

MASTER
ECONOMICS OF BUSINESS AND STRATEGY

DESIGNING THE PRODUCT MANAGEMENT STRATEGY FOR A HIGH-TECH COMPANY

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Internship Report
Master in Economics of Business and Strategy

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Abstract

Software-intensive businesses are characterized by high market dynamics, fast and unpredictable customer behavioural, technological changes, and also by short product life cycles (Camarda et al., 2019). Consequently, companies operating in the development of digital products, and specifically those doing Software as a Service (SaaS), have difficulties planning product development and creating reliable roadmaps to support it (Munch et al., 2019).

Widetail, Lda. develops an e-commerce solution that is one of the most used platforms in Latin America. One of the company's goals is to "expand its presence to more Latin American and European countries" (JumpSeller, n.d.). In order to achieve its strategic goals, the company intends to implement a Product Management approach that overcomes the difficulties felt in product development planning and aligns the stakeholders around a common goal.

The main focus of the internship was to help address this need by gathering the existing knowledge about Product Management and existing frameworks to successfully do it and suggest the most adequate approach to be implemented in the company. In this report, the critical issues related to the topic are addressed, namely, what is the most suitable approach to develop new products, how it should be aligned with the company's global strategy, while also being prepared to answer to new challenges, and how can a company define a Product Management approach and customize it in order to fit its situation.

The literature review about Strategy and Innovation, Product Roadmap, Product Vision, Product Alignment and Product Discovery is related with some of the key concepts learned during the master. Additionally, a mixed research based on the Action-Research methodology is implemented, based on direct and indirect methods used to collect the data.

JEL codes: D81, M11, O32

Keywords: Product Management, Product Roadmap, Dynamic Environments, Strategy

Resumo

Os negócios intensivos em *software* são caracterizados por um mercado altamente dinâmico, rápidas e imprevisíveis mudanças tecnológicas e do comportamento do cliente e ainda por curtos ciclos de vida do produto (Camarda et al., 2019). Consequentemente, as empresas que atuam no desenvolvimento de produtos digitais, os chamados *Software as a Service* (SaaS), têm dificuldades em planejar o desenvolvimento de produtos e criar *roadmaps* confiáveis (Munch et al., 2019).

A Widetail, Lda. desenvolve uma solução de *e-commerce* na *cloud* que é uma das plataformas mais utilizadas na América Latina. Um dos objetivos da empresa é “expandir a sua presença para mais países da América Latina e da Europa” (Jumpseller, n.d.). De forma a atingir os seus objetivos estratégicos, a empresa pretende implementar uma abordagem de Gestão de Produto que ultrapasse as dificuldades sentidas no planeamento do desenvolvimento do produto e alinhe os *stakeholders* em torno de um objetivo comum.

O foco principal do estágio foi ajudar a responder a esta necessidade reunindo o conhecimento existente sobre Gestão de Produto e as *frameworks* existentes para o fazer com sucesso e sugerir a abordagem mais adequada a implementar na empresa. Neste relatório, as questões críticas relacionadas com o tema são abordadas, nomeadamente, qual é a abordagem mais adequada para desenvolver novos produtos, como deve estar alinhada com a estratégia global da empresa, estando também preparada para responder a novos desafios, e como pode uma empresa definir uma abordagem de Gestão de Produto e personalizá-la para se adequar à sua situação.

A revisão da literatura sobre Estratégia e Inovação, *Product Roadmap*, *Product Vision*, *Product Alignment* e *Product Discovery* é relacionada com alguns dos principais conceitos aprendidos durante o mestrado. Adicionalmente, uma pesquisa mista baseada na metodologia de Pesquisa-Ação é implementada, baseada em métodos diretos e indiretos utilizados para recolher os dados.

Classificação JEL: D81, M11, O32

Palavras-chave: Gestão de Produto, Guia de Produto, Ambientes Dinâmicos, Estratégia

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1. Introduction

The impact and benefits of software in all industries, and hence its importance for societal well-being and wealth, has been recognized for a while, as software-based products and services represent great sources of revenues (Artz et al., 2010; Yrjökoski & Systä, 2019).

In particular the Software Product Management segment has been evolving so to make it more impactful in organizations, by increasing its alignment with corporate strategy (Hyrynsalmi et al., 2021). However, research in this area “seems to be still in quite immature phases”, as it has been scarcely addressed, with few theoretical studies publicised (Hyrynsalmi et al., 2021, p. 8).

In today’s dynamic environment, “it is becoming increasingly apparent that the survivors in this new era will be those companies who are rigorous in their pursuit of innovation, in order to develop and deploy new products more efficiently, effectively and profitability” (Cormican & O’Sullivan, 2004, p. 827).

Thus, companies must construct strategies and structures to promote best practices for successful product innovation management (Cormican & O’Sullivan, 2004). It is, hence, important to “identify and integrate the most valuable and successful ways to plan and develop an effective product development process” (Cormican & O’Sullivan, 2004, p. 820).

It is not realistic nor desirable to expect the emergence of a universal product management approach that will be equally successful across organizations (Ciric Lalic et al., 2022). Indeed, there are many alternative approaches to manage complexity, and the challenge is to be able to choose the most appropriate one to achieve success (Sheffield & Lemétayer, 2013).

Moreover, the importance of adaptation has been discussed within the strategic literature as organizations face new challenging environments and need to adapt (Vuorinen et al., 2018). Due to the “high clock speed of software engineering industry, operations need to be flexible and capable to adapt new forms of value creation quickly” (Hyrynsalmi et al., 2021, p. 7).

However, the existing tools offer limited support for this adaptive need and focus is increasingly on supporting the organizations’ rapid adaptation at different levels to changing environments (Vuorinen et al., 2018). Accordingly, this requires robust research results that

can help companies adapt their innovation processes to fit new situations (Hyrynsalmi et al., 2021).

Additionally, strategic tools provide reference processes and not “a standard to be complied with and blindly implemented”, so there is the need to develop customised processes (Kerr et al., 2019, p. 48). In fact, every method is a product of its context, bringing both potential benefits and limitations (Cheng, 2003).

In this context, learning beyond theory and understanding the usefulness of these theories through action-learning-based projects helps bridge the theory-practice gap (Wright et al., 2013). Business schools continue to realize the importance of engaging theory and analysis with a deeper understanding of the logic of practice through knowledge, by exemplification, and reflexive critique (Wright et al., 2013).

Widetail, Lda. (Widetail), the company where the internship was performed, offers one of the most used e-commerce platforms in Latin America. One of its goals is “expanding its presence to more Latin American and European countries”, while offering them the most powerful tools and best customer experience (Jumpseller, n.d.).

As defended by Deng and Hai (2010), SaaS can be considered the best model to achieve full-service e-commerce and for SMEs to implement information technologies, particularly by allowing faster product updates.

In fact, software-intensive businesses are characterized by high market dynamics, fast and unpredictable customer behavioural and technological changes, and also short product life cycles (Camarda et al., 2019).

Consequently, companies operating in the development of digital products, the so-called SaaS, have difficulties planning product development and creating reliable roadmaps (Munch et al., 2019).

The internship that is described in this report was in the role of Product Owner Assistant. The main activities developed were the design and implementation of a Product Management approach, consisting of an iterative improvement process based on two-weeks cycles.

The internship had three main objectives, structured around the achievement of the company’s strategic goals and helping overcome the difficulties felt in product development planning. The objectives were (1) define and implement a Product Management Process; (2) model and support decision-making about product functionalities and prioritization; and (3)

discuss and analyse the multiple product functionalities with the Management, Programmers, and Partners teams.

This internship report addresses this topic by studying the product development cycle in dynamic environments, in particular, the main theories and frameworks used in product roadmapping, its formats and processes, product vision, product alignment, product discovery, and integration of product discovery and product delivery.

The motivation behind this report is to apply the theoretical concepts and frameworks related to Product Management to overcome the difficulties and obstacles felt by the company when trying to achieve its strategic goals. This also requires an application of the concepts learned in the Master, in particular how the product management process should be integrated into a company facing a highly dynamic changing environment and how to align it with the higher-level strategy.

Therefore, the main objectives of the internship were, first, to identify the most adequate product development approach to implement in the company, considering its strategy and the changing environment it faces; and, second, to understand how the company can define and customize the Product Management approach in order to fit its particular situation.

The present report is structured in the following way: in section 2, a literature review about Strategy and Innovation, Product Roadmap, Product Vision, Product Alignment, and Product Discovery is presented; in section 3, the company, Widetail, is introduced; in section 4, the methodology applied in the research is described; in section 5 the results and discussion of the study are presented; and, finally, in section 6, the main conclusions are summarized.

2. Literature review

2.1. Strategy and Innovation

Strategy is a deliberate search for a plan of action that helps develop a business's competitive advantage and compound it (Henderson, 1989). It is about making trade-offs and looking for consistency, not compromise. It requires flexibility to seize opportunities and adapt to changing environments (Porter, 1996).

Many authors emphasize the relevance that strategy has in businesses, and in particular, the importance of product strategy in a corporation long-term success (Cormican & O'Sullivan, 2004; Euglund & Graham, 1999).

A product strategy should identify the market to focus on and the necessary structures for its implementation (Cormican & O'Sullivan, 2004). The objectives of the product innovation effort in regard to the general strategy of the organization should be clearly defined and should be capable of integrating a team effort (Cormican & O'Sullivan, 2004).

Accordingly, product strategy needs to take into consideration key aspects, for success, such as, product planning and product innovation management in dynamic environments.

2.1.1. Strategic Planning

Strategy, and in particular planning, needs to handle uncertainty as organizations evolve over time and are shaped by a sequence of dynamic decisions. To tackle this reality, Suomalainen et al. (2015) suggest the adoption of continuous planning, consisting in continuously implementing planning practices in a dynamic process, tightly integrated with execution, and with the capacity to evolve in response to changes.

Carlos et al. (2018) defend that roadmapping can be a tool in the definition of integrated strategies and technology and innovation planning. Accordingly, methods to support a continuous roadmapping process allow for the improvement of roadmapping results, interconnected with innovation decisions made in strategic planning (Carlos et al., 2018).

For the particular case of uncertain environments in technology fields, a possible approach is Technology Roadmap Updating, which, according to Lee et al. (2011), supports the management and planning of technology, allowing to take advantage of the technological directions and foreseeing future demands.

To take advantage of emerging opportunities, a tool may be discovery-driven planning, which is based on the idea of projecting only as far as the existing knowledge allows to (McGrath & MacMillan, 1999). The authors that proposed this planning tool identified five disciplines, that encourage discovering what to deliver to achieve the goals as a basis for defining the plan.

2.1.2. Product Innovation Management

Building sustainable competitive advantages is another key dimension of strategy. It can be derived from various factors, such as size and assets possession, but also innovation. In fact, organizations are increasingly benefiting from novelty in their products and services, as well as in creating and delivering them. In rapidly changing sectors, innovation is even imperative for organizations to survive (Tidd et al., 2005).

Consequently, corporate strategy should include an innovation strategy in order to accumulate firm-specific knowledge. Such innovation strategy must cope with a complex and changing external environment, being crucial that internal structures and processes balance the need of identifying new knowledge and exploit it (Tidd et al., 2005).

Therefore, Cormican and O'Sullivan (2004) claim that it is crucial to manage the innovation process, as there is a "close relationship between product innovation performance and the organization's overall success" (p. 819).

Product Innovation Management can, hence, be considered as a "continuous and cross-functional process" of "transforming business opportunities into tangible products and services" (Cormican & O'Sullivan, 2004, p.820). These authors conclude that there are five key factors that affect the success of product innovation management: (1) Strategy and leadership; (2) Culture and climate; (3) Planning and selection; (4) Structure and performance; and (5) Communication and collaboration (Cormican & O'Sullivan, 2004).

Accordingly, successful organizations show a number of common traits: focused vision, strong leadership, and customer orientation; widespread employee contribution to the innovation process; high proficiency in exploiting ideas and actively engaging in problem solving; cross-functional teams with extensive contributions from different levels of the organisations; effective product planning and selection; and infrastructures to support communication within teams, between teams and with key customers and suppliers (Cormican & O'Sullivan, 2004).

2.2. Product Roadmap

As mentioned before, roadmapping and, hence, roadmaps “provide a powerful and practical means of supporting organizations with their strategy, long-term planning, innovation, and foresight activities” (Kerr & Phaal, 2022, p. 6).

According to Munch et al. (2019), a product roadmap may be considered a key element of an organization, mapping the product vision and direction. In particular, product roadmaps for digital products must align organizations and development activities towards clear goals and priorities, which implies that product roadmaps need to be aligned with the strategic goals.

Trieflinger et al. (2020) also argue that a product roadmap sets the strategic direction in which the product is to be developed to achieve the company’s vision.

Product roadmap components can, hence, be classified as strategic components or tactical components. Strategic components refer to the big picture of the product (product vision, themes, outcomes, and goals), while Tactical components refer to the detailed execution of the strategic plan (goals and outputs) (ProductPlan, n.d.-a). In this regard, these identified important concepts should be clarified (see Table 1).

Table 1: *Definitions of the Strategic and Tactical Components of Product Roadmap*

Component	Definition
Product Vision	The product vision states the goal. It translates the reason for creating the product and the value it creates (Pichler, 2011).
Themes	Themes are needs of the customers or system (Lombardo et al., 2017).
Outcomes	Outcomes describe the value that a team aims to create (Penmetcha, 2019).
Goals	Goals are measurable targets, with defined success metrics (SlideUpLift, 2020).
Outputs	Outputs are “stuff” produced and delivered by teams (Lombardo et al., 2017).

Source: Adapted from *Product Roadmap Formats for an Uncertain Future: A Grey Literature Review*, by Munch, Trieflinger, Bogazkoy, et al., 2020, SEAA, p. 287.

2.3. Product Roadmap Formats

Organizations need to choose the most suitable product roadmap format for them. There is a variety of formats but, taking into consideration that SaaS businesses operate in highly dynamic environments, not all of them are appropriate for the studied case (Munch et al., 2019).

In particular, Munch et al. (2019) highlight that the traditional approaches to product roadmapping, such as the case of Feature-based product roadmaps, are not a good fit for uncertain environments. The fact that they have feature-wish-lists with release dates planned in long timelines does not answer effectively to the need for constant adjustments.

The authors argue that businesses in dynamic environments require product roadmaps formats that are able to change over time. They discard completion dates and instead embrace learning and evolution. Thereby, modern product roadmaps approaches are identified as the most adequate for digital products, as it allows to align the development activities with the organizations' goals (Munch et al., 2019).

2.3.1. Timeline

The timeline on roadmaps translates the point in time when each component is relevant (Munch, Trieflinger, Bogazkoy, et al., 2020). Taking into consideration the changing market conditions, the integration of a timeline on roadmaps only makes sense if the product success does depend on a deadline (as it is the case for seasonable products) or if the management expects it (Pichler, 2019; Product Roadmap Contents: What Should You Include?, n.d.).

If that is not the case, there is a set of reasons that may justify why firms should not impose a concrete timeline. Firstly, very often deadlines are considered as a commitment, leading people to shift the focus from other important tasks (Cagan, 2008). Second, deadlines may also create unrealistic expectations, which can be responsible for negative product quality and a bad work environment (Pichler, 2019). And finally, it is also true that timelines decrease flexibility, a crucial aspect in dynamic and uncertain market environments that should not be neglected (Korolev, 2019).

Thereby, as Lombardo et al. (2017) recognize, the new market environment conditions, characterized by rapid changes, demand new formats for product roadmaps.

2.3.2. Modern Product Roadmaps

The outcome-driven product roadmap is “built around customer and business values” (Munch, Trieflinger, Bogazkoy, et al., 2020, p. 288). In order to face dynamic environments and uncertainty, Doherty (2019) suggests an approach that starts with the Product Vision, which provides the strategic direction in long term (timeless). Based on that, two or three specific, measurable, achievable, realistic, and time bound objectives are identified.

This is followed by the definition of the outcomes, that should reflect a measurable change of the customer behaviour. These Objectives and Outcomes correspond to the Objectives and Key Results (OKRs), respectively. The roadmap represents the timeline dividing it into three columns: Now, Next, and Later (Doherty, 2019).

