

Design management and research in business strategies and project development

Gestão do design e pesquisa em estratégias de negócios e desenvolvimento de projetos

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ABSTRACT

Design management directly impacts the change in management processes, from the Taylorist administration model, which is hierarchical, to a more flexible model that promotes individual proposals, actions, and risk management. In this article, we present the exploratory research of a Canadian company's business decisions and project processes from the perspective of all departments involved in the same project flow. Based on data collected from interviews with Design Leads, Researchers, Project Owners, Business Analysts, Front-End Developers, Back-End Developers, and System Architects, in this article we dissert about design management and research based on design management maturity scale.

Keywords: Business. Management. Design. Research. UX.

RESUMO

Gestão de design é um fator impactante sobre as mudanças nos processos de gerenciamento do modelo taylorista de administração, que é hierárquico, para um modelo mais flexível que promove ações e propostas individuais, bem como gerenciamento de risco. Este artigo apresenta uma pesquisa exploratória sobre decisões de negócios e processos internos de uma empresa canadense sob a perspectiva dos departamentos envolvidos no mesmo fluxo de projetos. Com base nos dados coletados por meio de entrevistas com gerentes de UX, pesquisadores, gerentes de projeto, analistas financeiros, programadores front-end e back-end e arquitetos de sistema, este artigo discute sobre gestão de design e de atuação de pesquisa com base na escala de maturidade de gestão de design.

Palavras-chave: Negócios. Gerenciamento. Design. Pesquisa. UX.

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INTRODUCTION

Mozota (2011, p. 91) asserts that design management directly impacts the change in management processes from the Taylorist administration model, which is hierarchical, to a more flexible model that promotes individual proposals, actions, and risk management, based on Drucker (1993; 2008) studies. Peter Gorb (1990) defines design management as an efficient distribution of available design resources by managers in order to help companies reach their goals.

As Mozotta claims in her book (2011), the term “design management” was coined in the 1960s in the United Kingdom, when it referred to the management of relations between Design and advertising agencies with their clients. In 1966, Michel Farr verified a new function and responsibility to the position of Design manager: to guarantee the uniform execution of projects and good communication between the design agency and its clients (apud Mozotta, 2011). Hetzel (1993) adds that it was the London College of Arts and the Department of Design Management from London Business School that sparked the understanding that Design could have a crucial role in the industry and the economy.

Hetzel (1993) defines the design management scope as: management of the creative process within a corporation; business management based on design principles; and management of a design firm. From Gorb’s (1990) perspective, Design is at the same time an end *goal* (inserted as part of the corporate objectives) and a *process* (contributing with solutions to management problems).

The designer and business consultant Denise Eller (2011), during her keynote speech at Interaction South America 2011, observed the transition of design from product, form, and function to services and, now, to a business model. She suggested that it derives from companies’ needs for innovation and to reinvent their management approach, therefore to better follow with the technology advances and to better cope with the paradigm changes of the 2010s. These changes have pushed companies to bring the business thinking model closer to the Design thinking process, bringing Design closer to the management position for companies to change and evolve.

Mozota (2011, based on studies of Press, 1995, Price *et al.*, 1995, and Hart *et al.*, 1989) demonstrates four main variables regarding Design management policies in companies:

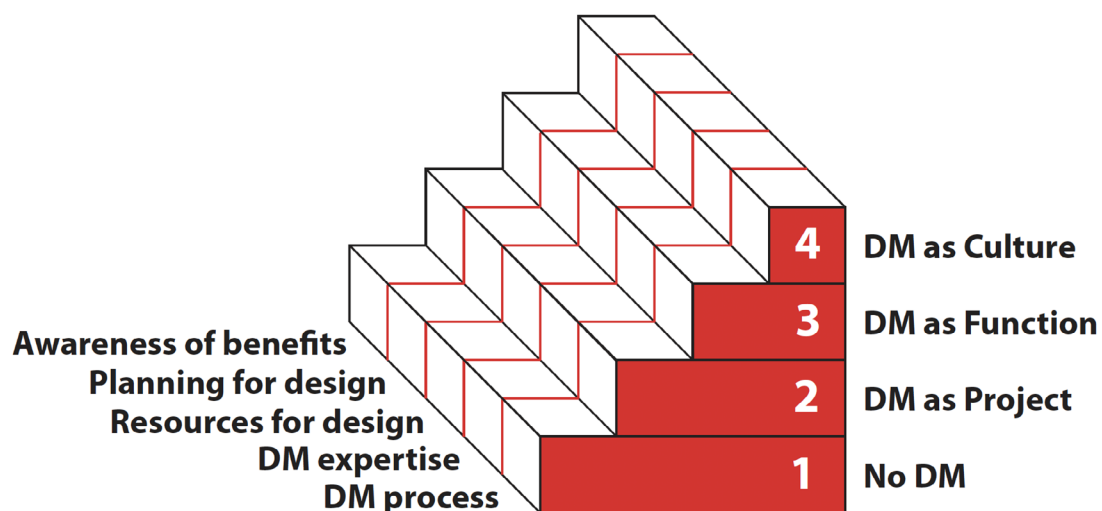
1. Design Responsibility: the key point that affects the quality of Design management in a company and shows whether there is a person responsible for the Design and implementation of training programs on Design;
2. Design Experience: depending on how a company is experienced with Design, the administration can see it (design) either as a resource to be further developed in the future, a resource not connected to business development, or not have a clear opinion about it;
3. Strategic Position: when the strategies of a company are reactive, the market determines the company’s design policy; but when the strategies of a company are proactive, the company can influence the market and see Design as a tool to create new business opportunities, leading to changes in their organization for management innovation;

4. The value of Design in the company's organization: Design as an economic competence (effect on the company's primary functions); as an administrative competence (effect on support functions); Design as a strategic competence (effect on the external value chain).

The researcher (Mozota, 2011) states that design management is the planned implementation of Design in companies to help them achieve their goals and vision, and she concludes that Design and management are mutually beneficial if used in convergence models.

