANSI/PMI 99-001-200, and adopted in several segments of commerce, services and industry. With this result in mind, it was possible to set the steps to be followed: to check the adherence to design management practices adopted in the offices through the nine knowledge areas presented in the ANSI/PMI 99-001-200.

Following the diagnosis, a multiple case study was conducted as a research strategy. For Yin (1994), this method should be chosen when the researcher is attempting to find answers for “how” and “why” type of questions. Case studies are also advised when the investigator has little control over the events. The outcomes from case studies can be generalized to theoretical propositions. [Yin, 1994] also emphasizes that case study researches may include both single and multiple cases. According to this author, since the multiple-case studies are based on more than one object of study, they are less vulnerable and, therefore, susceptible to replication.

#### **4. Studied Companies**

Five areas from design were defined for this study and seven companies were chosen to be the research object. Not all offices operate only in the design area from which they were selected (an office may operate in other areas apart from graphic design, for instance). All offices, however, have been operating in the design segment, however, for more than 10 years. In addition, they are well recognized companies in the Brazilian southern region and demonstrated interest in the development of this study.

In order to take part in the research, the companies were requested to prove their practices in design project – through documents, archive registries, interviews with collaborators other than the interviewee, direct observations, and participative observations or, even, material proofs in the form of the artefacts produced [Yin, 1994]. Therefore, two pre-selected companies were rejected since they were not able to prove any evidence of their project management practices.

It is worth to mention that the offices and the design services providers that took part in this study, as well as the projects analyzed during the case studies, are not restricted to geographical boundaries. Some of them even operate overseas.

This item presents a usage proposal for the tool to analyze the manner in which design offices managed their projects. The tool is based on the filling of a spreadsheet that details the management practices from the PMBOK (2004). The spreadsheet is presented in Figure 1. Despite the small size of the spreadsheet – approximately half page – each analysed practice generated a non-structured interview aimed at registering the details of the practice. This guaranteed that the simplified spreadsheet did not hinder the quality of the answers, given the wealth of the data collected in the interviews.

In figure 1, Column A shows aspects which are related to project management best practices from the PMBOK (2004). The remaining columns bring a description of how the offices adopt the project management practices from the PMBOK. The scores vary from 0 (zero), when the office does not adopt the practice, up to 3 (three) in cases when the office formally uses.

In Column F the scores of the project management are registered according to the knowledge areas from the PMBOK listed in Column A. This column presents a summary of the scores obtained by the office in the nine lines of the analyzed aspects. The sum of these line scores reflects the total score obtained by the office in relation to the nine aspects of Project Management. The maximum score in this case is 27, that is, nine aspects multiplied by the maximum score (3).

A	B	C	D	E	F
ASPECTS APPROACHED IN PROJECT MANAGEMENT	NOT IN USE (0)	INFORMAL USE (1)	PARTIAL FORMALIZED USE (2)	FORMAL USE (3)	SCORES FOR DESIGN MANAGEMENT ACHIEVED THE OFFICE
Integration management					
Scope management					
Time management					
Cost management					
Quality management					
Human resource management					
Communications management					
Risk management					
Procurement management					
<b>Possible Maximum Score</b>				<b>Obtained Scores</b>	

**Figure 1. The spreadsheet developed for this study: an example of its application.**

Following this, an indicator was defined: the DAP – Degree of Adherence to the Project Management Practices, which is a value from 0 to 10 based on the applicability of the practices from the *Project Management Institute* in the design office. The adherence degree is measured through the equation shown in Figure 2