Lombardo et al. (2017) argue that this approach supports both discovery and delivery activities, suggesting that:

- The column Now is related to the product delivery phase. It comprehends a list of activities to implement, which have been previously tested in the discovery phase.
- The column Next is related to the product discovery phase. In this case, there is a list of hypotheses that will be subject to experiments to see how to achieve the planned outcome.
- The column Later concerns the long-term planning. It comprises the themes, derived from strategic product management, but not any other further detail.

Theme-based product roadmap is an alternative, but similar, approach. It includes the product vision (how customer benefit from the product); themes expressed as a customer need; objectives; and features that describe the solution for the themes identified (Lombardo et al., 2017).

2.4. Product Roadmap Process

Another crucial aspect to consider when creating a product roadmap in dynamic and uncertain market environments is identifying and establishing a sustainable process (Trieflinger, Münch, Schneider, et al., 2021).

Lombardo et al. (2017) suggest a process consisting of eight steps, as follows: “Gathering inputs”, that is, relevant information for the product roadmap development; “Establish the why with product vision and strategy”, as a way to justify all subsequent

efforts; “Uncovering customer needs”, meaning, what will be built; “Deepening the product roadmap”, by detailing the features and solution for short term; “Prioritization” of the activities; “Achieve buy-in and alignment” of the stakeholder; and, lastly, “Presenting and sharing the roadmap”.

It is important to note that the dynamic market environment imposes the need to frequently adjust the product roadmap. Consequently, “it is essential to establish a process for reassessing the product roadmap on a regular basis, as well as to communicate the reason for changing the roadmap” (Trieflinger, Münch, Schneider, et al., 2021, p. 121).

Alternatively, Perri (2014) proposes eight steps, not very different in its essence, but that addresses this need of constantly adjusting the product roadmap by including iteration cycles. The steps are: Problem identification; Prioritization; Assignment; Problem validation; Development and validation of a Minimum Viable-Product (MVP); Validation of the MVP; Decision about the next steps; Next iteration.

Thus, as Trieflinger, Münch, Schneider, et al. (2021) concluded, regardless of the approach followed, product roadmapping process establishes a link between the product vision and product delivery, putting emphasis on stakeholder alignment. The focus is on identifying customer and business goals but keeping them flexible. Finally, the process needs to include validation activities (i.e.: discovery and experimentation) to avoid the development of the wrong items.

2.5. Product Vision

A product vision can be characterized by a set of properties, in particular it should be “concise, challenging, aligned with the strategy of the company and collectively obtained” (Benassi et al., 2016, p. 210).

Lombardo et al. (2017) suggested a useful template for defining a product vision, which comprises six dimensions: For (target customer); Who (target customer’s needs); The (product name); Is a (product category); That (product benefit/reason to buy); Unlike: (competitors); Our (product differentiation).

As Trieflinger, Munch, et al. (2021) concluded in their work, the product vision should be a definition of the long-term planning goals that contribute to the achievement of the corporate vision. Thereby, it should guide the strategic product decisions and roadmap development, as well as the operational measures within product management.

2.6. Product Alignment

For a product roadmap to be successful, especially in the software-intensive business, all stakeholders need to agree with the company's vision and objectives and be aligned and committed to a common product plan (Trieflinger et al., 2020).

In this context, alignment means a “concerted effort to help people understand the issues and what their respective roles are” (Trieflinger et al., 2020, p. 51). To achieve that, there are several approaches to define and communicate the objectives based on the product vision.

“Foster Alignment with Shared Vision and Goals (OKRs)” is an approach that portraits that, based on the product vision, objectives and key results should be defined and then communicated across the different levels of the company. To do so, Khanna (2018) suggests both management and product teams should conduct weekly progress updates, as a way to guarantee that the activities are focused on the organization's objectives. Moreover, the author also defends conducting regular cross-functional meetings on the operative level to discuss the future product strategy as well as the publication and communication of the product roadmap, to help product teams and stakeholders to know the direction.

Also, Meetings and Co-creation Workshops, which are interactive events to create a plan, help creating a common understanding, among stakeholders about the future direction of the product (i.e.: alignment with the company vision). These workshops should involve employees from functionally different departments (Trieflinger, Munch, et al., 2021).

Lastly, software applications, such as Slack and Trello, are tools that enhance communication, and help track, manage and prioritize (Lombardo et al., 2017).

Thus, alignment should start with a clear vision, which, in turn, should be “transformed into a strategy with clear goals that can be integrated into a product roadmap and communicated across the organization” (Trieflinger et al., 2020, p. 56).

2.7. Product Discovery

With the rapid technology evolution and user needs changes, firms struggle to predict the products and features that meet these needs, facing the challenge of building a reliable product portfolio (Münch et al., 2019).

In this sense, the discovery activities' part is one of the most important of the roadmapping process, as it consists in determining the “right things” that should be

developed, i.e., the things that create value to customers and to business. Thus, discovery activities allow to identify and explore customer problems, finding useful, feasible and economically viable solutions (Cagan, 2008).

Therefore, the main motivations for product discovery activities are: building more desired and impactful products; aligning the product team with the company's purpose; managing risks; increase evidence-based confidence; and making better roadmap decisions (Munch, Trieflinger, and Heisler, 2020).

The product discovery teams should be, as suggested by Pichler (2018), diverse, having in its composition designers, developers, Scrum Master, product manager, and relevant stakeholders. The recommended size is around six members.

Concerning the Process of product discovery itself, Ulwick (2016) recommends eight steps: alignment, research, ideation, creation, validation, refinement. Different methods can be plugged into the discovery process, namely, Impact Mapping, and A/B Testing.

Munch, Trieflinger, and Heisler (2020) highlight the idea that the process should be fast, continuous, time-boxed, based on continuous and small research activities. This process is integrated into the product roadmapping and aims at achieving the desired product outcomes. According to the authors, product discovery allows to identify and validate assumptions that involve risk, before building the product.

2.8. Integrating Product Discovery and Product Delivery

Finally, another important topic has to do with integrating product discovery and product delivery in the product roadmap. More than the need to find new product ideas, meeting both customers' and the companies' needs is crucial to successfully innovate. In other words, it is necessary to commercialize the resulting products, in order to be able to benefit from the discovery (Trieflinger, Münch, Heisler, et al., 2021).

As a way to answer this need, Dual-Track Agile should be implemented, as it is a "type of agile development that combines the product discovery and delivery activities in parallel, iterative, and cyclical way" (Trieflinger, Münch, Heisler, et al., 2021, p. 55).

Accordingly, there are several approaches that support the integration of both product discovery and delivery, which are complementary to one another.

Hodgson (2020) suggests an approach entitled Discovery-Deliver Cycle model. The basic idea is that a "pay to learn" cycle is conducted, which consists of collecting ideas

through interviews to relevant internal stakeholders. Based on these interviews, hypotheses and experiments are formulated, and ideas that will go to the “pay to build” cycle are validated, that is, the ideas that will be delivered. In this last cycle, there is an iterative process where the idea is implemented and improved based on continuous feedback.

In order to integrate these discovery activities in the daily work routines, Maurya (2016) suggests the Lean Sprints approach. A lean sprint is a time-boxed iteration cycle, aiming at generating, ranking, and testing new ideas.

Supported by the principles of agile, this suggested approach comprises five phases, combining product discovery and product delivery activities:

1. Expose problems: in a small and cross-functional team, it should be held a Lean-sprint-kick-off meeting that goes over the following topics:
 - set the context (how did the problem arise, what has been done so far to solve it, how much time should be invested);
 - describe the traction model (milestones);
 - identify constraints in the business model;
 - set expectations (big goals under tight constraints).
2. Define solutions: each team member should formulate a plan to achieve the goal (to avoid group-thinking).
3. Short-list solutions: in the sprint planning meeting, proposals are expected to be ranked and shortlisted, defining the experiments to be conducted in the current sprint.
4. Test solution: to test the solution, a build-measure-learn-cycle is to be applied to each experiment. The cycle should consist in developing a prototype, metrics to obtain progress, and analysis of the results.
5. Actions to take: in the Sprint review meeting, the team votes on four next actions: retire, persevere, pivot or reset the idea.

Lastly, it is also important to highlight the Dual-Track Agile in what concerns the teams' composition. Ciecholewski (n.d.) suggests that product discovery and product delivery are conducted by different teams. The discovery team consisting of lead designers and developers, while the delivery team being formed by developers and software testers. According to the author, it is recommended that a product owner is part of both teams in order to facilitate the coordination and workflow between the two teams.

2.9. Critical Analysis

Planning product development and managing product innovation in highly dynamic markets, as it is the case of software intensive businesses, is challenging but imperative for companies. Thus, management tools can help companies define their product strategy.

In particular, modern product development methods, such as roadmapping, are fundamental to support organizations with planning and alignment (Kerr & Phaal, 2022).

The main theories about product roadmapping suggest alternatives to the traditional formats for product roadmaps, in order to tackle changing market conditions. In particular, modern formats, such as outcome-driven and theme-based product roadmaps, are presented as suitable alternatives, as they do not impose concrete timelines.

To create successful product strategies and roadmaps in this type of environment, different authors suggest the process steps to connect product vision with delivery, align stakeholders, focus on customer and business goals, and validate the activities with discovery.

The product vision should define the long-term goals that contribute to achieve corporate vision and guide product decisions. It is crucial that all stakeholders are aligned with the product vision and plan. To do that, communication is the key, and several approaches are identified by different authors, such as weekly progress updates, cross-functional meetings, workshops and even software applications.

Product discovery activities can be the answer to identify and explore the “right things to develop”. By having cross-functional teams, conducting small research activities may lead to create value to customers and businesses. Different methods can be implemented in product discovery, like, Impact Mapping. As a way to integrate product discovery and product delivery activities into product roadmap, a suggested approach is Dual-Track Agile.

Nevertheless, the tools presented have the inherent planning challenge of integrating the view of future courses of actions with the operational level, while coupling with technological issues and emerging market considerations (Kerr et al., 2019). It is, hence, necessary to develop a product strategy, which is, as suggested by Trieflinger, Münch, Schneider, et al. (2021), a bridge that connects product vision and product roadmap, to inform business strategy with the necessary portfolio perspectives.

Moreover, even though there are several tools suggested to manage business and guide decision-making, such approaches provide a reference process, that should not be blindly implemented (Kerr et al., 2019). It is, hence, necessary to develop customized processes. However, there is a lack of guidance on how to customize (Kerr et al., 2019).

Thereby, taking into consideration the possible methodological alternatives, and the specific characteristics of the case subject to analysis, which is based on a software as a service company, inserted in a highly dynamic environment, what it is proposed to do in this study in order to promote an appropriate product management is to ensure that:

- The company has a flexible product roadmap format, by following the outcome-driven approach;
- There is a Product Vision aligned with the company's strategy, as well as clear objectives and outcomes and corresponding metrics to guide the work developed;
- There is constant and effective communication in the company communication channels, to foster alignment around the company members;
- Product Discovery activities are conducted, and important work is identified using Impact/Effort Matrix;
- Discovery and Delivery activities are integrated, by following Dual-Track Agile approach;
- Teams have a Product Owner responsible for accompanying and supporting its work;
- The long-term strategy to achieve goals is discussed, with people dedicated to collect new information and adapt based on that.

Thus, the following chapters start by addressing the characterization of the company at hand, explaining, then, in detail, the methodology followed, the steps implemented, its results and discussion, and, finally, presenting the main conclusions and limitations of the study.

3. Widetail

3.1. Foundation and History

Widetail was founded in 2010 by two software engineers, who had a shared vision about the e-commerce future (Jumpseller, n.d.). By 2015, Widetail created a subsidiary company in Chile and since then it has been expanding its presence in Latin America (Foundation, Participant Observation).

3.2. Mission and Product Portfolio

Working with the mission of serving local customers, with limited resources and technical expertise, the company developed a platform, initially called Vendder, but now referred to as Jumpseller (Jumpseller, n.d.). Jumpseller is an e-commerce cloud solution that allows Small and Medium Enterprises (SMEs) to create their online store (Jumpseller, n.d.).

3.3. Business Model

The business model of the company is based on SaaS, thereby providing e-commerce software services based on the Internet. Users pay for a subscription plan sharing the costs of software maintenance and upgrade (Business Model, Participant Observation).

For the last few years, the company has been registering an annual growth of more than 100%. It is counting now more than 10.000 online stores, spread across more than 20 countries. Chile, Colombia, Portugal, and Mexico are its main markets (Jumpseller, n.d.).

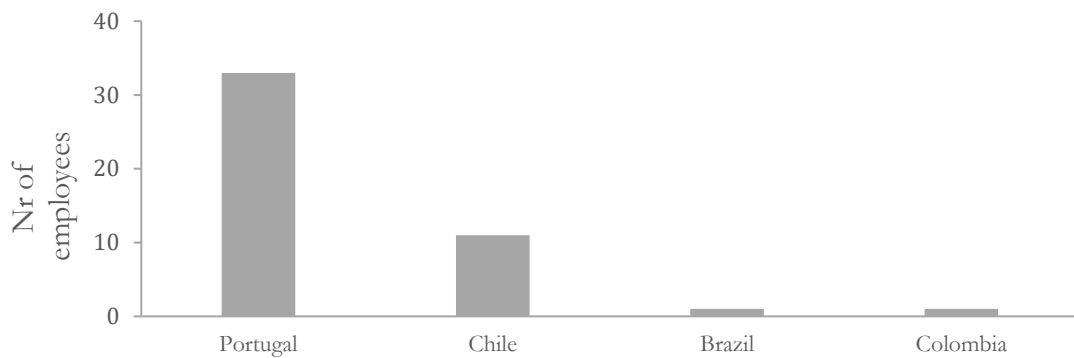
3.4. Strategic Goals and Results

Jumpseller is one of the most used e-commerce platforms in Latin America. The company aims to “expand its presence to more Latin American and European countries”, while offering them the most powerful tools and the best customer experience (Jumpseller, n.d.).

3.5. Headquarters and Employees

Established with two headquarters, the main one in Porto, Portugal, and the other in Santiago, Chile, the company started with no more than five employees (Jumpseller, n.d.). As a result of its growth and strategic goals, about twenty-six people joined the team during the last two years, adding up to a total of about forty-five employees working on different geographies, as shown on Figure 1 (Employees, Participant Observation).

Figure 1: *Distribution of Widetail employees across geographies*



Notes. Chart showing the distribution of employees of the company across multiple geographies, in February 2022. Based on Employees, Participant Observation.

3.6. Projects Financing Expansion

The company's strategy has been supported by several investment projects, financed by organizations such as the Chilean Economic Development Agency (CORFO), from 2020 to 2022. CORFO has been contributing to the company's expansion to Latham countries by supporting the hiring of specialized employees for targeted locations and the development of local integrations of the Jumpseller product (CORFO Chile, Secondary Data).

The company is constantly investing in research and development, with the purpose of improving its product and making it more attractive and competitive. Once developed, such type of work is also eligible for financing systems in Portugal, as it is the case of "Sistema de Incentivos Fiscais à Investigação e Desenvolvimento Empresarial" (SIFIDE), to which Widetail applied too (SIFIDE Portugal, Secondary Data).

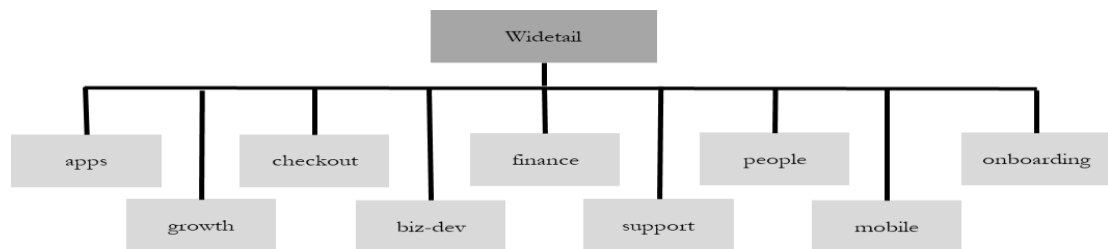
For the future and based on the current product developments that the company is putting into practice, it also intends to apply to "Portugal 2030", by submitting an internationalization project (Future Plans, Participant Observation).