Both Eller (2011) and Mozota (2011) agree that Design should not be seen as part of the result process of form and function, but rather as part of the creative process of management, connected to other processes in the organization—such as ideation management, innovation, research, and development. In addition, it can change the traditional structure of project management. Eller mentions B&O as the only company (until 2011) in which Design is not under engineering, but instead, it defines business strategy and products that will afterwards have the proper technology inserted accordingly to the needs of the project.

According to the Design Management Maturity Staircase of Koostra (2009) and Best, Kootstra and Murphy (2010, p. 28-29), graphically represented by Figure 1, the Design management profile of an organization is classified into four levels:



Source: Koostra (2009) and Hesselmann and Walters (2013).

Figure 1. Management staircase.

DM1: Companies at this level have a limited or nonexistent design policy. Design is used sporadically and without continuity or planning: “there is little to no knowledge or experience available with which to handle design activities. Design also plays a limited or nonexistent role in how the company differentiates itself from competitors. Design activities tend to be unpredictable and yield highly inconsistent results due to the lack of clearly defined procedures.”

DM2: Design is not recognized as a tool of innovation. Instead, it is used to assist marketing and add visual value to the product, the packaging, or visual identity. The company has none or very little collaboration between departments and Design

actions: “These companies use design only to meet direct business needs or, for instance, *ad hoc* style changes, product line extensions, or product improvement projects. Design is largely neglected as a significant tool for new product development or innovation; instead, it is used as a finishing touch at the end of the product development process.” Responsibility for design activities remains at an operational level.

DM3: In these companies, one person or one department is responsible for Design Management, acting as an interface between designers and other departments and main stakeholders. In order to shorten the process, the Design is proactively applied and is considered a permanent feature of developing new products.

DM4: Companies at this level have Design at their core. They aspire to establish themselves as market leaders through design innovation and eventually begin to expose design management as culture: “These companies are highly design-driven and stand out because they have a differentiation strategy that revolves around design. Interestingly, they often include startup companies that are founded on innovation and/or design disciplines.” Senior management, and whole departments, are closely engaged with design, and design is part of the company’s main business processes.

In this article, we explore how different departments related to the same project understand the project management process, pain points, black boxes, and suggestions for improvement. The results and different perspectives of project management foster discussion on the roles of design and UX research (both under the umbrella of creative economy categorization) as part of the process, their impact and expectations, and refer to the staircase categorization of Koostra (2009) and routes of design management from Denise Eller (2011) and Mozota (2011).

Design and transitions to UX

The International Council Society of Industrial Design (ICSID), an organization that gathers design associations, defines design under two perspectives:

- Objectives: Design is a creative activity to establish and determine the multifaceted quality of objects, processes, services, and systems in full-life cycles. Design is the central factor for humanizing innovative technologies and a key factor for cultural and economic exchange;
- Tasks: Design urges to discover and evaluate structural, organizational, functional, expressive, and economic relations that: promote global sustainability and environment protection; offer benefits and freedom to human communities; support cultural diversity within globalization; provide products, services and systems in expressive (semiotic) and coherent (aesthetic) forms with their own complexity.

Design bridges Arts and Science, combining the logical path of the scientific approach with the intuitive and artistic perceptions of creative thinking (Mozota, 2011). The author connects Design and management in 1998, affirming that Design is an activity of problem resolution:

- Problem-solving: Design is a plan to make something that can be seen, touched, and heard (Peter Gorb);

- Creation: Aesthetics is the science of beauty in the field of industrial production (D. Huisman);
- Systematization: Design is the process by which environmental needs are conceptualized and transformed into instruments to satisfy those needs (A. Topalian);
- Coordination: the Designer is never alone, never works alone; therefore, he is never a whole (T. Maldonado);
- Cultural contribution: the Designer profession is not that of an artist or a beautician; it is that of a semantics specialist (P. Starck).

The Design tree diagram, created by David Walker (*apud* Mozota, 2011), illustrates the roots of Design origins in Arts & Crafts professions mixing with the main areas of knowledge in perception, imagination, manual skills, visualization, geometry, knowledge of materials, tactile properties, and sense of detail, indicating their immersion in different craft techniques and their intrinsic insertion in the creative community. The tree trunk represents specific areas of artisanal knowledge (including calligraphy, ceramics, embroidery, jewelry, drawing, modeling, and simulation) and the permanence of design knowledge in its material form. However, the diagram does not extend to more recent areas such as information architecture, UX design, web design, interaction design, and digital design.

According to the UK's Department for Digital, Culture, Media and Sport, digital design is categorized under Functional Creations or Creative Services. As technology and interaction evolved, the classic definition of "Design" expanded academically to encompass service economy and software ecosystems, connecting all the UX sub-carriers under its umbrella (Bakhshi, 2012). They are the direct evolution of traditional design within Industry 4.0 and the shift from an analogue creative economy (focused on physical goods) to a digital and service-based creative economy, where interaction and experience are the market commodities (Abbasi; Vassilopoulou; Stergioulas, 2017).

The gradual transition of designers to digital industry and interaction roles over the last 15 years brought new concepts, new expectations, new thinking, and new discussions regarding the role of Design. The UX branch from the design tree derives from cognitive ergonomic specialization and multi-disciplinary studies to attend to the needs of a user-centric approach.

Dr. Mark Wright, from Edinburgh University (*apud* Mozota, 2011), states that human-computer interaction is the discipline that encompasses the design, evaluation, and implementation of computer system interactions for human use and studies the phenomena surrounding it. Harston and Pyla (2012) states that UX designers utilize knowledge and methods derived from psychology, anthropology, sociology, computer science, graphic design, industrial design, and cognitive science. The role of UX Designers should always originate from human (user) problems and point to inspiring, engaging, and enjoyable solutions. For Unger and Chandler (2009, p. 3-4), User Experience Design (UX Design or UXD) is defined as the creation and synchronization of elements that affect users' experience with a company, aiming at

influencing their perceptions and behavior regarding the process. Going beyond the use of isolated systems, these elements include things the user can touch, hear, and smell. It includes things users can interact with digitally and physically. Marcin Treder (2013, p. 19), in his book *UX Design for Startups*, points out that UXD is the branch of Design that focuses on planning the “end-to-end” experience of a product. Planning experiences means creating and implementing certain sets of actions that result in planned changes in the behavior of specific users as they interact with the product.