$\text{DAP} = \frac{\text{Scores obtained in the evaluation}}{10} \times 10$
27

**Figure 2. Equation to measure the DAP**

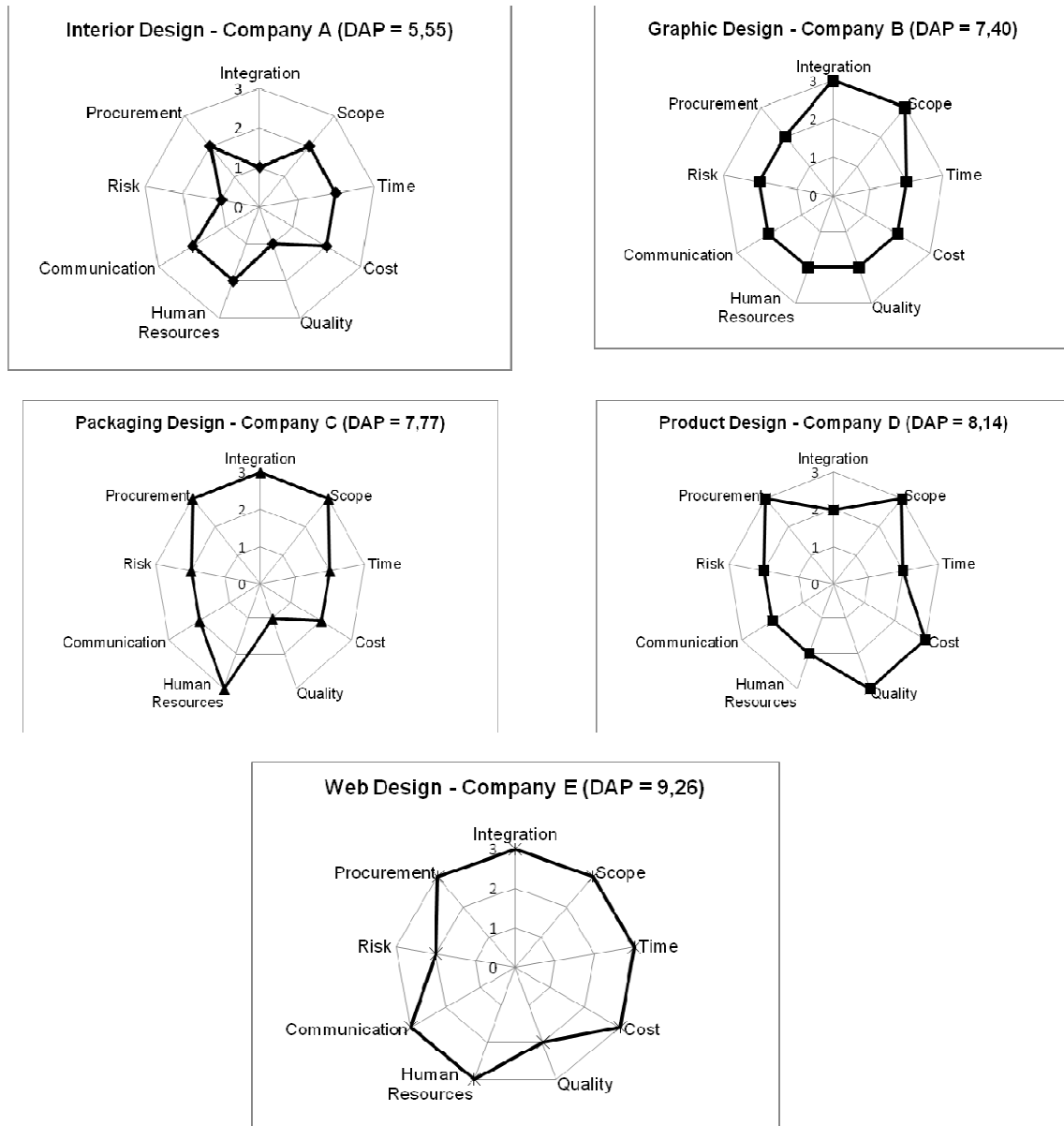
Once the spreadsheet was ready, it was sent to the offices participants in the study so that they could fill it with their opinion about how they adopt the design project management practices. Afterwards, new contacts were established with the offices – the objects of this study - and final spreadsheets were developed in consensus.

The studies based on the spreadsheet and on the DAP, both filled in consensus, provide us with the definite degree between the management processes practiced in the office and the practices presented in the PMBOK (2004). The use of project management practices and the level of the interviewee's theoretical knowledge about the topic were analyzed. In many cases, it was observed that the offices had actually been adopting project management practices in a formalized way. However, due to their lack of scientific and theoretical knowledge about the subject, they were not aware whether the

practices were being used in their companies. Only after the study, did they realize that they had been practicing management techniques in their projects.