In order to sustain its strategy and contribute to the achievement of its goals, the company intends to implement a Product Management approach to overcome the difficulties felt in product development planning and successfully align all the stakeholders towards a common goal.

3.7. Company Structure and Work Values

The internal organizational hierarchy of Widetail is based on an horizontal structure, with employees divided across teams, all at the same level (Organization, secondary data) (see Figure 2).

Figure 2: *Organizational Structure of Widetail*



Notes. Chart showing the organizational structure of the company, in February 2022. Based on Structure, Participant Observation.

The company has a culture based on five core values: (1) Honesty; (2) Transparency; (3) Inclusion; (4) Freedom; and (5) Innovation. Individually, each person is compromised to a group of values: Commitment; Quality; Speed; Critical spirit; Proactivity; Flexibility; Impact; Teamwork; Customer-centric; Continuous improvement; and Leadership (README – company values, Secondary Data).

3.8. Scrum Framework

The company uses Scrum to manage its activities, with teams working in two-week sprints (Scrum, Secondary Data). Scrum is an agile framework that helps generate value through adaptative solutions for complex problems (Schwaber & Sutherland, 2020).

Trello is the tool used to record the company's activities (Scrum, Secondary Data). The communication is mostly done via Slack (Scrum Framework, Participant Observation).

The Transformation Manager in the company acts as Agile Coach, being the person who “coaches the organization, teams, and employees to transform themselves, enabling them to reach their goals” (Transformation Manager, Secondary Data).

3.9. Business Development Team

The Business Development Team's mission is to "Ensure Customer Success", having "Customers Lifetime Value" as indicator. It is also responsible for managing the "relationship with new and current partners and key merchants" (Organization, Secondary Data). The department oversees "how to bring the company products to market, but also to help engineers develop the best possible experience for merchants and partners" (Business Development Manager, Secondary Data).

4. Methodology

4.1. Selected Methodology

This report aims at answering two research questions:

- What is the most suitable approach to develop new products, that is simultaneously aligned with the global strategy and prepared to answer to new challenges?
- How can a company define a Product Management approach and customize it in order to fit the company situation?

Related with the first research question, van de Weerd et al. (2006) conducted a similar study to present a “reference framework for software product management”, applying a mix of empirical and theoretical research steps (p. 3). They performed interviews with experienced product managers; literature review; creation of a draft framework; validation by a case study of a product software company and validation with input from an industrial workgroup on product management; finalization of the framework.

van de Weerd et al. (2010) use a retrospective case study to validate a method increment approach, which encompassed interviews with product managers and document study on the deliverables of the methods applied.

Concerning the second research question, Vlaanderen et al. (2011) conduct a case study to describe and evaluate the “introduction of a method for the application of Scrum principals to software product management” (p. 58). The authors collect data through interviews with the product stakeholders and study of documents, in particular, the product and sprints backlogs.

Cormican and O’Sullivan (2004) look to “identify the critical success factors for effective product innovation management” (p. 819). In this case, the authors survey senior research and development managers. They develop a best practice model and scorecard, which is then validated through a case study.

Similarly, Kerr et al. (2019) report the “process journey in customising a reference process and the deployment of the adapter approach” (p. 48). The authors use an Action-

Research methodology, firstly understanding the company context to clarify the challenges and issues faced and then working to address them, solving a practical problem.

Considering the nature of the research question, this study relies on a combination of qualitative and quantitative methodologies, which, based on the principle of triangulation, “offers the promise of getting closer to the “whole” of a case in a way that a single method study could not achieve” (Brewerton & Millward, 2001, p. 55).

A qualitative research approach “seeks to understand phenomena in context-specific settings”, considering the complexity and dynamic characteristics of the social world, while quantitative research focuses on predicting and generalizing findings (Hoepfl, 1997, p. 47).

Corbin and Strauss (2015) suggest that qualitative research methods can be used to better understand any phenomenon about which little is yet known, to gain new perspectives on things about which much is already known, or to gain more in-depth information. Quantitative research is based on the measurement of quantity, involves the generation of data in quantitative form that will be subject to formal quantitative analysis (Kothari, 2004).

Moreover, it is important to consider that this study has two goals. On one hand, it aims at solving a practical problem, applying a change in an organisation. In this case, this work is done within the scope of the curricular internship carried out at Widetail, the unit of analysis, following the work plan detailed on Annex 1. On the other hand, it aims at researching and understanding a phenomenon, contributing to the existing theoretical knowledge.

Therefore, an Action-Research approach was adopted as the research strategy, combining theory and action to create relevant knowledge through practice (Coghlan and Brydon-Miller, 2014). It relies on a cyclical process of co-generative know-how in the pursuit of a positive change in organizations, communities, or society. It is also considered a participative and collaborative approach. It is also situation-based and context-specific.

4.2. Research Design

The research design for this study is based on Lewin’s Action-Research model (Lewin, 1946). According to Dickens and Watkins (1999), the first step is to identify the problem in

its particular context, working, after that, towards collecting and analysing relevant data that reveal the need for change and the possible solutions to the problem at hand.

The following step is to “test the effects of the implemented changes by collecting more data, evaluating the results, and redefining the problem” (Dickens & Watkins, 1999, p. 133). Consequently, the defined action plans need to be flexible and responsive to the environment, being adjusted as needed. As the Action-Research process consists of a cycle, it is expected that it only ends after the problem initially identified is exhausted (Dickens & Watkins, 1999).

Thus, the research design for this study consists in a cycle with the following steps: (1) Identification of the Initial Idea; (2) Recognition and Analysis of Facts; (3) Planning; (4) Implementation; (5) Monitoring Implementation and Effects; (6) Evaluation; (7) Iteration.

4.3. Data Collection

For data collection, possible sources are interviews, measurements, and surveys (Dickens & Watkins, 1999). Accordingly, in this study, different sources of data were used: (1) Interviews; (2) Participant observation; (3) Secondary data; and (4) Surveys. The data were collected during the internship at Widetail, carried out from February to April 2022.

The mix of direct and indirect methods of data collection was applied to tackle reliability and validity problems, as “triangulation strengthens a study by combining methods”, in particular through the use of various sources (Patton, 2002, p. 247).

4.3.1. Interviews

According to Brewerton and Millward (2001), interviewing is a tool that can be used at different stages of the research process. At an initial phase, with the purpose of identifying areas for exploration and generating hypotheses; at an intermediary phase, to collect data; or, at a later phase, to ensure interpretations are accurate (Brewerton & Millward, 2001).

In this study, the interviews were used at the initial step, in order to identify and recognize facts. Later on, during the second week they were used to validate the scorecard. Semi-structured interviews were conducted to frame guided responses while allowing for depth in certain areas (Brewerton & Millward, 2001). The interviews were based on three

questions previously prepared, aimed at better understanding the company needs regarding Product Management (see Table 2).

Therefore, fifteen-minute interviews were held via online meetings with the four selected members of the company (see Annex 3, 4, 5, and 6).

Table 2: *Interview questions about Product Management at Widetail*

Goal	Themes	Questions
Understand the company needs and its situation regarding Product Management	Work done in terms of Product Management Main issues/difficulties faced by the company Perspective on how to solve these issues	How would you describe the company situation regarding Product Management? Tell me about the work that has been done about this topic. What are the main issues/difficulties that the company faces? How do you see them being solved? What are the main needs that could be answered with the work of Product Management?

Source: Author own elaboration.

4.3.1.1. Interview's Participants Characterization

Considering the interviews' goal, people with knowledge about the company history, strategies and product management processes were selected.

Therefore, the four most knowledgeable members of the company were selected, being them, the two co-founders, which have been working in the company since the beginning and have a global vision; and the Scrum Master and the Business Development Manager, which even though had fewer years of experience, worked daily in the area of interest (see Table 3).

Table 3: *Participants' Characterization*

Participant	Role	Years Working at the Company
P1 - TL	Scrum Master	3
P2 - AT	Business Development Manager	5
P3 - FG	Co-founder	12
P4 - TM	Co-founder	12

Source: Author own elaboration based on interviews.

4.3.1.2. Data Analysis

The data were analysed using a content analysis methodology, which consists in a three-phases process applied to speeches, based on deduction. Starting with the pre-analysis phase, the main goal was to define the purpose and applicability of the results based on an initial reading of the documents (Laurence, 2016).

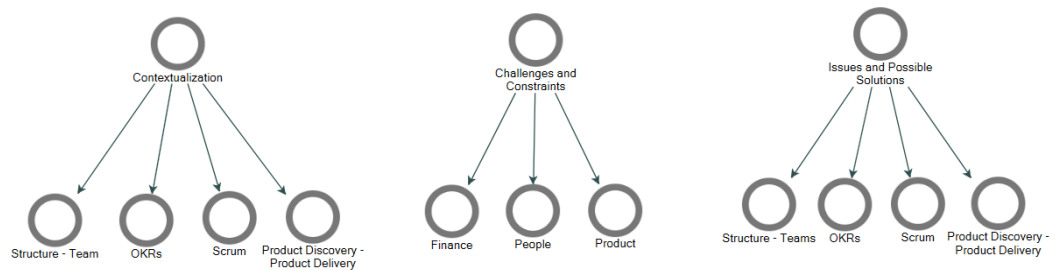
Then, the exploration phase relied on the NVivo software tool to do a systematic analysis of the interviews' transcripts compiled. This phase consisted in codification operations, in which sentences were selected as registration units and the questions as context units. The base to perform a qualitative analysis and inference was the presence of the selected registration units, which was used as counting rule (Laurence, 2016).

The categorization operation aimed at classifying elements by differentiation, and then regrouping them according to the established criteria (Laurence, 2016). To do that, the approach followed was a mixed coding procedure, in which text was organized in content categories, that derived initially from the literature review, and that later were adapted and added as the codification process moved forward.

Thus, the data collected were divided into three context units, with homogeneous and relevant categories being identified (see Figure 3).

Lastly, the results treatment phase, which aimed at producing tables of figures with the information obtained, relied on inference from the data, leading to conclusions made through the analysis of the message (Laurence, 2016).

Figure 3: *Context and Categories*



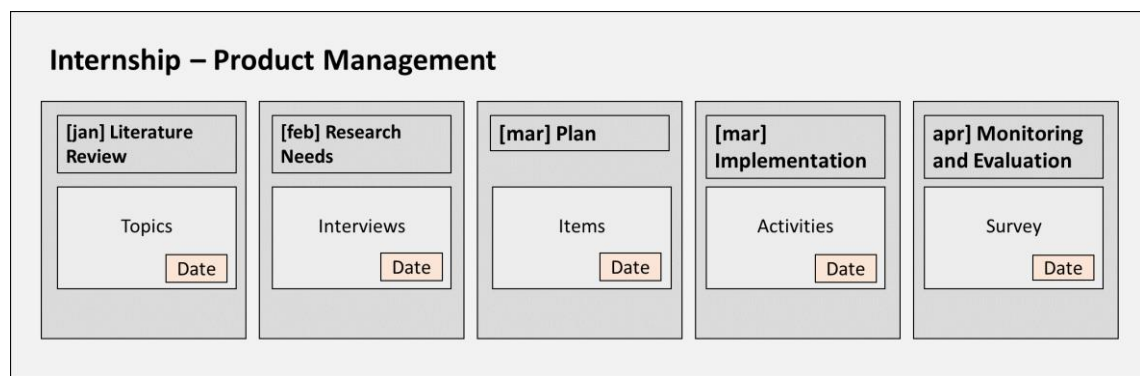
Source: Author own elaboration.

4.3.2. Participant Observation

Participant observation is an activity in which the researcher is inserted in a context with the goal of observing and registering events and occurrences (Brewerton & Millward, 2001). Although being an unstructured process, observations should be written as things happen.

In this study, the observation was done by the researcher during the curricular internship at Widetail. The information was collected through field notes and a board using the Trello tool, where cards were created to organize work, with descriptions, checklists, comments, and delivery dates (see Figure 4).

Figure 4: *Trello board with Participant Observations*



Source: Author own elaboration.

4.3.2.1. Data Analysis

The data analysis applied, as suggested by Silverman and Marvasti (2008), “three concurrent flows of activity”. In the first place, data reduction, in which data were selected and simplified; then, data display, as a way of organizing information and clarifying the results; and, lastly, conclusion drawing, in which explanations and actions to take were extracted (Silverman & Marvasti, 2008).

4.3.3. Secondary Data

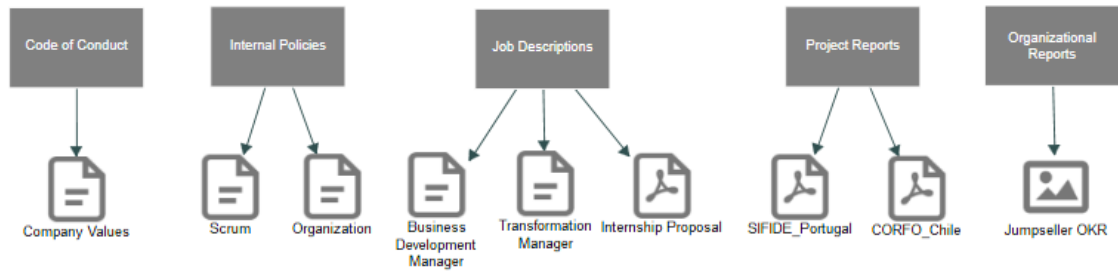
According to Bowen (2009), Secondary Data, and in particular document analysis, result from an intensive study that produces rich descriptions of a certain phenomenon. They may have a set of purposes, such as providing data about the context, suggest situations that need to be approached, provide additional data to track change and evolution (Bowen, 2009).

This study used several documents from the organization, such as Code of Conduct, Internal Policies, Job Descriptions, Project Reports, Organizational Reports. These documents were collected from the intranet of the company or provided by its members.

4.3.3.1. Data Analysis

Similarly to the process applied in the interviews, the secondary data were also subject to content analysis, using the NVivo software. In this case, the data collected were divided into three context units: Code of Conduct; Internal Policies; Job Descriptions; Project Reports; and Organizational Reports. Accordingly, categories were identified, being them: Company Values; Scrum; Organization; Transformation Manager; Business Development Manager; Internship Proposal; SIFIDE Portugal; CORFO Chile; and Jumpseller OKRs (see Figure 5).

Figure 5: *Secondary Data Collected*



Source: Author own elaboration.

4.3.4. Survey

Surveys allow gathering several types of information, in particular, demographic information, by questioning about the respondents' background and attitudinal information, i.e., about the respondents' attitudes towards something (Brewerton & Millward, 2001).

According to Brewerton and Millward (2001), if a questionnaire claims to be confidential but a significant number of questions about individuals are included, respondents may doubt it. Thus, few demographic questions were included to ensure that respondents would feel free to give their opinion, instead of “responding in a socially desirable way” by selecting “the response option which places them in the best possible light” (Brewerton & Millward, 2001, p. 106).

The demographic questions were, therefore, built upon the teams company's structure, and since there is not formalized hierarchical levels, the years working at the company, which is similar to the information collected by Ammourah and Pitchay (2020) in their study.

In terms of attitudinal information, the questions relied on a Likert scale, in particular the 5-point attitude scale. Hence, respondents were presented with a statement about which they were asked their opinion, with range between the extremes of 1 – Strongly Disagree and 5 – Strongly Agree (Brewerton & Millward, 2001). Also, two open questions were asked.

For the survey's construction, the questions were based on a PIM scorecard from a similar, previously validated study. This scorecard allowed for “self-assessment audit” of product management through “50 statements or traits, based on the best practice model”. Only the relevant topics for the case were considered (Cormican & O'Sullivan, 2004, p. 824).

All the items were adapted to the characteristics of the target population, as well as the wording used on the company, a critical aspect to guarantee that the meaning was understood, and hence, the answers were accurate (Brewerton and Millward, 2001). The layout and format of the survey was established using the Google Forms tool, to contribute to a high response rate and comprehensibility (Brewerton & Millward, 2001). The survey included a cover letter to motive respondents, and its length and the questions order was customized to the topics considered in the implementation plan.

Considering the survey's goal, the purpose was that all the people of the company participated. Therefore, the survey was sent accompanied by a personal message sent through Slack. Before that, a pre-testing was conducted, initially with one member of the organization, to detect redundant issues, and badly formulated questions, and to review the questions' order, language, and size. The final version was then tested with five other members.