In the last 10 years, serving as a UX strategy consultant and UX mentor to companies and startups around the world, I see the UX design role more often present at DM2 (DM as a project) and DM3 (DM as a function) steps of the Design Management Staircase (Koostra, 2009). As UX evolved and positioned itself within companies’ processes, it also transited from generic do-it-all positions and split to specialized areas of knowledge, considering that UX professionals from 2005–2010 were all interaction designers, and later (2011–2015) took on the distinct positions of information architects and UX designers. As UX became more known throughout industries, Design roles split even more (2016–2018) into information architects, UX designers, and UI designers. In most recent years, a more segmented structure of UX lead, UX researcher, UX designer (or product designer), and UI designer became the structure of design (or UXD) departments.

Pernice and Budiu (2021) conducted a survey with product managers and UXers about expectations regarding responsibilities for common activities in projects. They got 372 responses from professionals who described their primary role in either UX (279 people) or Project Managers (PM, 93 people). In their analysis, they found that PMs and UXers have agreements and disagreements about their roles in the product process. For instance, regarding research responsibilities, they both agree that user interviews and user testing should be conducted by UXers, but each one points to themselves when talking about research in the discovery phase (and this is curious when comparing the present findings). PMs also believe it is their responsibility to take on research management and decide which areas the UX team will research and which features the UX team will design, ensuring that UX research is part of the roadmap.

One UX respondent from the survey added: “UX Research done by non-researchers often does not meet our quality or process standards, resulting in user testing, findings, and recommendations that are not reflective of actual user behaviors and negatively impact the product. If these recommendations are acted on and fail, then this negates the positive work the research team and I have or will provide.”

On the designing process, they both agree that ideation, defining task flows, and sketching the design of products are UXers’ responsibility. But when it comes to defining the information architecture, according to Pernice’s and Budiu’s survey (2021), PMs think it should be the developers’ job.

On product vision and prioritization, the survey showed disagreement as well, with PMs pointing to themselves for gathering business requirements, creating product vision, prioritizing business needs, deciding product requirements and final features, and creating a roadmap, while UXers point to Project Owners.

The authors, reflect that before Lean and Agile became popular and introduced the product-owner role, the project manager, a role which was usually assigned to a software-engineering manager, ran the project and its schedule. Program managers had a more administrative role, and took care of operationalizing the work. Today's product owner often seems to take on most of the tasks of the project and program manager of the past and be the custodian of Agile ceremonies.

The survey brings an overall panorama of the disagreements between PMs and UXers about project responsibilities, and raises interesting questions that should be deeper investigated. Nevertheless, other departments and professionals should be included for a broader understanding of project processes, design management maturity, the research role, and how different departments are integrated in the project flow.

Interviews: mapping the full process

This study explores the research steps to investigate the design and research positioning within the business management and project management processes in a Canadian company with over 10 thousand employees and national reach (considered the biggest in its industry). Details of the company will not be exposed due to nondisclosure contracts. The consulting started after internal discussions pointed to the design department as a key point in project delays and having final products disconnected from its starting goals.

In order to better understand the whole business/project management process and the departments involved in it, a preview high-level mapping of project steps was investigated, and representatives of each department involved in the process were interviewed. The interviews focused on departments connected to projects from the main internal system ecology, used by employees for structural changes and to connect with customers. The research project interviewed one Business System Analyst (BSA), one System Architect (SA), three UX Leads, three UX Researchers, four Project Owners (POs), four Front-End Developers, and two Back-End Developers. All participants selected to be interviewed are involved in the same project (internal ecology system), but in different parts in the waterfall process. The research aimed to interview at least one representative from each department that was part of the project to better have a cross-function panorama of the process.

Each interview was conducted through a Teams video conference and lasted one hour. All interviewees were cleared by the Board of Directors to participate in the research project and were invited by email to formally request a one-hour time slot for the interview. Each meeting was scheduled based on days and time slots suggested by the participants.

The interview script was based on semi-structured questionnaire guides from *O questionário na pesquisa psicossocial* [Questionnaires in Psychosocial Research] (Mucchielli, 1978) where interview questions were structured in four main sections, following Mucchielli's (1978) broader scenario to a specific scenario idea:

- mapping how the project process happens—from start to finish;
- what are the pain points in the process;

- how the departments should be positioned;
- how the whole process should be structured.

The interview script was easily adapted according to each interview and in order to reach participants' deeper descriptions and explanations. If new topics were raised by the participants, the interview script could easily make them part of the script and extend them to other participants—when a participant would bring a pain point very specific to his/her perspective, it was easy to adapt it to other participants and compare the different perspectives.

The interview sessions were conducted very fluidly, and the participants were very interested in contributing to the research and presenting their perspectives and ideas. At the end of each interview, participants could bring their own questions about the research project and, sometimes, this would lead to deeper thoughts and discussions. The fastest interviews were with Front-End developers and Back-End developers, followed by POs and SA, lasting between 30 and 40 minutes. The longest interviews were with the UX Leads, UX Researchers, and the BSA, lasting 60 minutes or over. The latter (leads, researchers, and BSA) presented with more details, examples, and ideas for discussions. The interviews were recorded and key points were first documented in FigJam for better comparing patterns.