### 5. Case Studies – a comparative analysis

Figure 3 presents the radar charts of each office with their respective degrees of adherence to the PMBOK (2004). It is possible to notice that company E obtained a higher DAP since nearly all of its management practices are formalized. This fact may be a consequence of the company’s size and structure – which require indispensable management practices to its operations.



**Figure 3. Degree of adherence to the PMBOK practices in the studied companies**

The participant with the lowest score was Company A, a fact that reflects the high level of informality of its project management practices. It was notice that this is a managerial characteristic of the people in charge. In this company, the employees want to improve processes, but they are not really prepared to implement them effectively. This stems largely from the background of those responsible for the offices. In the studied office, the personnel responsible for the design were architecture graduates and it is well known that most architecture courses in Brazil do not develop satisfactory managerial competences in their students.

Project management practices are used at a minimum level in all offices, since none of the studied areas scored 0 zero. Concerning quality management practices, opportunities to develop indicators in the offices were also raised. Apart from the product design office, which operates under the influence of the ISO standards, all the other objects of study showed informality in those practices. They believe that their professional experiences are able to ensure quality of solution and that their projects will achieve reasonable acceptance levels in the market.

The level of utilization of practices for risk management, almost imperceptible in this study, has – for each design area – aspects that are dealt in a specific way in the offices. Perhaps their experience in project development makes them more aware of the risks involved in design. Since design service is a relatively new activity in Brazil, the interviewees will probably face unknown risks during their next professional experiences. Therefore, measures to manage these new risks will be developed.

Only one object of study was not able to achieve the highest score. This was mostly due to the fact that everyone worked with documents that formalize the projects' scope. Commercial proposals and contracts for the provision of services are used to formalize the projects' scope in these offices.

Similarities and opportunities for improvement were found in all offices in the following knowledge areas:

a) Integration Management

Fundamental for organization and identification of the stages of an ongoing project. There are a standard number of patterns that are named differently but are followed by all the studied offices. These stages are: Data Collection; Project Development and Presentation or Project Delivery. According to Phillips (2008), these important stages need to be explained to design clients so that they are able to understand why, sometimes, more time and money they previously expected are required for the project to be successfully finished.

b) Scope Management

Scope is not formalized in only one office. This office usually does not formalize the whole level of involvement in the project. In the other studies the project's scope is totally formalized on the commercial proposals or on the contracts for provision of services. It is worth mentioning that all commercial relations in provision of design services should only begin after a thorough understanding about the tasks to be executed, the deadlines, and the cost of service fees to be charged.

c) Time Management

Only one office does not formalize the use of management practices of project time even in the commercial proposal. The remaining offices, time is considered a fundamental variable in the composition of project costs and service quality.

d) Cost Management

The offices participants in this study adopt cost management in a partially formalized way for they work with a document which formalizes the service provision relationship between office and client. This document is called Commercial Proposal, Plan Proposal or Contract for the Provision of Services. The total internal formalization is found solely in those offices with well-controlled operational cost – web design offices and product design – in which the financial values involved in the development process are high and under the client's responsibility. In this case, the designer works to turn the project solution economically feasible. According to the PMBOK (2004), "project cost management mainly deals with the necessary resources to meet the schedule". Any attempt to turn the project financially feasible depends on the cost evaluation of all resources necessary for the projects effective conclusion.

e) Quality Management

With exception of the product design provider, which operates based on the ISO 9001, the remaining offices presented quality management with few or no indicator. The graphic design office uses data from their own works to evaluate its quality level in relation to the process result. Concerning the project progress, there are not any indicators to evaluate quality during execution. Borja de Mozota (2003) has a possible explanation for this scenario of few quality indicators or the absence of them in

the offices. According to the author, design introduces a non-quantifiable view of quality: the perceived quality of a product or service.