4.3.4.1. Survey's Participants Characterization

As mentioned before, the survey was sent to the whole staff, although some people were in vacations or with license. Thus, only 35 out of 45 employees answered, which still can be considered representative of the population of interest.

Regarding the number of years working at the company, most of the participants, around 69%, had less than one year tenure, while people with two or three years, and four or more years represented 14% and 17%, respectively (see Table 4). Also, the teams' representation was illustrative of the distribution of people in the company (see Table 5).

Table 4: *Years Working at the Company*

Years	Frequency	Percent
1 or less	24	68,6%
2 or 3	5	14,3%
4 or more	6	17,1%

Source: Author own elaboration based on survey.

Table 5: *Teams*

Team	Frequency	Percent
Apps	5	14,3%
Business Development	4	11,4%
Checkout	3	8,6%
Finance	1	2,9%
Growth	4	11,4%
Mobile	7	20%
Onboarding	4	11,4%
People	2	5,7%
Support	6	17,1%

Source: Author own elaboration based on survey.

4.3.4.2. Data Analysis

The data collected in the surveys were analysed using Excel and R software. An analysis of the statistical results was done, similar to the work done by Ammourah and Pitchay (2020).

A cluster analysis of the product management approach was also conducted using the hierarchical and K-means cluster method to distinguish the respondent's profiles in homogeneous groups, similarly to the work done on a study dedicated to understand how project management approach impacts project success (Ciric Lalic et al., 2022). The Kruskal-Wallis test was used to show the differences between the clusters' average values.

To better understand the data, in addition to the representation of the data in radar charts, as Cormican and O'Sullivan (2004) did in their study, Principal Component Analysis (PCA) was implemented as a data reduction and visualization technique. Finally, an Explanatory Factor Analysis (EFA) of the survey dimensions was also done to validate the Cormican and O'Sullivan (2004) study.

5. Results and Discussion

Taking into consideration the data collected for each research design step, this section presents the results of the analysis, structured according to the research steps.

5.1. Initial idea

The first step, which consisted in identifying the initial idea for this study, took into consideration secondary data, in particular, the document elaborated by the company with the Internship Proposal (Internship Proposal, Secondary Data).

The internship proposal stated that the internship should be in the “Product Owner Assistant” role. The main activities to be developed were related to the design and implementation of a first approach to Product Management. The proposed plan would be subject to an iterative improvement cycle, implemented every two weeks (Internship Proposal, Secondary Data).

The work would consist in learning the details of each functionality; communicate with all leaders in order to suggest improvements and coordinate efforts; detect and help solve dependencies with the employees; participate and contribute in product planning meetings; present new feature ideas; estimate the cost/benefit of these features (Internship Proposal, Secondary Data).

Accordingly, the internship had three main objectives to contribute to the achievement of the company’s goal and help overcome the difficulties felt in product development planning (Internship Proposal, Secondary Data).

The objectives were to define and implement a Product Management Process; model and support the decision-making process about product functionalities and prioritization; discuss with the Management, Programmers, and Partners teams about the multiple product functionalities (Internship Proposal, Secondary Data).

The internship report starts by discussing the topic by studying the product development cycle in dynamic environments, and then, it described the implementation of a Product Management process at the company. The final step described the lessons learnt and suggested improvements.

5.2. Recognition and Analysis of Facts

For this step, secondary data were collected with the goal of doing the recognition and analysis of the status. The data consisted in the OKR document and field notes of the participant observation, but the main source of information were the interviews performed.

Therefore, the documents analyzed together with the field notes uncovered the key practices adopted in terms of Product Management and some issues that the company had been facing.

In terms of key practices, it was noted that the OKRs were built by the two co-founders, being set as outputs (Organizational Reports, Secondary Data). As an improvement, it was suggested the possibility of moving to an outcome-based roadmap approach. The OKRs were registered in excel format, which was seen as an item that could be improved by adopting Trello (Organizational Reports, Secondary Data).

It was identified that the company had not been reaching its goal for the last three quarters, that is, for the whole previous year (Organizational Reports, Secondary Data). Thus, there was a need to rethink the long-term revenue and profit sources, growing into other geographies (being Colombia and Mexico the main targets), estimate the benefit and cost of the activities, and develop new ideas.

Another issue was the fact that even though some of the teams achieved their OKRs/goals, that did not translate in significant impact on the company's growth (Organizational Reports, Secondary Data). Accordingly, it was identified the need of better definition of the OKRs, to help achieve the company goal, as well as keep track of the correspondent metrics.

Finally, it was noted that it had been difficult to manage the product at different levels – company level, team composition, delivering to each team a functionality (Facts Recognition, Participant Observation).

Other issues were the need to have someone analyze carefully and in detail the data, assuming responsibility for the analytics/metrics; work on epics, by being responsible for Trello; and also help with the project briefings, in particular coordinating the teams and helping them in the backlog refinement and planning.

The interviews were used as a mechanism to better understand these needs in terms of Product Management.

5.2.1. Contextualization

5.2.1.1. *Structure/Teams*

Regarding the contextualization of the company situation, in terms of Structure/Teams, there was “only one development team at the company” in the beginning (Participant AT, Interview).

So, it was “easy” to manage work using horizontal management, with the co-founders being “all over the place” (Participant TL, Interview). Then, teams started being split, “based on the customer experience” (Participant AT, Interview).

5.2.1.2. *OKRs*

In terms of the OKRs, it was mentioned that OKRs are used to “define a vision for the next months, based on features” (Participant FG, Interview). Similarly, it was also defended that OKRs should be defined to “set up a target, based on customer experience” (Participant AT, Interview).

To define them, the co-founders would talk with each team and build a board to “compile all the ideas” (Participant TM, Interview). Then, they would prioritize them, divide them amongst teams and present them (Participant TM, Interview).

5.2.1.3. *Scrum*

Scrum was the methodology used “to manage team activities” on a weekly basis (Participant FG and TM, Interview). Following its principals, priorities were set by each team, and it was not data/research driven (Participant TM, Interview).

Still, the requests of partners, customers and support needs were considered, and each team could also do proposals (Participant FG, Interview).

5.2.1.4. *Product Discovery - Product Delivery*

Finally, in terms of the Product Discovery - Product Delivery process, when customers asked for a feature, the process would be the support team “goes through all the competitors to check if they do have it” and then “creates a card” with the proposal (Participant AT, Interview).

When trying to implement a new idea, they would talk with the team leader of the corresponding development team and then with the co-founder (Participant AT, Interview).

5.2.2. Challenges and Constraints

Associated with each of the categories presented (Finance, People and Product), the challenges faced by the company and correspondent constraints were identified.

It was mentioned that the pandemic “forced to stop planned work, and just to be very reactive on thing”, so the OKRs and planned work were a bit disregarded, it was all about reacting (Participant AT, Interview). Also, the company growth generated by the pandemic led to the need to hire people and hence new challenges arose (Participant TL, Interview).

5.2.2.1. Finance

The main issue related to Finance was uncertainty in regard to the economic landscape (crash in sales, new competitors, something going to happen, risk of inflation) (Participant TL, Interview). In this sense, there was a need to guarantee that there was enough revenue to sustain the company and the budget allocated to projects (Participant TL, Interview).

Due to Financial constraints, the company “does not have middle management”, but also “cannot have a lot of people involved in management”, as it does not have enough people and the structure for it (Participant FG, Interview).

5.2.2.2. People

Concerning People, there was a risk associated with “changing the status quo” (hiring people and changing teams) (Participant TL, Interview). Therefore, finding the right people, and retaining them, empowering people, having autonomous teams, and promoting a good organizational culture was a must to mitigate this risk (Participant TL, Interview).

In terms of People constraint, everyone worked in remote or hybrid regime, and in different time zones (Participant TM, Interview).

5.2.2.3. Product

About Product, the main challenge concerned “reacting to external forces” and having a competitive product (Participant FG, Interview). By keep improving the product, and store design, increase awareness, make functionalities clear, work on the ownership of the features

it would be possible to guarantee a stronger presence in the market (Participant FG, Interview).

Lastly, the product constraints were related to the fact that there were “things that happen” that mislead the work, not allowing to achieve OKRs (Participant FG, Interview).

5.2.3. Issues and Possible solutions

Finally, it was identified the main issues and the participants’ perspective on possible solutions through Product Management, according to four categories (see Annex 8).

5.2.3.1. *Structure/Teams*

Regarding the Structure/Teams, the company was having difficulties managing big projects that involved cross-team work (Participant TM, Interview). A solution would be to have someone that leads the projects and “that can bridge external support, conversations with external entities, and with the developers” (Participant FG, Interview).

Also, teams did not have all the skills necessary to perform their work well, so moving to multidisciplinary teams or having shared specialists (like developers, support, designer, marketer, businessperson) assigned to each team could help (Participant TM, Interview).

Lastly, it was mentioned that co-founders were burdened with the amount of work they are supervising, so a move to vertical management would be a solution, but it would require the company to grow in terms of the number of people (Participant TL, Interview).

5.2.3.2. *OKRs*

One of the OKRs issues was the fact that there was no one responsible for the metrics and “helping each team define the numeric values for these Key Results” (Participant TM, Interview). To solve this, having a specialized team that would “talk about the epics” that should be done, motivating teams to focus on it could help (Participant TL, Interview).

Additionally, “there was a disconnection” between the teams OKRs and the company objective, and the OKRs were not meaningful, specific, adequate to the work of the teams, nor challenging (Participant AT, Interview). This could be faced with the help of a dedicated person defining the OKRs and its metrics by making the objectives clearer, for example, by defining the OKRs based on outcomes (Participant AT, Interview).

Another issue was that an explanation about the OKRs was missing, which prejudices alignment, as “it is hard to be aligned to things that are not very clear” and that it was not

possible to “see clearly who is the responsible” person for the OKRs, and what happened if it was not achieved (Participant AT, Interview). This could be improved by creating a new and clearer format for the OKRs, improving descriptions of the OKRs and adding metrics to measure, with more details about the responsible person and completion score (Participant AT, Interview).

5.2.3.3. Scrum

Concerning Scrum, one issue was that OKRs were not defined by functionalities, so, someone needed to take ownership of that, “someone owning some part of the product”, helping teams “set the roadmap of the product” (Participant FG, Interview). Moreover, not all teams had a person executing the work of Product Owner, so it would be important for someone to assume that role in one team (Participant FG, Interview).

This person would be “responsible for being in communication with customer support, looking for customer feedback, being in communication with developers to be sure something is done, and they understand the priorities” (Participant FG, Interview). He/she would learn the details of functionalities and customer feedback, suggesting improvements, estimating costs/benefits, coordinating priorities, and solving dependencies.

Lastly, co-founders were supervising all the work, so having a Product Owner in each team to prioritize their work without any interference with the co-founders could be “an important instrument to help alleviate the top management, for example, with delegation of certain responsibilities to the teams” (Participant TL, Interview).

5.2.3.4. Product Discovery - Product Delivery

In terms of Product Discovery – Product Delivery it was mentioned that after discovering something new to do, it was a “pain” to implement it (there was no established process) (Participant AT, Interview). A solution could be to Implement Dual Track-Agile “to convert business ideas into development / into production” (Participant AT, Interview).

Additionally, “most of the people that are within the teams” were not “that much aware of what is happening with the client”, in the market and its risks (Participant TL, Interview). The suggestion was to do product discovery. As it was mentioned, by doing “discovery we will find opportunities”, and “we are going to take advantage of the new opportunities and not just being afraid of the change” (Participant TL, Interview). This way, “we can inspect and adapt” in the next quarter (Participant TL, Interview).

Finally, the fact that there was no one “doing a lot of market research” to discover most important tasks to do was an issue (Participant AT, Interview). It raised the need of “listen to the consumers”, “measure them” and “give this feedback to teams, so that they can inspect and adapt” (Participant TL, Interview).

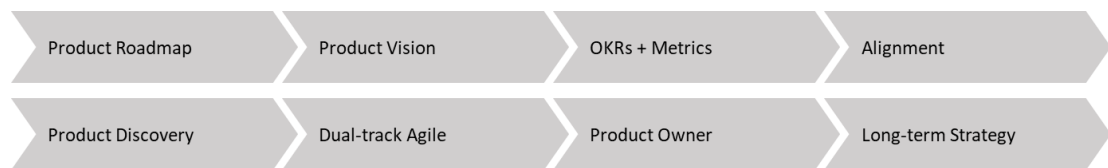
5.3. Planning

Based on the literature review initially done and the information collected on the previous steps, the work plan was drawn. Therefore, the topics studied were used in order to address each issue identified and the correspondent “possible solution”.

5.3.1. Items

In the Figure 6 it is possible to see the plan, divided in eight items (see Annex 9).

Figure 6: *Implementation Plan*



Source: Author own elaboration.

5.3.1.1. *New Product Roadmap Format*

Firstly, it was suggested to create a new product roadmap suitable for rapidly changing environments, by not having a precise timeline. Also, the recommendation would be to have an outcome-driven product roadmap, with a Product Vision, and following the structure proposed in the theory with three columns, addressing the “Now, Next, Later” goals.

5.3.1.2. *Define the Product Vision*

The following aspect that would need to be performed is defining a Product Vision aligned with the strategy of the company, as well as defining the long-term planning goals to achieve that vision, by speaking with the co-founders and team leaders of the company (a Vision that would guide strategic decisions and roadmap development). This Product Vision would have defined the “For; based in; who; the; is a; that; unlike; our product will; and currently out of scope” aspects.

5.3.1.3. *Define OKRs + Metrics*

The next item in the sequence is to define the OKRs and its metrics, that is, to define the objectives and outcomes to guide the activities to implement. To do this, the plan was to speak with all the teams through Trello and help them with the OKRs and metrics.

5.3.1.4. *Ensure Alignment*

A very important step is to ensure alignment. Defining the OKRs based on the company vision and communicating across all levels of the organization is a must. This could be accomplished with regular progress update, cross-functional meetings to discuss the future product strategy, with the support of tools such as Slack and Trello.

In this sense, the plan would be to present the OKRs board in a meeting with all the company members, create an okrs-taskforce team to evaluate the progress and also be present in planning meetings to reinforce the need of considering OKRs for prioritization.

5.3.1.5. *Product Discovery*

To think about the next steps, the plan is to follow the product discovery process, which comprises five phases. Thus, identifying good ideas with an Impact/Effort Matrix; develop the early idea stage, talking to customers to find out their problems; do the early design stage; creating prototypes to iterate; and, in the final design stage, creating high fidelity prototypes and test iterations.

5.3.1.6. *Dual-Track Agile in Business Development team*

The other methodology suggested was Dual-Track Agile, as a way to integrate product discovery and product delivery. The phases of this approach would be to expose problems; define solutions; short-list solutions; test solutions; and define the actions to take.

5.3.1.7. *Scrum: Product Owner on teams*

Once defined these initial aspects, it is necessary to play the Product Owner role in two teams identified, according to Scrum framework. The main activities planned for this item are to suggest improvements to leaders; participate in product planning meetings; facilitate/help estimate costs/benefits of each functionality; learn details of functionalities; present new ideas for functionalities; coordinate efforts; detect and help solving dependencies.

5.3.1.8. Define Long-Term Strategy

Finally, the last step of the plan is to define the long-term strategy to achieve goals. To do that, the plan is to meet with the okrs-taskforce team created, to discuss the current strategy. Then, based on new information collected from team members and from customer feedback, the goal is to propose a strategic plan to achieve the company goal.

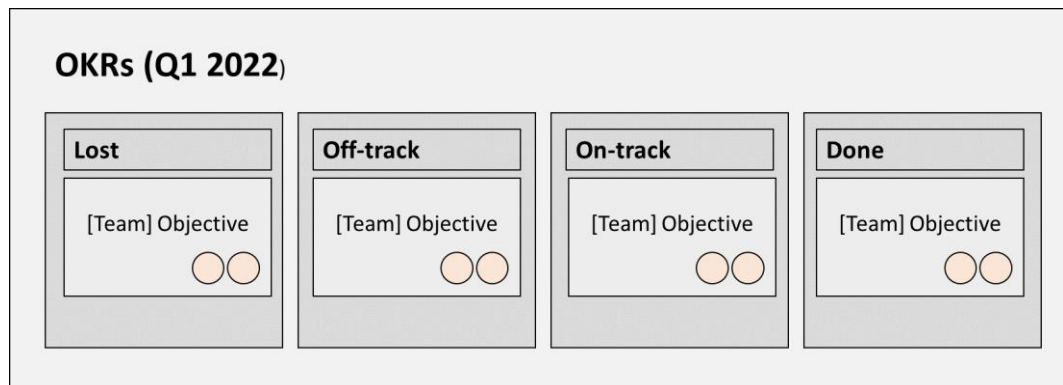
5.4. Implementation

The implementation activities were inserted in each of the areas mentioned above, mixing them in order to have a fluent approach (see Annex 9).