RESULTS: WHAT THE PROCESS IS FROM DIFFERENT PERSPECTIVES

The interview brought up interesting topics related to the project management process, but from different perspectives. The planned script helped observe common patterns of perception, as much as the particular point of view of each department. The perspectives from different departments (UXD, UXR [User Experience Research], PO, BSA, DEV, IA) converge the cross-function knowledge into the whole mechanism process, but still bringing how each side perceives problems and solutions. The first section of the interview helped map how people see the whole project management process:

- **Designers:** By analyzing the interviews, we verified a pattern in which there is a common understanding of the whole process, but most departments have only a partial view of it. For the Design team, a new project starts at the quarterly meetings involving POs, BSAs, and managers to discuss new projects and organize the steps of the process. Designers are not part of it, and none of the interviewees want to be part of it, as it is considered too technical and involves a large number of meetings. POs and management then have a planning meeting, which includes Design Leads, to determine the requirements of the project and present Key Performance Indicators (KPIs). The project then moves to the design phase, in which the new digital product, or feature, is designed and prototyped. According to the interviewees, research is considered under Design and mostly related to user-testing and generative research (also known as discovery research). However, the need for generative research comes from decisions between designers and POs. After the prototype is tested, the process meets back with the POs (but one of the UX Leads mentions constant interaction and reports with POs throughout the design phase), where the

requirements are checked and receive a green light to move to the developers (Front-End) to start coding. The design leads consider the developers phase a black box, and only see the project again when it is released (Figure 2—the gray box shows the part that the Designers have no information about);

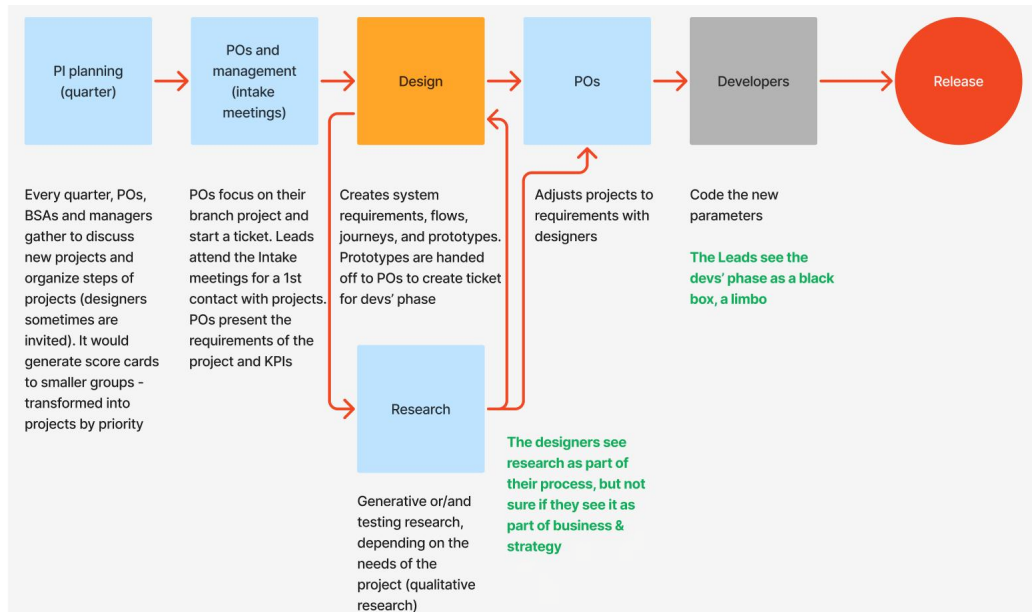


Figure 2. Designers' perspective about project processes.

- Researchers:** They see the steps of a new project with a distinct perspective from the Designers, as the Researchers have no information about the phases after design (follow-up meetings with POs and developers—coding phase). Researchers do not consider themselves as part of design (Figure 3) and suggest that research should take place earlier in the process, at the quarterly planning, as many ideas coming out of the starting phase are decided with no research evidence (concerning market and audience, customers' expectations, or pain points). When POs bring new projects, the decision seems to be based either on what competitors have done or on data analytics showing a lack of selling convergence. Many times, when projects reach the research and design phases for testing and UX journey mapping, they bring results that raise questions about the validation of the project idea itself. Researchers think that if

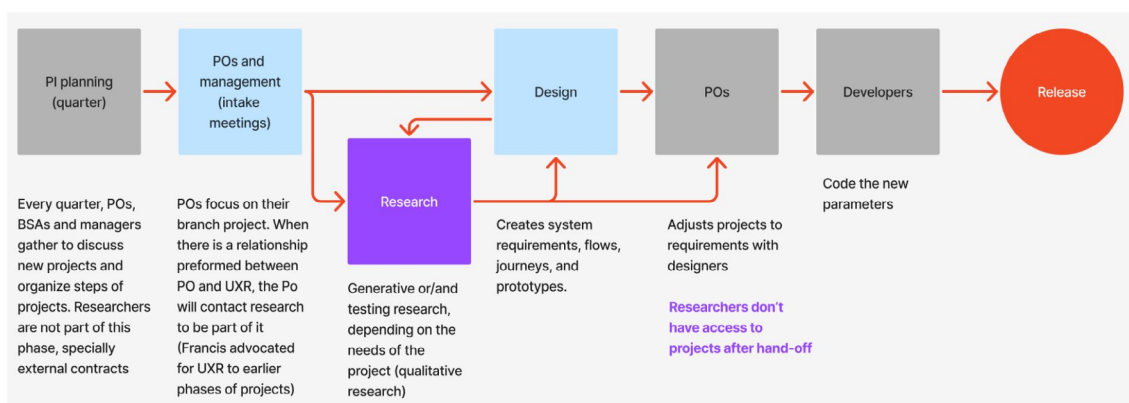


Figure 3. Researchers' perspective about project processes.

they had been in the project from the start (and they do not know there is a national planning phase before the quarterly planning), this could have been prevented, and new ideas regarding customers' needs, market statistics, or cross-function issues would be evidence-based;

- **Project Owners (POs):** They have a broader view of the process, as they are part of quarterly planning and they are more active in the developers' phase than others (some mentioned weekly updates and adjustment sessions). They were the first ones to mention a national planning phase (although they are not part of it), in which business priorities are setup before the quarterly discussions. They see research as part of the Design phase and as being activated by the design team for user testing. There is a mention of using research on early phases for generative research (still after the projects are decided), but they do not seem to know how to use research, nor what questions/goals can be investigated by researchers, unless it is Design-related. Figure 4 shows the broad perspective of the process from POs perspective. The green areas are the phases where POs are most active.