#### f) Human Resources Management

The web design office is the only one to deal with project management in a totally formalized way. An experience that should be applied to other realities is the way the packaging design office operates. This office employs third party labor for the project's operational procedures, reducing, therefore, fixed costs. This is not the reality of those design offices that need to ensure the payment of a monthly payroll.

#### g) Communication Management

All offices that took part in this study formalize, in some cases partially formalize, project communication management. A series of problems may arise if this practice is not adopted in a third party service relationship. In design, it is virtually enviable to conduct a project with information without registries.

#### h) Risk Management

This topic requires a list of risks provided by the offices. The items are pertinent to almost all activities related to design. The following were raised during the study: risk of the client's personal taste, risk of working more than estimated, risk of project discontinuity from client, risk of production costs surpassing project cost, risk of changing the staff responsible for the negotiations in the client company; risk of employee leave (designers); commercial risk associated to the designed product; risk of dealing with non-professional suppliers; risk of product usability. Although offices did not present qualitative or quantitative risk management approaches, they possessed contingency plans. In general, budget included an allowance for specific events, although the value was estimated on the basis of past experience in the market.

#### i) Procurement Management

All offices take part directly in the process, even when they are not in charge of procurement. According to what has been reported by some interviewees, they are also responsible for the results. The *Manual de Gestão do Design* (Design Management Manual, 1997) states that those responsible for Design Management are should guarantee the necessary resources so that the objectives of the project are achieved.

## 5 Conclusions

The analyzed data was confronted with the nine knowledge areas in project management presented in the PMBOK (2004). This data was organized and classified in four distinct groups, according to utilization level and formalization. The research allowed us to analyze product, graphic, packaging, environmental and webdesign Design Management processes, as well as the level of formality on which each process is based and developed. After this analysis, it was possible to compare the different levels of utilization and formalization of Design Management practices from each office.

The managers in all companies showed an evident concern towards the need of professionalization of Management practices in their offices, which favors opportunities for further studies in this area. In addition, two interviewees reported that there has been an increasing demand for services in design offices over the past two years. One of the offices did not accept new clients in 2009 since its structured was mainly focused on projects requested by old clients. This fact shows the growing potential of the design service sector.

In relation to formalized processes, it was possible to observe that three out of the five offices that took part in this study, met this requirement: graphic design, packaging design, and webdesign. The environment design office and the product design office adopted informally defined processes but not in a formalized way.

All offices adopt the nine stages of project management planning from the PMBOK, but they are not always formalized and, sometimes, lack explicit theoretical knowledge on the topic. In many cases it was necessary an oral explanation about the terms used in the PMBOK (2004).

Among the offices that participated in this study, only one has computer systems for Design Management. It is also the largest office in terms of physical structure and human resources. One office had adapted “Outlook” software. This office plans to improve their acquisition and development of systems. The other three offices consider important the implementation of computer systems for Design Management. Their organizational structure, however, is still small and they cannot afford such investments.

All studies showed that the companies manage their design projects in different ways, depending on the financial values involved. In addition, the fees charged for services should also differ. This is based on the fact that there are different business dimensions, with distinct uses for the design solutions created. An example of these dimensions is the development of a project for a visual identity for commerce in a neighbourhood and for a multinational car assembly firm. A project will be adopted in a company with an income of some thousands of Euros a year and another, in a company with a monthly income of millions Euros. Different realities require distinct processes.

An important result arises from the structure of the offices and the product complexity developed therein. These two factors seem to interfere directly on the selection of management practices. For example, the clients of the office that works with web design require that the chronogram of the office be followed. Such clients are normally large corporations and require more than trivial solutions to their web sites. Thus, the office is led to detail the stages involved in project management with greater care. Investigating such issues in more detail will be part of future work.

The next step, after the establishment of the project management practices used by the offices, is investigating how design is inserted in the overall business management. Therefore a link may be established between how design is being managed and how it is contributing to the office strategic goals. Another natural research follow-up is the development of a more detailed data collection tool than that of figure 1 so as to guarantee more quantitative data handling. A model questionnaire is under development and will be submitted to a pilot in the second semester of 2010. Thus a more realistic picture of how design offices manage their projects will be traced.

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