The first step to be implemented was the creation of a product roadmap board, using Trello tool, as a way of coupling with the need of having product roadmap formats able to change over time, due to the highly dynamic environment (Munch et al., 2019, p. 6).

Additionally, the idea for this product roadmap format was to follow an outcome-driven approach, in which the Product Vision provided the strategic direction, and the Objectives and Key Results (OKRs) translated the Objectives and Outcomes, respectively (see Figure 7). The rationale behind it was to facilitate the modification of the information as well as the addition of information, benefiting from Trello features.

Figure 7: *Product Roadmap*



Source: Author own elaboration.

The Trello card title would have the Objective, and the description field the metrics links and other relevant information. The checklists would be used to set a monthly

breakdown of the expected results for the OKR metric as well as a list the activities (Key Results). The comments would be used to register the results and notes across time.

Moreover, Trello would allow the team members to be allocated to the OKRs items of the board and, thus, be notified instantly every time the item is updated. This way, it would be possible to filter the cards and visualize information more easily (see Figure 8).

Figure 8: *Teams OKRs*

The image shows a Trello card template for 'Teams OKRs'. It is a vertical card with a grey background. At the top, it says '[Team] Objective' followed by two orange circles. Below that is a 'Description' section with a text box containing 'Metrics Links'. The next section is 'Custom Fields' with three text boxes labeled 'Score', 'Reviewer', and 'Team Leader'. Below that is an 'Appendix' section with a 'Monthly Breakdown' label and a text box. The next section is 'Activities' with a text box. The final section is 'Comments' with a text box containing 'Meeting Notes' and 'Results'.

Source: Author own elaboration.

The creation of this product roadmap followed an iterative approach, where a first draft was proposed, and after being reviewed, it was re-arranged based on the given feedback.

Therefore, the next activities related to the “Ensure Alignment” category, consisted of creating a channel on Slack with all the members of the okrs-taskforce team. The goal here was to guarantee a constant and fluent communication (Lombardo et al., 2017, p. 10).

Also, a Kick-off meeting was scheduled with the goal of presenting the first draft of the product roadmap format and receive feedback; to do a briefing of the current product roadmap and the existing OKRs, as well as defining the Product Vision of the company for the next period, as suggested by Trieflinger, Munch, et al. (2021, p. 9).

Meanwhile, a recurrent monthly meeting was defined, following Khanna (2018) suggestion of having regular cross-functional meetings on the operative level to discuss the future product strategy and the publication and communication of the product roadmap.

Having the Product Vision defined, and the team aligned, the OKRs started being defined for all teams. This process of defining OKRs took some time, as it was necessary to speak with all the team leaders through Slack and reach a consensual Objective to set.

Once the product roadmap was ready, the goal was to foster alignment with shared vision and goals (OKRs), as suggested by Khanna (2018), this time across all the organization. Thus, the new product roadmap format, as well as the product vision, objectives, and key results defined for the quarter were communicated in the “All-Hands” meeting.

The main goal was, thus, to show people the new format and to communicate the best practices that were recommended for them to follow. Moreover, the communication and discussion of the product vision and OKRs was important and seen thoroughly to ensure it was clear the intended direction of the company.

To collaborate with the definition of the next steps, Product Discovery activities were enhanced with projects to increase the feedback gathered. In particular, two main projects were identified and developed, the Cancellation and the NPS project. Each of them counted with the objective’s definition, recommended ideas, and implementation steps.

The main goal was to improve the subscription cancellation project, gathering more feedback from customers; and to listen to customers’ comments about the platform, respectively. The idea was to, based on that, improve the product/platform.

Therefore, the approach followed involved an initial contact with customers to find out what problems they have that Jumpseller product can solve, and then, after some initial prototypes of the ideas, talk with engineers to implement them during the quarter, and test them with iterations.

Then, the Product Owner role was performed with two teams.

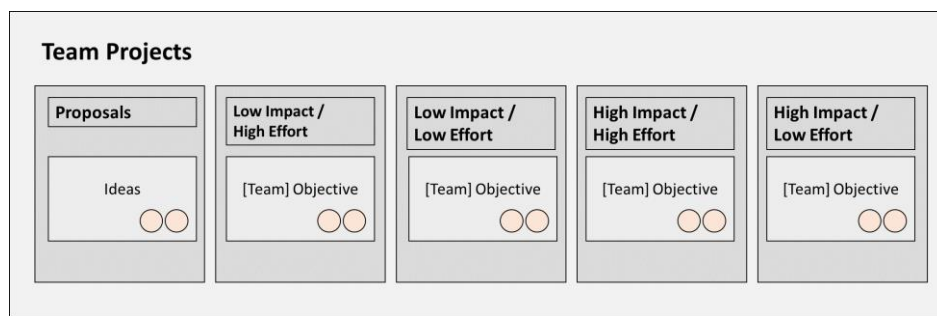
Starting with the work done together with the Business Development team, for the integration of the product discovery and product delivery in the roadmap in a combined way,

the Dual-Track Agile approach was followed, using lean sprints with time-boxed iteration cycles of two weeks (Maurya, 2016).

Firstly, problems were identified, and, in a shared document, each member of the team listed their recommended solutions, to define a plan to achieve the team's goals.

Then a board with the proposals to achieve the OKRs was created, to organize them. Each idea was converted into a card on the Trello board, with the people who suggested it assigned to the card. In a meeting, each of them was classified according to the Impact/Effort Matrix (see Figure 9). These activities were considered in order to suggest improvements and facilitate the estimation of cost/benefit of functionalities.

Figure 9: *Teams Proposals*



Source: Author own elaboration.

The next step was, so, to short-list all the solutions and rank them in order to define what to conduct in the current sprint. These activities were done during the sprint planning, mainly aiming at coordinating efforts. To determine the right things to develop, that is, aligned with the company's purpose, discovery activities were put into place (Cagan, 2008).

Firstly, research about what happens in Jumpseller platform when someone in a certain plan wants to use a functionality of the above plan was done. Hence, the details of the functionalities were learned, by listing all the plan features and describing the process.

Suggestions to improve the product were made and compiled in a PowerPoint presentation. Then, the work was organized and carded to pass to the design and development teams, being presented in its planning meetings.

In terms of the work done with the Onboarding team, it started with a meeting with the leaders, in order to learn about the product, detect and help solving dependencies, especially with metrics, giving feedback and organizing work.

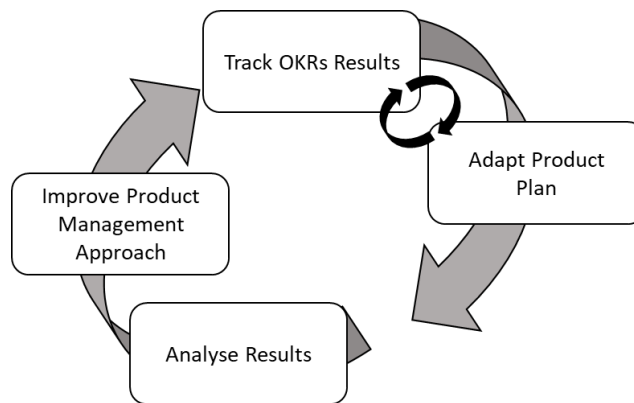
On this end, a weekly meeting for the team to align and coordinate efforts was implemented. It was useful to give the project status update, in terms of the work done and the metrics evolution, it was given a space to give feedback and based on that, determine the next steps. As output, a minute was done with a brief of the main points discussed.

It was also created a roadmap for the product, that listed all the activities done in terms of metrics, research and design, development, and content. To contribute to the work done in this team, a list of all the guided steps that would be listed in the onboarding was done, as well as its categorization.

5.5. Monitoring and Evaluation

To track the impact of the activities implemented on Widetail in terms of Product Management, the measures to evaluate the business and human outcomes were developed and deployed in an iterative cycle (see Figure 10).

Figure 10: *Iterative Cycle*



Source: Author own elaboration.

5.5.1. Business Outcomes

In terms of the business outcomes, in particular, the attainment of the business goal and teams OKRs was evaluated using performance indicators. These performance indicators, which were referred to as metrics, were defined together with the team leaders, and opened to discussion to all the members of the teams, and then, the necessary and correspondent queries were built.

During the quarter, the evolution of these performance indicators was monitored, being discussed in monthly recurrent meetings with the okrs-taskforce team.

These meetings had as main output something which was called “meeting notes”, which contained conclusions about the OKRs’ status as well as suggestions to improve. These notes were shared as comments in the Trello cards of the OKRs of each team, so that they could inspect and adapt as new information was found.

Thus, looking at the OKRs’ metrics, it was possible to see that out of the seven team OKRs defined, four of them were considered achieved, while three were not.

5.5.1.1. Business Development OKR

Looking in more detail at the evolution of each OKR, one can see that the Business Development OKR kept off-track during the whole quarter, achieving the done status only in the last date.

In this case, during the period, the meeting notes pointed to the importance of collaborating with other teams to be able to implement some development tasks timely, and to consider a sustained growth of the metric.

In this sense, the team counted with the help of a developer to automate some processes. Some members of other teams also contributed to the implementation of some projects. The activities planned also started to consider a mix of short- and long-term orientation.

5.5.1.2. Growth OKR

In the case of the Growth OKR, it happens that it was reached within the first month, so the conclusion was that it was not very ambitious.

By the end of the period, looking at the evolution of the number one could detect some instability, with some ups and downs as consequences of promotions campaign.

5.5.1.3. Apps OKR

For the Apps OKR, the evolution was a bit more constant along the way. Even though in the first month it was off-track, in comparison to the expected number for that period, already in the second month it stayed on-track, being achieved at the end, with a registered growing trend.

The meetings conclusions were that the team was very involved and identified with the OKR. The main activity that contributed to the achievement of OKRs came from workshops that the team did together, discussing how to achieve the OKR.

5.5.1.4. Support OKR

Support OKR was initially set with the goal of maintaining, even though trying to improve three metrics, as there was a lot of new people joining the team. During the quarter, the numbers kept stable, so the meeting conclusions were in the sense of meeting the expectations and what could be demanded.

Looking now at the OKRs that were not reached, two of them were mainly because the activities implemented did not have the time to be reflected on the metrics.

5.5.1.5. *Onboarding OKR*

Regarding the Onboarding OKR, it was not achieved. Still, there was some progressed made during the period, as a result of the suggestions of every review.

Initially, by the time of the review, it was not being anything implemented yet, as a result of bad communication between members and difficulties in alignment, which was then solved with regular meetings.

Later, with the metrics results still bad, the meeting conclusions were more on the sense of starting to set up dates for intermediary deliveries and having more iterations on the work done. By the end of the period, it was possible to have the work ready to be released, but the metric, understandably, did not reflect the impact of this.

5.5.1.6. *Mobile OKR*

Concerning the Mobile OKR, the meeting conclusions highlighted that there were some difficulties targeting the clients, so the business development team started helping on this end, identifying interested clients. Nevertheless, the OKR was not reached as the release was not completely ready, having still some bugs that prevents clients from using it.

5.5.1.7. *People OKR*

People OKR was lost right on the beginning. Meeting notes still pointed to the importance of keep implementing activities to improve retention which happens to realize.

5.5.1.8. *Company Goal*

Finally, the overall Company OKR was not achieved completely, but it seems that the company is on the right way for it. In fact, the number of stores is growing, and the churn rate is decreasing. Therefore, the only metric that is missing to be improved, in order to reach this goal is the conversion rate. For the next quarter, the goal is to assign resources to the achievement of this metrics, by having one team as the main responsible for it.

Generally speaking, these results allow to conclude that the OKRs are not bad, but there is a constant need of continuous work planning and small improvements/adjustments.

5.5.2. Human Impact

Concerning the human impact, such as the people's perception of the improvements made, two approaches were carried out. The goal was to be able to adapt the plan and the activities implemented based on a regular monitoring, and to have a detailed analysis of it.

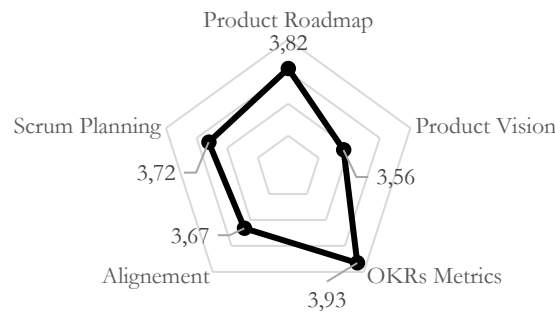
Besides from attitudinal information also open feedback was collected through a survey which was conducted by the end of the quarter, as a way of doing a general but thorough analysis and evaluation of the impacts and adapt based on that. The main outputs of the analysis are presented below, with annexes having complementary information that resulted from the analysis.

Before conducting the survey, a validation process was followed, in order to guarantee its adequacy to the case. Therefore, the traits identified on the best practice model suggested by Cormican and O'Sullivan (2004) were compared to the topics raised during the interviews (see Annex 10). The traits included in the survey were the ones who had a correspondent sentence validating its relevance to the company. Then, items were reorganized to fit the topics considered in the implementation plan (see Annex 11).

The survey statistical results collected are presented in the Annex 12. Figure 11 represents the average of the answers of all the members of the company about five key topics. Looking at this data, it is possible to build a ranking by category. The topic with a higher score was OKRs Metrics, followed by Scrum Planning. Product Roadmap was in an intermediary position, while Alignment and Product Vision scored lower.

The analysis of the open feedback goes in line with this, having a higher number of positive feedbacks talking about the best scored categories, and a higher number of negative feedbacks talking about the categories with lowest score (see Annex 13). A detailed analysis of the data collected identified the best and worst topics (see Annex 14).

Figure 11: *Survey Results Average of All Company Members*



Source: Author own elaboration based on survey results.

5.5.2.1. Product Roadmap

In this category, the topics with the best scores were the participative decision making, being customer driven, available resources, and information accessible. On the other hand, Product Strategy definition and communication, and the spanning of the external environment were the worst.

5.5.2.2. Product Vision

Related to the Product Vision, the effectiveness of the strategic plan, flexible strategies, long-term focus and submission of ideas scored higher, while formal idea generation process and the integration of customers and suppliers in product process scored lower.

5.5.2.3. OKRs Metrics

This category only had high scores for all the topics considered, namely, indicators aligned with goals, leaders involved in objectives setting, leaders accountable for results, indicators encourage behaviour, and members mutually accountable.

5.5.2.4. Alignment

In this category, the best topics were consensus in decision making; effective cross-functional teams; effective communication between teams; and leverage of individual skills in teams. The worst topics were communication of Product Strategy and indicators; conduction of user needs analysis; and use of Product Strategy to align priorities.

5.5.2.5. Scrum Planning

Finally, the effective product process; project mirror organization goals; projects maximize value; match portfolio with firms' capabilities; customers driven; and effective communication among team members scored higher. Formal process to prioritize; use of pre-defined, multiple and explicit criteria; and end projects when necessary scored lower.

Looking at the data results by team, and to build a ranking. In this case, Business Development team is the first one, followed by Checkout; Mobile; Onboarding; Apps; Growth; Finance; Support; and lastly People (see Annex 15). Looking at the results by years working at the company, it is also possible to build a ranking. People with 1 or less years were the ones who attributed a higher score, followed by people with 4 or more years; and lastly, people with 2 or 3 years (see Annex 16).

For each team and each layer of years working at the company, it was identified the two categories with the best and worst scores (see Annex 17 and 18, respectively). These results were also supported by the PCA (see Annex 19 and 20).