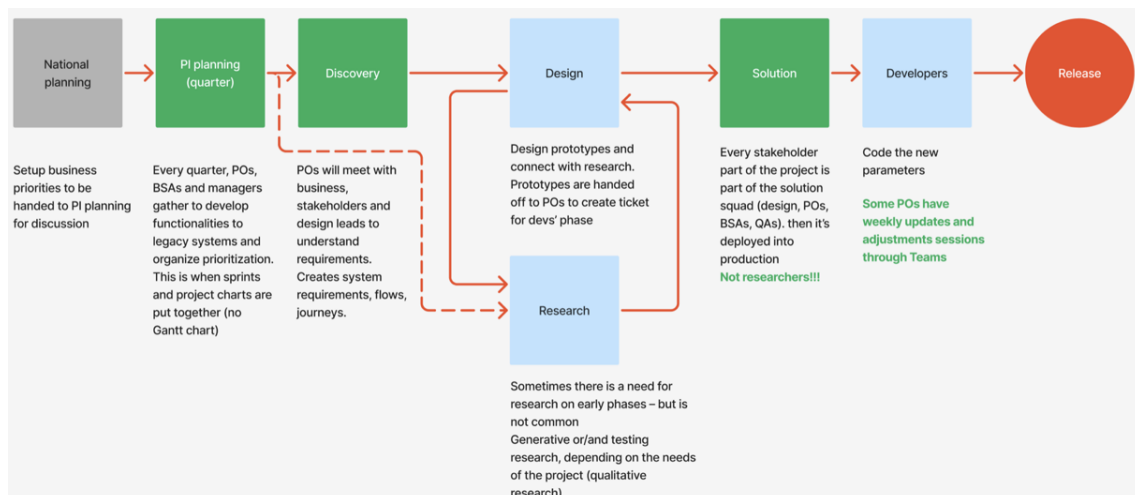


Figure 4. Project Owners' perspective about project processes.

- *“Once [we have] the requirements, like, we have a good idea of what the requirements are, then we go into design, which is where the UXD team would be engaged to create the mocks to develop that experience.”*

What Designers call the “follow-up phase,” POs call it the “solution phase,” where they engage every stakeholder¹ part of the project (BSAs, Designers, Pos, and SAs) reunite before it gets deployed to development (coding).

- *“So, I would say the KPI is when it comes to the quarterly planning items, we have to justify the business benefit, and design has never been included in the scope.”*
- **Developers:** The Front-End developers are aware of all the steps of the process from the quarterly planning and attend meetings to have an idea of what is coming their way. They follow how the prototypes are evolving from afar in the UXD (Designers) phase, and engage more during the Review phase (called “Solution phase” by the POs), but they only consider the start of a project when it gets to the coding phase. They do not have any participation in the

project meetings before the UXD phase and have no knowledge of the research applied to the project (Figure 5). Back-End developers seem to follow a parallel path, as they are not necessarily connected to specific projects, going through Design, Research, etc. They work more closely to SAs and set background system structure to be reliable for what is being developed by Front-End developers and Designers. They have no contact with any of the phases of a new project and their requests come directly from the quarterly planning, unless there is a special need from the Front-End. *"Sometimes, the requirements may not have been properly captured before the development, and we may not have been aware at that time, because we are six, seven teams working on the same project. So, while working, we may come to know some corner cases";*

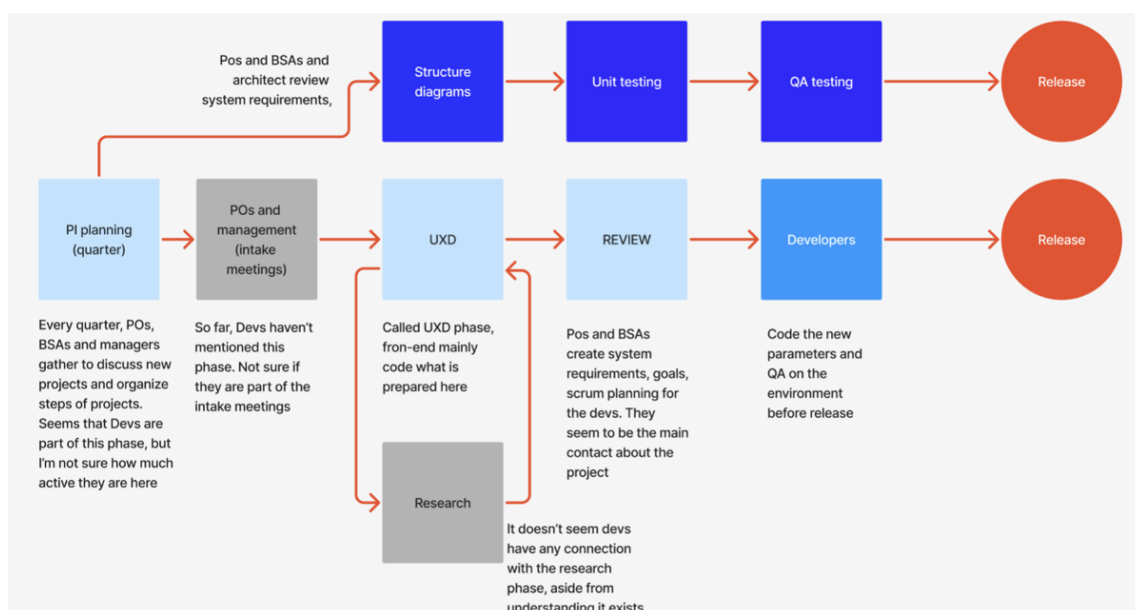


Figure 5. Developers' perspective about project processes.

- **System Architects:** They are also following a parallel path, like Back-End developers, but they are consulted by BSAs and POs in the beginning of the projects, and sometimes get to be part of the Review phase (Solution phase) to evaluate if it is possible to implement a new feature from the perspective of system structure. They also tackle questions from Front-End developers, checking if the structure can handle specific coding. *"I was part of the Program Increment Planning (PI planning) today. Just to understand what is coming down the pipelines. Me and the team, we have our own initiatives that we are working on for governance and planning."* For the SA, the UXD and Research are the grey areas with which they have no connection, and about whose process they have no information. They work together with BSAs in the beginning to get system directives aligned with business planning, and provide guidance for POs and Front-End developers toward the end, when they need to check if the system structure can handle a change in the interaction or a new feature. Figure 6 shows the overall process from SAs perspective;

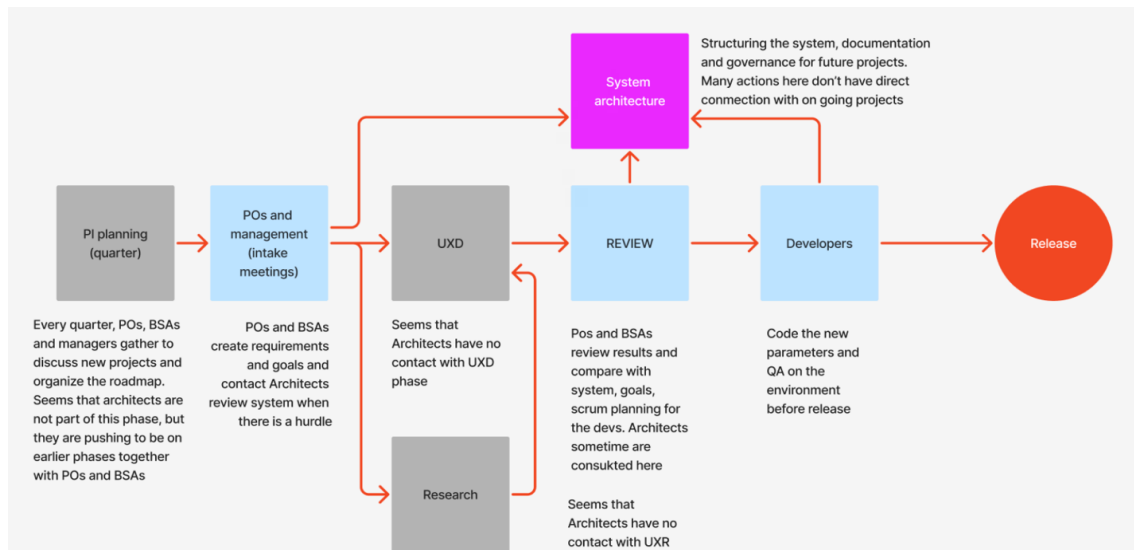


Figure 6. System Architects' perspective about project processes.

- Business System Analysts:** Just like POs, they also mention the national planning, although they are not part of it either. They add an Analysis phase after the quarterly planning. For BSAs, the Solution/Review phase is called "Deploy." In the quarterly planning, also called "Project Initiative Planning," they translate business requirements to managers to develop functionalities and prioritization. And, together with the SAs, they design the "stories" (experience journey) from the system perspective. BSAs see Research and Design as two separate departments and think that Research should take part in the game before the project gets to design, so it could better direct projects into business decisions not necessarily related to Design. Although BSAs take part in the Deploy phase to check if the project aligns with the system and business priorities, they think it should be monitored by POs—but, unfortunately, they are not knowledgeable enough to do it by themselves. Notice that BSAs' perspective shows only the national planning as a gray area, as they are part of—or at least oversee—every step of the project (Figure 7).

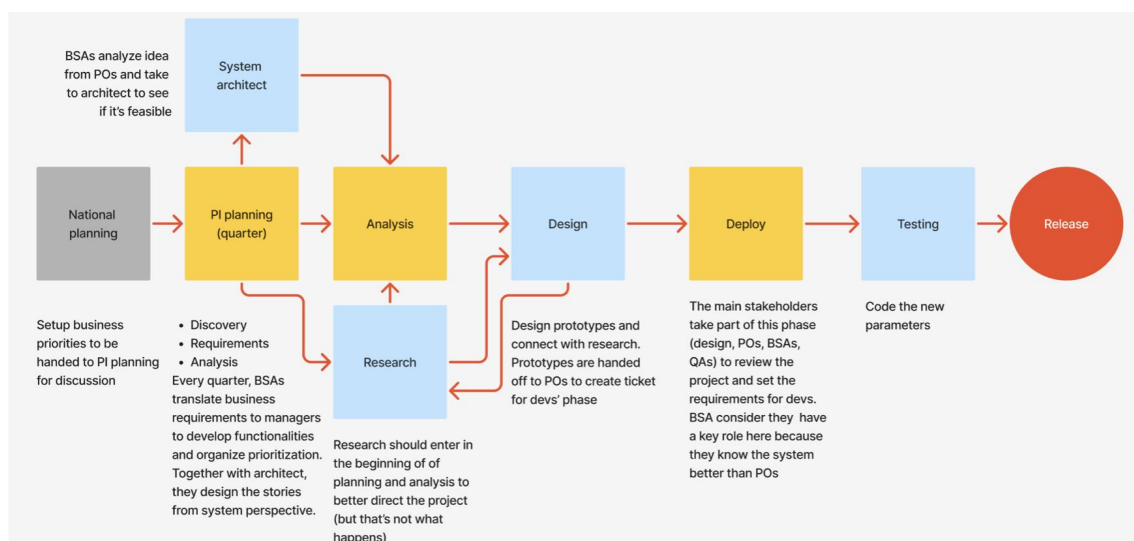


Figure 7. Business System Analysts' perspective about project processes.