To better understand the results, a hierarchical clustering approach was applied, grouping observations according to their similarity (see Annex 21). The nodes represent each observation and the height of the dissimilarity between elements that are joined. Using the Cophonetic Correlation Coefficient (CPPC) to assess how well the dendrogram matches the true distance between observations, one can conclude that there is a relatively strong fit, as the CPCC is equal to 0.75, which is greater than 0.7. This means that the hierarchical tree represents the distances between observations well. Thus, it is possible to see that, generally, the elements have a big distance between themselves. Grouping observation in four clusters, one can see the elements that are more similar (see Annex 22).

Complementary, it was applied the K-means approach, where the groups were compacted according to the mean sum-of squares deviation of each observation from the centroid of its assigned group. Considering the two demographic variables collected, Years Working at the Company and Current Team, the clusters number was set to three and nine.

In the first trial, using 3 centers, the cluster 1 captures the observations with the highest mean values (group with 1 or less years working), cluster 2 is the one that captures observations with lowest values (group with 2 or 3 years working), and cluster 3 captures observation with the middle mean values (group with 4 or more years working) (see Annex

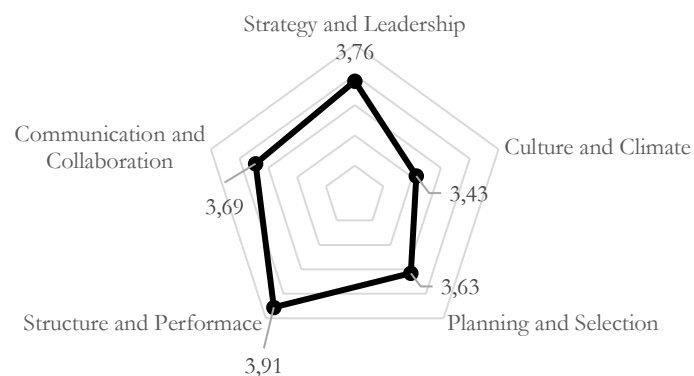
23 and 24). Similarly, using 9 centers, it is possible to see 9 clusters representative of the teams of the company (see Annex 25 and 26).

The ANOVA (Analysis of Variance) test was also conducted. It showed that there is not a statistically significance distance between the final clusters means values of either clustering trials. Clustering according to the years working at the company, the F value equals 0.064, and the respective p-value is higher than 0.05. Clustering according to the current team, the F value equals 1.977, and the correspondent p-value is 0.169, still higher than 0.05.

Hence, one can conclude that the differences between elements with different years working at the company are not very relevant, while differences across teams are more relevant, but still cannot be considered very significant. This led to the conclusion than even though teams may present some small differences in the average values attributed by each observation, which can be the reflection of some differences in the processes implemented and in the dynamic of each team, generally speaking there is a shared and similar opinion among all company members, thus representing the systemic situation of the company.

Lastly, it is also important to look at the survey results organized according to the categories used on the PIM scorecard (see Figure 12). It is possible to see that the categories with the best scores were Structure and Performance; followed by Strategy and Leadership; Communication and Collaboration; Planning and Selection; and lastly, Culture and Climate.

Figure 12: *Survey Results Average by PIM categories at the Company*



Source: Author own elaboration based on survey results.

In this final phase of implementation of the survey, an important step was the validation of the categories attributed to by the authors of the PIM scorecard, based on the results. Concerning the eigenvalues greater than one, the scree plot suggests a nine-factor solution (see Annex 27 and 28). The nine-factor solution has a good result in the percent of the cumulative sample variance, of about 75% (see Annex 29).

As the authors considered groups of two elements per category, the factors were associated as followed: factors 1 and 9 were identified as “Strategy and Leadership”, factor 7 as Culture and Climate, factor 2, 4 and 8 as Planning and Selection, factors 5 as Structure and Performance, and, finally, factors 3 and 6 Communication and Collaboration.

This final solution was analysed by the Cronbach’s Alpha test of reliability, with all alphas being greater than 0.7, excepting from the one associated with the Culture and Climate, which means that there is an internal consistency on the survey (see Annex 30). The exception can be understood considering that there were few items associated with that factor used in the survey. The associations between these constructs were tested by Spearman’s correlations, all of them presenting acceptable values (see Annex 30). Thus, the EFA provided the empirical validation of product management success factors. It can be argued that project success factors are robust and consistent across different organizations.

5.6. Iteration

Based on the analysis of the results that were driven from the monitoring and evaluation phase, and taking into consideration that the differences among groups were not significant, the recommendations were drawn for each of the categories analysed. These recommendations were discussed in the last okrs-taskforce meeting (see Annex 31).

The goal is that they are applied during the Iteration step of the research design, being, therefore, implemented during the second quarter of 2022. The suggestion is that during that period, the same monitoring and evaluation approaches conducted are applied, and that by the end of that period, the survey is again conducted in the company at hand.

5.6.1. Product Roadmap

In terms of Product Roadmap, the recommendations go in the sense of making a few changes on the top of the Product Roadmap previously suggested.

In order to improve the definition and communication of the Product Strategy, the first recommendation is to drop the concept of "target". As many metrics are new in the beginning of the quarter, they do not have an history, so it is not possible to accurately set a target value based on the past. The goal will, hence, be to track and follow its progress and throughout the quarter see them improve as much as possible.

In terms of spanning the external environment, a change in the card description is suggested, by having a "Main Metric", on which the teams should be focused on improving, and one or more "Secondary Metrics" to be monitored and hopefully also improve. This change aims at showing the team the whole picture of the important indicators, so that it does not focus only on the main metric and keep attention to other relevant external factors.

5.6.2. Product Vision

To define a clear Product Vision, the suggestion is to create a single product backlog, in which epics are defined and organized following a formal idea generation process. Moreover, the objective with this board is to compile the “Now”, “Next” and “Later” activities to be implemented, integrating customers and suppliers in the process. It is also expected that the possible solutions to achieve the global strategy of the company are studied.

5.6.3. OKRs Metrics

Considering the meeting notes that resulted from the monitorization phase, the suggestions for the next iteration are listed for each team’s OKR previously defined.

5.6.3.1. Business Development OKR

It was noted that the metric was a bit unstable, so, for the future, the recommendation goes in the sense of adjusting it for some parameters, such as the country and stores created.

5.6.3.2. Growth OKR

To improve the metric, the suggestion pointed out was to measure the Return on Investment to have a concrete notion of the impact of the money spent in campaigns.

5.6.3.3. Apps OKR

In this case, the suggestion is to change the metric, in order to measure, in detail, the impact of the sales channels. Thus, the recommendation is to use the number of sales made through each sales channel.

5.6.3.4. Support OKR

The main suggestion was to have for the next period only one OKR with aiming at improving the numbers, as it was the most important for the team, and for the company as well, while the remaining two could be used just tracked to ensure they keep the same value.

5.6.3.5. Onboarding OKR

For the future, the recommendations in terms of the metrics were to be changing it, as a way of having a metric more impactful for the company and that could be reached in consequence of the work done and planned for the team.

5.6.3.6. Mobile OKR

In the next period, the recommendations go in the sense of keeping the same OKR but trying to have dedicated team members to implement the necessary corrections.

5.6.3.7. People OKR

For the future, this team is advised to make a shift in the OKR where it is focusing on. Therefore, it is suggested to change the OKR to helping teams succeed.

In terms of the key categories evaluated in the survey, generally speaking, the company needs to work more on the Product Roadmap and Product Vision.

5.6.4. Alignment

In terms of Alignment, the recommendation is to continue setting the All-hands meeting to give the company an overview of the product strategy and indicators for the next quarter, making the OKRs visible and transparent for all the members.

Also, to improve the work done in terms of user analysis it is suggested that each team do research about the main metrics that it has impact on and listens to customer feedback to sustain the ideas.

Another suggestion is that the Scrum Master and the Product Owner are present in the definition of the OKRs, to help aligning priorities with Product Strategy. Therefore, the idea is that they collaborate not only with the definition of the Objectives and its metrics,

but also with the definition of the activities (Key Results) to be implemented during the quarter.

5.6.5. Scrum Planning

With the ultimate goal of successfully achieving the OKRs, and in line with the suggestions in terms of Alignment, it is recommended that all the teams follow a research – design/planning – implementation cycle. Therefore, for the next iteration, it is suggested that all the teams follow a two-phase process:

1. Retrospective: the suggestion for this phase is that the Product Owner, together with the Scrum Master would go to a meeting with each team, so that we could open a “space” for people to talk about the OKRs of the first quarter, what went well and what needs to be improved
2. Kick-off meeting: fifteen days after that meeting, the suggestions is to do a workshop with the team, to brainstorm ideas and classify their impact on the OKR, with pre-defined, explicit criteria, namely using the Impact/Effort Matrix.

The ideal situation would be that the team would have done some research between these two phases, to be able to sustain the ideas.

For the future, another suggestion would be to have a Product Owner in each team.

6. Conclusion

Within the field of technology management, the definition of a product strategy has demonstrated to be a very powerful tool to help organizations address their strategic challenges, by bridging the product vision and product roadmap, and so, informing business with the necessary portfolio perspectives (Trieflinger, Münch, Schneider, et al., 2021).

However, although the literature suggests several frameworks to define product strategy, those are mainly focused on the start of its definition/application (Carlos et al., 2018). Thus, “it is crucial to control the upgrading process, ensure flexibility and speed while absorbing the changes in the competitive environment” (Carlos et al., 2018, p. 333).

Additionally, even though management tools are indispensable for business and competitiveness, it is important to note that their fundamental purpose is to guide decision-making (Wright et al., 2013). Therefore, one cannot expect they can be suitable without proper customisation. It is crucial to adapt the tool to fit the situation, instead of adapting the situation to the tool (Kerr et al., 2019).

In this sense, two gaps in the academic knowledge are: (1) What is the most suitable approach to develop new products, that is simultaneously aligned with the global strategy and being prepared to answer to new challenges; and (2) How can a company define a Product Management approach and customize it in order to fit the company’s specific reality.

To answer to these questions, it is necessary to study and extract the lessons learned from companies who have both implemented the suggested frameworks and used them as a management tool. Thus, to address these issues, a collaborative Action-Research project was undertaken between University of Porto and Widetail.

The practiced-based approach was used to evaluate and reflect upon the various activities and procedural steps undertaken. The result is a tangible and detailed account of how Widetail approached the implementation of a product management strategy and customized the reference processes, as well as an analysis of the best approach to align product development with the corporate strategy.

Summing up the findings of the present investigation, one can argue that, to successfully align the product development with the global strategy while coping with the uncertainty typical from the highly changing technological environment, companies should: (1) create an outcome-driven product roadmap to facilitate planning; (2) define a product vision aligned with the company’s strategy; (3) define OKRs and corresponding metrics to

guide activities; (4) ensure alignment by communicating the company vision to the stakeholders and doing regular updates; (5) conduct product discovery activities to identify good ideas; (6) follow Dual-Track Agile to integrate product discovery and product delivery; and (7) include Product Owner role in teams to help with Product and use iterative scrum cycles.

To define a Product Management approach and the necessary customization of the management tools suggested by the literature, companies should: (1) understand the company's situation and needs to draft solutions based on that; (2) do iterations on the proposed solutions, using feedback and new information collected to improve them; (3) within the communication tools used by the organization, create channels dedicated to the topic to guarantee constant communication; (4) set kick-off and recurrent meetings with the most important and interested parties to, present new ideas, receive feedback, discuss the current situation and the Product Vision; (5) talk to team leaders to guarantee a consensus in relation to the defined OKRs; (6) include on existing meetings with all the members of the organization the topic at hand, to communicate the OKRs and foster alignment across the organization; (7) enhance product discovery by developing projects to gather customer feedback; (8) involve the team in the Dual-Track Agile process, conducting brainstorming, discovering activities, planning and prioritization activities together, to facilitate the progress to the implementation phase; and (9) do a constant monitoring while implementing the approach and a general evaluation by the end of a certain period, using items/measures previously validated, to ensure that the results of the analysis allow to identify areas of improvement that are relevant for the company.

The results of this study for the particular case of Widetail suggest that the success is very dependent on the planning, alignment, and adaptation. The involvement of the teams to discover what are the activities that allow to achieve a certain goal and how to improve the performance provide an important contribution. Even though it requires some effort, by doing so, the best ideas are selected, and the given feedback allows to adapt in order to reach the objectives.

As defended by Cormican and O'Sullivan (2004), "Improving the product innovation management is not about quick fixes but rather it is about recognising true symptoms, identifying their cause and then applying the appropriate treatment or remedies". Therefore, "the implementation of product development best practices can be viewed as a journey (i.e. continuing process improvement) rather than as a destination" (p. 828).

From an academic point of view, this provided a unique opportunity to gain a better understanding of the topics, by generating an in-depth knowledge and feedback about them resultant from the interaction of research and practice.

Through reporting this illustrative account in a real-live situation, one hopes that it acts as an example for both academic community and companies in similar contexts, as it supports other on their own implementation of Product Management approaches by describing the implementation process, discussing its results, and concluding lessons from that.

6.1. Limitations and Future Research

The present report explored the implementation of a Product Management approach in a particular Software company, which is an inherent limitation since the research is focused on a specific business sector.

Moreover, the participants in the interviews, which was one of the main methods of data collection employed, were all employees from Widetail who had, on average, more than three years tenure at the company, which may reflect some preconceived ideas and inputs.

Therefore, it would have been interesting to collect insights from employees with less years of experience, corresponding to the people who are now entering the company and have a different perspective on the issues faced.

Future research opportunities that flow from this investigation could be to explore the importance of Product Owner and its contribution to the work done in terms of Product Management, as well as investigate how to progressively include it within all the teams across an organization.

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8. Annexes

8.1. Annex 1: *Work Timetable*

	Jan	Feb	Mar	Apr	May	Jun
Study of the state of the art about Product Management (Literature Review)	X	X				
Definition of the methodology to follow		X				
Introduction to the company and work colleagues		X				
Conduct interviews		X				
Draw and implement a first approach to Product Management in the company		X				
Perform iterative improvement based on two weeks cycles:			X	X		
Learn the details of functionalities			X	X		
Communicate with all leaders, suggesting improvements and coordinating efforts			X	X		
Detect and help solve dependencies between functionalities			X	X		
Participate in product planning meetings at different levels (organizational/team level)			X	X		
Present new ideas for functionalities			X	X		
Facilitate/help estimate the cost/benefit of each functionality			X	X		
Collect the data of the internship				X		
Analyse the data and results					X	
Discuss results, limitations, and future research					X	X
Write final version of the internship report						X

Source: Author own elaboration.

8.2. Annex 2: *Facts Recognition by Participant Observations*

Theme	Field Notes
Company Foundation	Widetail created a subsidiary company in Chile in 2015. After that, it has been expanding its presence in Latin America.
Business Model	Provides e-commerce software services based on the Internet. Users pay a subscription plan, to share the costs of the software.
Structure	Teams: apps, checkout, finance, people, growth, onboarding, biz-dev, support, mobile.
Employees	During the last two years about 26 people joined the team, making now a total of about forty-five employees. Portugal has thirty-free employees, while Chile has eleven; and Brazil and Colombia both with one employee each.
Future Plans	The company intends to apply as well to “Portugal 20-30”, an internationalization project.
OKRs	The company OKR has not been reaching its goal for the last three quarters, meaning last year. Each team has its own OKRs, and in fact some of them were achieved, which didn’t translate in any impact on the company growth. It has been difficult to manage the product at different levels (company level, team composition, delivering to each team a functionality). The OKRs were built by co-founders, in the sense of doing epics (meaning, set as outputs)

Source: Author own elaboration based on field notes.

8.3. Annex 3: *Interview Participant 1 - Tiago Loureiro*

RP: Thank you for your time, Tiago. So, the first question is: how is the company in terms of the Product Management? Tell me about the work that has been done about this topic and anything else that you want.

TL: I think that we have made a lot of progress. We are much better than we were before. And the most interesting part is that now we start to talk about it. Now we recognize that there is a problem in here. Before, we didn't. Before it was a very small company. It was just 10 people, for example, we had at most 5 developers or something like that, so it was very easy for Filipe, the co-founder, to tell each person what to do, and we kind of divided into verticals. Like, one person was responsible for one thing, the other for another. And Filipe was all over the place, being responsible for everything else. And it survived for quite some time. But with the pandemic and the growth of the company, it became evident that we started to have a lot of problems. I think the biggest problems is that we constantly need to be competitive, we constantly need to be doing the next most important task, the most valuable next item, and if we are not doing it, it is a loss for the company, it is also a loss of motivation, even for the employee, that is doing something that there isn't much interest on, so he just starts to lose focus, and motivation. If we have specific and challenging projects and we show that this is important, that this is going to affect a lot of users, that this is the highest priority next item, I think it is also important for morale and for the teams. So, to be well managed in the project or in the product. And we made a lot of improvements. I think that the company, right now, is talking about it, is being aware of what we need to do, the epics of what we should do. We are starting to realize, for example, onboarding is a massive project that should have 3 teams being involved. We are trying to find a way to do it. Before we didn't. Before there was no management at all. It was a lot between Filipe and Matos, but it was more like: we group people, and then we tried to find something interesting for them to do. And now, we discover what is important to do and then we find the right people to do it. We are putting the product first, before we put the teams first. Because it was already the Porto office, or they are already the designers or the developers, and then we find something interesting for them to do. Now, it is the other way around. I am looking forward to seeing how it shows in the results, in this quarter.

RP: Ok, thank you. What are the main issues or difficulties that the company faces right now?

TL: Personally, I could answer in several ways. I could answer internally, I could answer externally. I could even answer in probably many other ways. But at least I remembered two perspectives. Maybe I could start with the external one. Like, the challenges that the company faces, for example, after the pandemic, because we grew a lot when the pandemic started and during the pandemic and now, we are starting to see people coming out of it, out of the pandemic. We are not aware if we are going to have a crash, like a big decline in sales, we have no idea if, for example, things are going to continue to increase, if other competitors are going to show, if, for example, something new is going to appear in Chile, our main market, or not. But there is a lot of uncertainty caused by the end of the pandemic, and exactly how is going to be the economic landscape. So, that, I think is the biggest challenge, because it affects, for example, if we are going to continue to hire more people, if, for example, the budget that we have for certain projects is going to be there or not, if it makes sense or not. Or if, maybe, we should be less expensive, like, contract investments, start to save for a winter. It could easily happen. So, I think we are still in this big challenge. And I think that Product management can help with that because if we are aligned, we can change in the next quarter. Every quarter we can review it and every one can be allocated to the next most important thing. If we don't have Product Management, everyone is a little bit doing everything else, the results start to go sideways, and without notice we could have a big crisis. So, that's it. That's the big challenge I think that we have, it's the post pandemic.

Internally, I think it's the change. Every time that we change the status quo, we have no idea how it is going to work, if people are going to be happier, if people are going to leave the company., if things are going to be for the best or not. Every time that we are putting a lot of entropy into the system, we don't exactly know how it is going to consolidate or end, and I think that we are facing a lot of entropy, a lot of change. With the pandemic we hired a lot of people, and this change it's good, but also, at the same time, it's risky, and we really have no idea of what we are going to metaphor into, and I think that is also the biggest change that we have. How to accommodate... For example, before, as I was saying, we had a very strong leadership, like the co-founders were all over the place, and now we are meta morphing into something that is more vertical. Before we had a very horizontal management, now it's more vertical management. How to leap into a new kind of company that we want,

that is ready for this challenge of being bigger, having a lot more employees, and, hopefully, growing with the right culture, or else, you know, we end up with Filipe and Matos being working a lot of hours, exhausted, but still the front-line employee is doing things that he shouldn't, or even thing that are hazardous for the company. So, that's the challenge I would see internally.

RP: Yes. You mean, like, regarding the people, right?

TL: Yes, internal organization. We are changing significantly because of size and being bolder. When you have more money, you need to be bolder in the decisions that you make. Are we going to hire more people, can we keep them for the long term? Can we keep salaries raising all the time? How are we going to find revenue to pay for all of this? And even when we grow bigger, we want to feel good in the company, to be motivated, and to feel empowered, and to keep involving, but as we grow, our attention span is smaller per person, so I think it is very challenging, and, again, I hope that product management has a solution for this, because it is going to be an important instrument to help alleviate the top management, for example, with delegation of certain responsibilities to the teams. And then, even those teams to have their own product management, where they can prioritize their work without any interference of Matos or Filipe.

RP: Thank you so much. Moving forward, my last question would be how do you see these issues that you mentioned being solved, and what are the main needs that could be answered with the work of Product Management?

TL: The first one was the external threat, so being faster in your cycles, the learning cycles, because before, I think there was a kind of a disconnection between us and the market, between us and the client. When I mean us is the employees, is not Tiago Matos or Filipe. They probably are aware of everything, but most of the people that are within the teams like the team members, like the frontline employees, I don't really think that they are that much aware of what is happening with the client. So, that disconnection can be catastrophic in an event where the market is shifting to a bad part, or to a very different reality that you were not expecting, and the people are still producing the same services, the same products, without really understanding what is going on. And I think that Product Management in

here, is key, because you are listening to the consumers, you are measuring them, and you are giving this feedback to the teams, so that they can inspect and adapt. Every sprint, at least, every quarter. And I really hope that, for example, this quarter already people start to come with inputs and this product team, or people that are more related with product, with metrics, with listening to our consumers, they can come up with ideas and insights, so that the next quarter, the whole company adapts, you know. If the market is changing, it is not a problem because we will change with them. We will do discovery, we will find opportunities, when this could be a risky thing, we are changing with Product Management to a profitable thing. We are going to discover, and we are going to take advantage of the new opportunities and not just being Afraid of the change. So, that's how we can face the first risk.

The second one, the internal one, as I was saying, that Filipe and Matos were running the show with Product Management, we can delegate, we can trust the teams, and hopefully, empower them, and even the workers can train, and they can learn faster with their own decisions, and I think they can do a much better job than what Filipe and Matos were doing until now. I hope.

RP: Ok. Thank you so much Tiago. It was really helpful, and I will take that into consideration.

8.4. **Annex 4:** *Interview Participant 2 - Alejandro Troncoso*

RP: I just want to thank you for your time to help me with this, and, basically, the goal of this meeting would be for me to understand better how the company in terms of the Product Management is. Like, what are their practices and so on. So, I would just do 3 questions, very quickly. So, first of all, I would like to know how would you describe the company situation in terms of Product Management? Tell me about the work that has been done about this topic.

AT: Okay, Product Management. Not sure really where to start...

RP: Do you want me to...

AT: Can you help me with an example.

RP: Yes, yes, of course. What I refer here about Product Management, would be like the work that has been done regarding the OKRs, for example. How does the company define them, in order to then build its products and choose what to do? Also, for example, how is the coordination between the teams to do products? Because there are some products that involve different teams, right? So, how would be the coordination?

AT: Ok. So, I will start talking, and you tell me if you need something in particular. So, I think... Well, in the past, we had only one developer, and we decided at some point, in the last three years, that we would split these teams based on the customer experience. Do you understand what do I mean with customer?

RP: The merchants that we have in our platform.

AT: So, I mean, actually, the actual customers from the stores. The themes are based on our customer experience. So, let's say... I will share my screen...

RP: Ok, thank you.

AT: Just to give you some context. I will feel more comfortable. So, this is a Jumpseller store. Just an example. We divided the experience in this. We have, one experience here. These are shoes, this is a category, I have some filters, I also see some promotions here. I click, I see some recommended products, okay? So, this experience is what we call the store experience. It's where the customer needs to spend a lot of time, adding a lot of products, reviewing very well every characteristic, to be sure people buy his product. So, this is the store experience. But then, when I add to the cart, there is another experience. And now, this experience is what we call a checkout experience.

So, basically, before, we only had one development team, but then we decided to split it, based on the customer experience. So, then, we created the store team, the checkout team, and then we created the apps team, because the experience is a bit different. Well, that is an exception. The experience is a bit different; an application follows a different architecture from the core system.

Ok. So, this is how we decided we would go to improve the product, based on experience. And we split the development teams, and we created, of course, more specialized people, that are dedicated to only one thing. But naturally, there is a problem now. Before, every developer knew what promotions were, for example, and now only few developers know what promotions do and how they work, right? Ok, this is just an introduction to how we decided to create teams and then we created another one. So, this is basic development, how we decided to create teams.

RP: Ok. That's great. I didn't know about that, like, the customer experience.

AT: Yes, basically, what defines a team is their commitment to the customer experience. That's what define them. So, for example, the OKRs are based on this same thing. Let me add the context here. Could have some visual context. So, improve the checkout experience. This is a very bad OKR. This is basically the mission of the checkout team. It's, basically, its definition. It's ok because it is the definition.

RP: Yes, but then they have, for example, the key results, like 10 stores using the payment, request API, and increase the conversion.

AT: Request API, fast checkout. Oh, we will use the fast checkout, this is awesome. I didn't notice it. Yes, but basically, all the OKRs are based on this experience. Well, the store team is a bit challenging. This is not an OKR based on the experience of the customer, right? It's a bit... It's tricky. This is not the best decision in my opinion, because we were not focusing on what is important for us, which is customers buying to our merchants. Because, for me the best strategy of the company is just to have a minimum turn, is to get people buying, right? But whatever, it is a first step. Well, in the beginning the OKRs were focused on the experience. Perhaps this changed. There is a good reason here. If the onboarding is well finish and if we don't have so many problems, the customers will have a better experience. It is indirect. But that's it. So, we are very connected with how customers, we are trying to be closer to the customer experience here.

AT: If you have questions, it would be good.

RP: Yes, yes. As the next question, I would say: What are the main issues and difficulties that you think that the company is facing?

AT: Ok, so I will talk about this, but I forgot to mention the support OKRs. In the past, we had, I believe, the wrong OKRs for the support team. They were focusing, for example, in content creation, but they don't have any planned work. It is a very receptive team. We have a problem today and it needs to be solved as soon as possible. We cannot plan for a month, you know? It is impossible to have planned work because the unplanned work goes straight to your face. And this is the first time that we have managed to have an objective that is really the only objective that is important in the support team. People be satisfied, quick replies and quick resolution. For example, I had a problem with Airbnb, and it took them one hour to refund me the money. And it was a lot of money. So, that is good customer support. Because I was kind of annoyed that something didn't work, it was a lot of money involved, and get it solved in a couple of hours, it was a great experience. And this is the first time that we have, in my opinion, a good OKR for the support team. I didn't want to talk about problems, because these methods... these things... these decisions, they always have a problem. One problem is that we don't have an instance to review the OKR results. I know that you are trying to fix this. Now, there is not an instance when we are going to review.

For example, discuss that this is a 50%, this is not a 70%. We don't have an instance to discuss upon this issue.

RP: You mean that there is not anyone being responsible for reviewing and seeing if it is going well. Is that what you mean?

AT: Yes. I don't see clearly who is the responsible, for example, to get answers about what happens if we don't improve the full resolution times. What happens if this is 0.0. What happens? What actions will we do to improve this? Or are we going to consider it or are we going to do a meeting or something. This is something that we need to define. What would happen if we don't reach at least 70% of the OKR?

The other problem I see might be a problem with metrics. Who defines the OKR? If it is the own team, they might be disconnected with what is really important. For example, the example with the store... They decrease the development tickets. Ok, it's a boosted thing, but one way to decrease the development tickets is to just close the email, you know? We don't receive more tickets. We don't really want to decrease the development tickets, we want development tickets, because we get feedback from people. So, I think there is a disconnection between this objective to the customer experience and I think we need to... There is a bit of disconnection. The same, for example, with increase the usage of sales channels. Perhaps, we lack an explanation. Why did we decided this to be an objective? For example, this is interesting. Why did we choose this objective? Probably because we don't have many stores using our great sales channels. Yes, if that is the case, it's fine, but we need to have a note on why we chose this.

RP: Interesting point.

AT: That's a point that perhaps we could take into consideration.

RP: Because, for example, do you think that the whole company is aligned with these Objectives and Key Results? Because when you mention that there is not an explanation, maybe even the...

AT: Yes, it is hard to be aligned to things that are not very clear. How can I align with this? Is it bad to have tickets? What do you think? I think it is good that people are communicating with us. There is a lot of work to do, but I don't think this is something that need to be decreased. Is just that, perhaps, we don't have a very... I don't know... There might be more instances, but this is an improvement compared to later years.

Filipe was responsible for this, but if I was Filipe here, I would have gone to every team: Hey, we are thinking of this for the store team, what do you guys think? I would try to get political about this, to get support for my idea. It takes a minute, it's not too much work, really. This is how I work on support. I always try to convince people before changing something. Like, I don't know... "Hey, we have too many emails on the weekend. What do we do about it? We open a shift on the weekend?". Nobody wants to work in the weekend. Of course, nobody wants it, but we have that problem, so it was a negotiation. A lot of negotiation to figure out what to do, until we decided as a group what was going to be the solution, and we opened weekend shifts, we have an award, kind of something that you get. It was a conversation, and I think we are missing this phase. But in general, the objectives have improved. If you check previous years, probably you have, they were terrible. Very bad objectives.

RP: You can click, like, here, if you want to see for the other years.

AT: Ok. Let's go to the first. Let's go to the history. Ok, reduce churn rate, good. You know, it's basic. Increase platform robustness, very bad. What is this?

RP: Yes, there is no explanation of what it means.

AT: Faster and less support requests. This a mislead, probably my fault. So, no care. Here, the person who wrote this, probably me or Tiago Matos, we did not care. This... What is this? So, no description whatsoever. Let's go to the next year, 2020. Sustain Jumpseller growth. A bit better, but what does it mean? Sustain Jumpseller growth. What the hell? Increase fulfilments. Increase the number of companies? This is not very specific here, nobody cares.

Let's go to the last year, just to give you some context, it was the pandemic blowing up in our faces, so we didn't have really time to plan. It was reacting, mostly. So, here, it is a bit better, you know. You can see that Loureiro started to question: "Hey, we have a risk here, we have most of our customers in Portugal and in Chile, and if one of these countries fail or have a problem, we are done". And, you know, with pandemic comes inflation. It might be very bad.

Increase customer experience, satisfaction. So, this is a bit tricky, because the customer satisfaction with the design was very good. One hundred percent of the tickets that are attended by the design team are positive feedback, so this is a one hundred percent satisfaction. So, they chose this one because it was already good. It was to just choose something easy to do. Not very good. Diversify outside Chile. It doesn't make sense with the support team. I wrote this, but it doesn't make sense, as the role of the support team is not to diversify, that is for the growth team. So, it was a bit of a broken OKR. And that's basically the example I wanted to show.

Today, we are discussing more, but we are still in need to discuss some more. Probably that is the reason why this is yellow. Yes, I think that is what I have to say, unless you have some questions.

RP: Yes, I have a last question, that would be: How do you see these problems being solved, like, what would be the needs that the company have that could be answer with the work of a Product Management here in the company.

AT: This is just conversation... So, we need to create instances of shared interest, and that's the only solution. For example, there is not a lot of communication between the... let's say... between the business team and the design team, or the product design team. There is not a lot of communication here, but from the support team and the design team, we do have a shared interest, which is the satisfaction of the customers, so we talk a lot. I know the names of every people of the support team, where they live, what they like, what they do, because we have so many instances of conversation. And this something that we need to improve. We are hiring. People culture is the key now, I believe, in order to improve. To get to know each other a lot, to just talk more. We are only 40 people; it is really easy to get to know.

RP: The company is still growing, so do you think that the fact that it grew so quickly with the pandemic had a negative effect on the communication, on the way people work, motivation and so on?

AT: Well, pandemic forced us to stop most of the planed work, and just to be very reactive on things, so we might, I believe, have been more behind than we should.

We wanted to create so many things before the pandemic, you know? We wanted to have a POS, for example... a POS is a system. For example, you have a Jumpseller store, lets say this, and you have a phone in your hand, and you also have a physical store. So online store, physical store, a phone. We always have this mission: ok, I want to sell you a product. Ok, let me grab my phone, take a picture to the barcode, and then, we create an order in Jumpseller, just from the picture, and click on a couple of buttons, and then you discount the inventory from your shared inventory, between your online store and the physical store. This is the POS system that we are planning know. But the problem is that we had it planned for the pandemic, but in the pandemic, everybody was wanting this. Everybody wanted to have their physical store converted to a virtual store, but they wanted to keep their inventory synchronized, and we were left behind. And now, all of our competitors have that, but we don't have it, because we didn't have time to do this planned work during the pandemic.