Issues from different perspectives

The middle section of the interview script covered how people see problems in the process, i.e., what are the issues and how they affect them as a whole:

- **Designers:** Considering their position in the project process, there are issues related to communication, transparency, information, testing, and the process itself. POs do not properly translate business requirements into design goals. After handing over to the next phase, designers do not have much contact with the progress of the project—it sometimes leads to final projects that do not resemble the prototype. Developers are silent after prototypes are handed over. The development phase is a black box. It can be really hard to actually get a chance to do the proper QA cycles;
- **Researchers:** For the researchers, the main issues concern planning, information, testing, and the very process. According to them, there is lack of planning from early phases of projects regarding people resources, the budget for the projects, and the inability to translate business goals to KPIs, affecting the roadmap planning, limiting important phases within the process, and having projects cancelled in the middle of the design phase. POs do not know how to use research and cannot see UXR as part of the whole process, therefore, they do not elaborate the KPI to be expected. There is a complete lack of information about the progress of projects after handing off insights and guidance from the research phase, and no updates regarding the impact of the final product as well. Most of the time, designers think of research only for testing prototypes/interaction, instead of having research in the first phases to actually understand if there is a need for a new feature, tool, or proposed project;
- **Project Owners:** They see two main problems, related to testing and information. From their perspective, the business side (BSA) needs to be better aligned as for what they want the POs to deliver. On the testing side, the QA environment (system testing environment) is unstable and can waste people's time;
- **Developers:** They confirm that the QA environment (system testing environment) is unstable and can result in waste of time. But they add that sometimes the requirements presented in the Review/Solution phase have not been properly captured before the development, and they may not have been aware at that time because developers consist in six, seven teams working on the same project;
- **Business System Analysts:** Having a broader presence on projects, their perspective presents issues that reach all corners of the process. The main issues disclosed are related to planning, communication, information, personnel, testing, and the process. From their point of view and experience, projects are created with no business projection value, and the core business logic does not exist, as decisions for new projects have no evidence-based analysis to guide business core decisions. According to the specialist, there is no Return on Investment (ROI) analysis/disclosure to map which projects will have more impact and are worth taking, which led to a deeper discussion of how project decisions are made without research and data. Instead, many times, projects are selected because of acquaintances inside the company. The specialist adds that regular relocating and layoffs directly affect these acquaintances' social culture, employees' expectations about their future, and long-term projects planning.

Although on opposite sides of the process, the issues concerned the final phases related to the same topic (business decisions): it was well understood that developers do not understand the business value of projects and simply follow the requirements and mock-ups (prototypes), leaving BSAs and POs to guide them by hand. Furthermore, they do not consult SAs to see if projects will properly connect with the system structure, leading to consultation after projects have deeply progressed and solutions that not always have the proper structure to work with—thus leaving the testing to an unstable QA engagement before official release.

- *“It’s a good idea. OK, fine. Where’s your proof? What is the dollar value behind it? You’re asking me to invest 500K? When are we gonna meet the 500K back and return on investment? So, I do feel like this should be part of the research process. Why do you even want this (new feature)?”*
- System Architect: The issues pointed out during the interview were related to planning, information, communication, process, and personal-related—many of which concerning interviews with BSAs and Developers. The specialists confirm that projects get through the door by personal contact, not priority, and the continuous changing of the teams heavily impacts the continuity of work. They also confirm that project ideas start and the architects are consulted after more than 60% of it is set up, increasing the possibility of ideas not being aligned with the actual system structure. They also get into more detail when pointing to business decisions not being based on service needs backed by evidence, leading to a distortion of metrics of success, as results are valued by numbers, not for the benefits they deliver.

Open discussions about solving issues

As part of the interview sessions, the script slowly helped the interviewees to connect the understanding of the whole project process with problems from different perspectives, seeking to elaborate solutions and ideas for a better seamless process.

Designers advocate for stronger documentation practices to help keep track of decisions on the project and how the system works and evolves. Connecting it to a timeline calendar (Gantt chart) would help all those involved to have a sense of the progress (the company has a management tool with Gantt Chart feature, but it is not used). They also have a unanimous suggestion about the hand-offs and review of the prototypes to be done with the developers (not only POs), so everything is clear to them and all questions could be answered and discussed.

Researchers feel they can better impact project decisions if they are part of the earlier phases of business decisions. They share how small changes could help their “reallocation” in the process: as stakeholders present on quarterly meetings (specially POs) do not have knowledge nor culture regarding usage of research outside of design quarters, UXR needs someone to vouch for research on earlier phases and point what research can do on different projects. They should be part of analytics, business goals, KPIs, and the expectations to better bring strategies to collect data and insights for project decisions.

They also point to what happens after they deliver results to the project flow, and express the need of stronger documentation practices to help keep track of decisions on the project and how the system works and evolves.

Project Owners (POs) admit they do not know how to use research in their process and suggest a checklist at the quarterly planning to help them go over all possibilities that should be considered, when defining requirements for the projects (including a research option). They also point out the end of the process and ask for a more stable QA engagement.

As Developers only consider the beginning of a project when it gets to them, the suggestions were also focused on a more stable QA engagement.

Business System Analysts' suggestion are direct to the point, although they think much more should be done. Solution architects must be engaged from the beginning, as they have a much broader view of the system, to make sure ideas align with the system and have value. On a broader spectrum, BSAs urge that responsibilities of departments be stricter and more defined, with streamline processes instead of "Let's deliver the project in the timeline at whatever cost." They think research should be part of the process earlier to present evidence-based directions to new project decisions and have the new ideas connected to ROI. This should help prioritize projects by benefits that can be measured later, not by the number of projects out the door, nor choosing priorities based on personal acquaintances. The whole national and quarterly phases should take a longer view on things and plan for longer actions, instead of a solution that gives immediate results.

System Architects pinpoint that projects should have more emphasis in the beginning, not at delivery. To this end, POs and BSAs should have a very tight relation, and architects should enter in the beginning of the process to help lead the roadmap—projects should try to adhere to the technical roadmap. To minimize the perceived black box, other departments should ask more questions to developers, and developers should ask more questions about why they are doing a project.

Specifically on the coding area, they urge the need for a forum space, so a team knows what other teams are doing at the same time: a common place for people to have open conversations about coding, structure, and projects.

CONCLUSION

The research strategy of collecting different perspectives on the same project process resulted in considerable data for discussion, as the various perspectives showed each department's position, understanding, knowledge, and integration to the process. Although it was not possible to get permissions to interview the principal director of digital design, nor any stakeholder part of the national business meetings, throughout the interview process, it became evident that they were not essential for the research objectives. Through the lens of designers, UX researchers, project owners, developers, business analysts, and system architects, we could understand the project flow, evidence the pain points of the process, and verify the

role and impact of researchers and designers on the business and the relation to Koostra's Maturity Management Staircase (Koostra, 2009).

Considering the whole process, the interviews show that major issues (and smaller frictions) happen at the beginning and at the end of the project development process: new projects are decided without evidence-based information and are never linked to ROI metrics, as there is no applied research with customers (nor market, nor technology) to help guide business decisions. Instead, priorities are decided by personal acquaintances, data analytics numbers (without further investigation), and new projects surface based on what competitors are offering (PMs often visit competitors' websites or fake enroll in new packages to see what others are offering). BSAs and SAs urge the need of having research in the beginning—from very different perspectives—to help connect business and design to the vision of the company. When talking with more experienced employees who have broader views on the business, they suggest that connecting data analytics with research and ROI objectives would help select what is worth investing, creating priorities, and measuring impact after the project is released.

There is major concern about the fact that POs do not know how to translate business strategies into metrics nor project requirements for design, and neither know how to use research to help project decisions from the beginning. Shared examples of projects getting into the design phase and user testing research with data alerting that the new feature was not even needed corroborate the concern. But even with alerts, the project continues, as all project processes move forward in the waterfall process.

Other frequently mentioned frictions reside toward the end of the waterfall process. Issues mostly involve the coding phase: no transparency on the development process, lack of alignment with Designers and SAs, POs not being able to translate different business and project objectives to coding requirements, different developer teams working on the same project at the same time without knowing it, and lack of business vision from developers—as one of the interviewees emphasized regarding developers: “monkey see, monkey do.” As an example, occasionally, final released products do not match prototypes nor system proposals.

Thinking of the Design Maturity Staircase proposed by Koostra (2009), the case study follows the trend of many digital technology companies with integrated UXD team, bringing the design partially to the third level of the staircase: *Design as one department, responsible for the design management acting as an interface between designers and other departments and main stakeholders. In order to shorten the process, the Design is proactively applied and is considered a permanent feature of developing new products* (in this particular company, only one design team—internal systems—was proactive on new products, but a lot of new projects would derive from POs).

Opposing Denise Eller's forecasting about the future of design in the center of business decisions, the interviewed Design Leads (in this case study) were not interested in being part of earlier stages and connecting design-based ideas to business discussions—they considered it a responsibility to be taken by the Design director. Although this is the scenario of one company, nonsystematic observation over the years has shown similar behavior in other companies—a discussion that certainly sparks curiosity for a deeper investigation in the future.

Throughout UX career evolution in the last 20 years, research became part of Design responsibilities and slowly matured to a specialization within the Design, turning into two different types of research (industry perspective): generative (or discovery) research, and user testing research:

- The first focuses on structural and project decisions, the type of research that UXR, BSA, and SA departments suggest to have on earlier stages to bring insights about audiences, trends, technology expectations, mental models, and informational structure;
- The second type is connected to prototype testing, when project structures are already defined and interactions are partially designed, to be tested for adjustments. The type of research that happens under the umbrella of the Design (UXD) department.

Opposing the interests of the Design Lead, interviewed UX researchers from this case study show interest to be part of early business planning stages and understand they can bring a lot of evidence-based insights, contributing to early business decisions and new ideas of projects and connecting it to ROI, creating impact metrics, and helping to avoid unnecessary investments in projects that are not needed. BSAs seem to fully support the idea of evidence-based decisions, and SAs also believe in research-based decisions. As POs do not seem to connect business goals to design requirements nor what type of data UX research could bring to help decisions, projects have been created without justified relevant data to guide the process.

Design responsibilities greatly evolved from Gorb (1990) and Hetzel (1993) descriptions and became a central point in making a dialogue bridge between business and users, and a key point in the process of creating anything that will be a touch point to customers. Nevertheless, to counterpoint Eller's bet on design as a central nod to business transformation, it is interesting to see (in this case study) that UX Leads are not that invested in being part of business decisions and keeping themselves to the matter of connecting systems to users. UX researchers are the ones avid to be part of earlier stages of the process and influence business decisions, as discovery insights on user behavior can impact all departments and decisions on business models, investments, and new projects.

Considering all the data collected from interviews and the discussion developed in this section, there are many improvements that can be applied to all phases of the project management process. Urgent changes seem to be needed in the beginning of business decisions (evidence-based data from UXR, leverage training to help POs connect with design, connect Developers to SAs and BSAs on early stages) and in the final phases (integrated workflow to connect UX, POs, BSAs, SAs, and Developers, leverage training to help Developers and Designers to have a better understanding of business and its metrics, and transparency of processes to avoid black boxes).

When focusing specifically on design and research positions, the business management could benefit more if both were part of the initial phases for product ideas to better connect customers' needs and expectations to business goals and ROI. Having a starting point grounded on research-based evidence and creating cognitive experiences that connect customers to brand values would minimize risks of releasing a product and reduce expenses with resources (time, experts, materials).

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