RP: So, do you think that, for example, now, if we start again focusing on this product management, we may have a positive impact, and maybe fix this...

AT: Yes, of course. In comparison... For example, with Antero Gandra, it was a good start. He is a product designer, so now we are thinking globally about the product design. We have now this. We don't really have someone who is doing a lot of market research. This is something that we might improve as well. Like, I know what our competitors have, because I have done the research for the support team. If someone is asking something in support, and we don't have it, before saying we don't have it, we go through all of our competitors and check if they do have it. And if they do, we create a card, you know, as a proposal. But we don't have someone... It was not part of the business development area to study what our competitors do. Now, I am there. Perhaps I can help with it. But the addition and the

creation of the product design team was a good idea, just because they can oversee all of the rest of their work and have a vision on how it will look for the merchants.

RP: Yes, because, for example, do you think that it would be a good idea if the business development team also is focused on doing market research, studying what is the customer needs?

AT: So, this is the first steps. But let's say... For example, I do all this research. For example, I go, and I study the wine market in Porto, and I see where the companies open their online store. I see what these other platforms offer, and me and the team, we decided that this is what we need to be the number one e-commerce solution for wine companies in Porto. So, I did the research, I add the points. And now, what do we do? What is the next step? We need development, and that is going to be a pain for me, as a business developer member who is not a developer. Of course, I can read a code, I can understand how a code works, perhaps I can write some code, but I am not a developer. So, it is very hard. I think this might be the main problem, since we talk about problems. It is very hard for me to convince development teams to execute a project. Because the development team... Sometimes they have their own interest and are not very aligned with the business. Or, perhaps, my research was not important. Perhaps the reason why we fail to get a developer it's because my research was not good enough, or I needed to do something else. We don't have a structure here to convert business ideas into development / into production. So, for me, what I do is just, I talk to the responsible of the team, I go, for example, to Bruno checkout, and Bruno says "No". And then I go to Filipe, and he says "Yes", and then Bruno does it. So, for now, it is just very mean doing these stuff. But I see for Javiera or for you... If you do some research and you have a proposal for development, it will be very hard to get some help. It's very, very hard. And, for me, the wine project is something that I have in mind, but I see some of the difficulties that we have, and I decide to do something low effort.

RP: I totally see you. I think that's an area where maybe we can work on in the future. Like, product discovery, that is exactly this that you are talking about. Seeing the customer needs and see what is the product that we may build next.

AT: Yes, for me, the wine thing is very simple. I talked to Vivino. Vivino is an app where you take a photo of a wine and it tells you the opinions of other people, basically. And if you are a wine company, you want all your wines, there. Super simple. And in order to put your wines in that application, you need some technical staff. And that technical staff, we don't have it, nobody has it, but we can make it, and is literally a two-hour work, no more than two hours work. But I don't even know where to start. I am trying to convince Pedro França, for example, and he changes the subject. But it's like, how do I start? I created a card just to see how to start, but how to make it happen? And it is just a two hour work. For me, I am not a developer, but I can do it, I can program it, and it will take me, I don't know, 20 hours. Let's say, 15 hours to learn what I need to learn, and 5 hours to implement it. But if I do this, I will stop doing everything else. So, how do I move forward? And this is something we need to improve it. And, perhaps, if you are listening to my difficulties, it is this: converting business ideas / product discoveries, into actual products.

RP: Yes. Thank you so much for your time.

8.5. *Annex 5: Interview Participant 3 - Filipe Gonçalves*

RP: So, I would like to start asking you how would you describe the company situation in terms of Product Management? Tell me about the work that has been done about this topic and so on.

FG: Ok. We use Scrum to manage the team activities, and with Scrum it comes a part related with Product Management. Normally, there is a Product Owner that sets the Product Roadmap for the team, and then there are other team roles, but not so much about Product Management. In some teams we have a Product Owner. Let's say, for example, on the store team I do the Product Ownership role, I think that in checkout it is Bruno, but it is also shared with me and Tiago Matos, and in the apps, we do a mix of all together. For example, we don't use so much the Scrum as it is said on the methodology, where there is only one product owner.

RP: Yes, it is like a shared thing, as many people are responsible for this.

FG: We have a meeting every two weeks, the planning meeting, and during that meeting, on the first part, we talk together about what should be the priorities for the team, because, normally, people work with different partners. Sometimes we need to give higher priority to something, compared to other. Also, there are some people working on customer support, so those people sometimes might request higher priority. There is a mixed input from different people. It is not a single person that is active on all areas of the team. In most of the teams, the roadmap also comes a lot from our customers. If we think of a functionality, or, let's say, a bug, that our customers are complaining about, or if a lot of them are requesting a certain feature, we might give higher priority against the rest.

RP: Yes, it is something like: you have a plan, but you also have to react and see what is going on to adapt it.

FG: Yes, yes. Every three months we use OKRs like a vision of where we want to be in 3 or 4 months, to set up a target. But then, during these months, things happen, like a lot of customers request certain features, or sometimes we may have an issue with certain part of

the software, like it have happened in the past. For example, with the security, one year ago, we had some problems. We had to develop a lot of security functionalities in the product. So, we have to react with what is happening during every week. But in general, we use OKRs to define a vision for the next months.

RP: And how are they defined? For example, is you and Tiago Matos, that are the co-founders, or do you involve the team representatives?

FG: In the past, it was more of me and Tiago Matos, yes. But now, as time goes, we involve other people also. In the past we were using a lot of OKRs based on functionalities to develop, or thinks that are not so measurable, and now we are more aligning the OKRs with the business objectives, so that, the success of the team also brings success to the company.

RP: And, for example, what do you think that are the main difficulties that the company is facing, taking into consideration the current situation, and all the changes that you already did, the growth of the pandemic, and so on? What do you think that are the main difficulties?

FG: I think that a lot of companies accelerated during the pandemic. It was once in a lifetime event. Of course, a lot of growth that we thought it would come later on, came faster, as it came one year ago. Of course, now, there is a slower growth. I think now, it's more of having a better product compared to other competitors and also, it's a bit to keep improving our product. We also need to create more awareness about the product. For example, a lot of customers complain that our product is not good in terms of designing, like, designing the store. That's a big part that we have to improve. I think that we created a lot of functionalities, as themes, or features, live settings, etc., and it became too confusing for certain parts of the product. Like settings and maybe shipping, it's really confusing right now. We need to work again on that part, because a lot of people are complaining when they create their store on Jumpseller. I think there are also big players that sometimes come with new business models. For example, MercadoLibre, in Latin America. They are now having economic shops, called mercado shops. In the past, they were only charging a monthly fee. Now, they changed the business model to only charge a commission. I don't think they have much more on their pocket, but we have to react to these external forces, change our business model, change our product. We have to be constantly adapting.

RP: Do you see some difficulties in the implementation? You have all these ideas, and, for example, you can see your product changing in order to answer the needs, right? So, do you see some difficulties in implementing it, or defining what to do?

FG: Yes, I think we need to work more on the ownership of a certain functionality. I think an issue is, let's say, some companies have like a team of product owners, where they have meetings, they set the roadmap of the product, and each one is responsible for a certain part to deliver. We don't have so much that. So, let's say, for example, the mobile app. We have been for a long time trying to release a new version, it's taking too long. I think it is also a natural cause of the size we have. We cannot still have a lot of people involved in management. I think it's a tower size. We have people more on operation of the product, on developing it, on support, on marketing.

RP: Because, for example, with the pandemic, the company grew, right? And maybe these problems with the product and so on were a little aggravated, but you still don't have the capacity to have a whole team being responsible for product development, right?

FG: Yes, we don't have like this middle management that deals maybe with product ownership. They have their own targets, for example, target with time it takes to deliver something. Yes, I think it is something on the company, but I think that overtime we will solve. I think, a lot of problems are solved with growing more, because by growing more you can put more people on places where they are lacking.

RP: And, for example, in order to answer these needs that the company has, as you mentioned before, like growing awareness, improving the functionalities and so on, do you see that product management can have a contribution here, and in which way could this be answered with this work?

FG: Yes, I think that someone responsible for owning, like a Product Owner owning some part of the product, would have helped, because that person would be responsible for being in communication with customer support, looking for customer feedback, being in communication with developers to be sure that something is done, and they understand the

priorities. Because you might tell on the planning that there is a certain priority, but if it's not someone following that day to day, I think that sometimes that priorities are lost. And I think that some supervision always helps. And also, someone that can talk with, like, sometimes we have to talk with partners to help with a certain integration, and normally, the developer is not the most interested part in going to those meetings, because they prefer to be working on the code and all of that. I think it would help a lot improving the product.

RP: Yes, thank you so much. I think we went through all my questions. I don't know if you have something else to share, that you didn't mention so far.

FG: I would say like... For example, on these OKRs we put on the teams, we put OKRs related with strategy. Let's try to reach this certain objective. In the past we had objectives for certain functionalities, for example, "let's deliver this semester on mobile app". Now, we don't have that, but if we have a team of Product Owners, then, they could have certain targets to deliver a functionality by a certain time. For example, I have talked to other companies that have a Product Owner team, and they are... So, let's say, in software development, when there is like a big functionality, we call it an epic, and they have certain targets to deliver an epic. Let's say, this epic should be delivered in two months, these one should be delivered in three months. And this Product Ownership team is the one that has that goal. Because they can, sometimes, cut a little bit of a functionality to be able to deliver faster, or they can work on the priorities of that epic, and I think we don't have that right now.

RP: And just one more topic that I remembered, regarding product discovery. For example, new products or listening to the customers to think about new ideas that we haven't thought so far and that we could implement. Do you see that being done in the company at the moment, or, if not, do you think it would be a good idea?

FG: I think it's done. I think we have a lot of ideas for our product. If you look at Trello you see we have hundreds and hundreds of cards, but we cannot do all of them. I think that because they come from so many directions. They come from support, they come from people working on the company. They come from, so many areas. I don't think it is something that we lack.

RP: Maybe there is just the need to prioritize them better and making sure they are delivered, because some of them...

FG: Yes, like someone that can bridge. Someone that can bridge external support, that can bridge conversations with external entities, and that can bridge that with the developers. And that can take responsibility for something. That can allocate the resources the team has, like developers, to allocate to a certain priority. I think it is something missing.

RP: Yes, yes. Perfect, for me I went through all the questions. Do you think there is something else that you want to add?

FG: I think that all of this is still an experimentation. I think that every few months we may select a change, as we made now with teams and OKRs. I think as we go, we are also learning the process and what looks better.

RP: So, I will take this into consideration, and I will try to help to see if we can make some improvements here.

8.6. Annex 6: Interview Participant 4 - Tiago Matos

RP: Thank you for your time. Tiago. The goal of this interview would be for me to understand a little bit better what are the company needs in terms of the Product Management. So, the first questions would be how would you describe the company situation in regard to Product Management? Tell me about the work that has been done about this topic so far.

TM: So, what we currently have is that a lot of a Product Management comes from inputs that are direct from merchants, our clients, and they are absorbed, processed and categorized, or they are better defined by the support team. They always have a lot of feedback, and they create proposals for new projects. Each team that we have, also has the capability of proposing any new suggestion, and the proposals are normally analysed and sorted by priority. That work has been mainly done by me and Filipe, and now we are trying to move away from that, having teams that are more independent and that can align their activities, their projects, with the business goals. In the past, we had also, every quarter, me and Filipe, we would talk with... and this is still valid, but perhaps with the inputs of more people, with the input of all these teams. But, in the past, last quarter and previous ones, every quarter, me and Filipe would sit and talk with each of the teams. For example, we started with the support team, which I mention, it's the one who have more contact with clients, so they have a lot of proposals for new functionalities or problems to be fixed, and we would set a meeting with the head of that team to listen what would be the major projects or problems that they would like to have solved. And we would go to each of the teams, to one of its members, and we would do the same. This would create a Trello board, I can show you and send you the link of the previous one, of the quarter 3 2021. And on that board, we would compile all the ideas, and we would do some prioritization, in the sense of Should Have / Must Have. Basically, we would like to access what could or should be done, and after that we would present it. We would also divide by teams all this work, and then we would go again to each of the teams, me and Filipe, presenting what were the results of this work, and that would be in terms of projects. That would be a kind of kick start meeting for what would be the next 4 months. Then, on a weekly basis, more like on a day-to-day, they would organize all these activities in a Trello board. As you know, we use scrum cycles of two weeks, that's very classic. And we follow the classic Scrum process of doing daily meetings of 20 minutes per

day, with everybody that works on that specific team; review meetings every two weeks, following a retrospective, in which we aim to improve the process, see what went well and what went bad. And then, planning sessions, that also take around one hour, two hours, where we plan what will be the next scrum cycle of two weeks. We are trying to also increase the cross-team work, by joining one support person, and one design person, maybe in the future, one businessperson, we can call it like that, or a person more oriented to business or marketing, to each development team. That is currently what we have.

So, basically, what I am trying to say is that, not only the team itself, which is mostly operated by developers, would attend these meetings to help decide what would be the next sprint, the next iterations of the product. Each team works in a different way. They all kind of follow the scrum process. Some of the teams are strict scrum. I would say that the apps team is the one that follows more the Scrum principals. And others like, for example, marketing, or others, follow more the Kanban approach. They just want to see activities going from backlog, to doing, to done. I would say this is the current process.

RP: Let me just ask how would you see this integrated with the definition of the OKRs in the beginning of the quarter? This work that you talk about, listening to support, and then talking with each team, is it based on that that you build the OKRs?

TM: Yes. Every quarter, we set a company goal, then we ask each team to set goals in the sense of objectives and key results. And also, especially in the past, not so much anymore, individual OKRs. That framework comes from Google. It is called OKRs, and they are widely used, and they give a sense of alignment within the company, more in a mid-term approach, like full year, semesters or trimesters. I don't know if you want me to explain more about OKRs. The OKRs normally happen before anything that I just described.

RP: It's good. Then, we can forward to the next questions, that would be: what are the main issues an difficulties that you think the company is facing?

TM: As I said, we are trying to bridge the teams, because right now the teams are not multidisciplinary. They are for example, teams of designers, teams of marketeers, teams of support, so, since they work on just a specific vertical of the company, we are trying to bridge them, and we are trying to bridge then in terms of assigning a responsible to each

development team, that is the core of the company, that is software. And that was been going slowly but steady. And I think that the major problem right now in terms of project management is that each team is not multidisciplinary. Having these teams of multidisciplinary members is what it is commonly know from the Spotify model, where each team is comprised by people with different roles and technical abilities. So, normally, they are comprised, for example, of like two developers, one designer, one marketeer, and one support team, and one person just managing the team, can be more like a project manager, or businessperson. And these teams are self-organizing, and they have all the tools within themselves, within the team, to solve any project. That would be like the end result, or if we could do this, it would be the final. This works very well, and especially, for example, for Spotify, everybody is sitting together in the same place. Right now, with everybody working remote, is not so easy to do this, because you have to take into account different languages, time zones. Do this is not that easy, since the company is split between two offices, one in Portugal and one in Chile.

RP: Yes, so how would you see these problems being solved, especially with the work of the Product Manager?

TM: We don't have any Product Manager in the company. There is literally no Project Manager in the sense of a person that just interacts on the business level with the team of more technically skilled members of engineers or designers. So, in the sense of Project Manager, we don't have anyone doing this role. If we would have a Project Manager, they would be doing projects that are very big, that are shared between multiple teams. When we see this as necessary, we appoint a member of one of the teams that we see is most suitable to run the project. So, for example, the last one is called New Onboarding. It's lead by Elsa who is in the company for longer time. She is coordinating it, and she is a designer. So, her work is to align all the different people from different teams. And she is responsible for finishing and completing the product in a timely and good way. But I think that in the end, to reply to your questions, I think it would be nice to have peopled doing just project management, but since the company have just 40 people, we are seeing the need right now, not before when we were just 10 people.

RP: Yes. And, for example, in regard to OKRs, do you think that there are some difficulties in that area, since now you have diversified the team, and so on? Do you find some difficulties there?

TM: OKRs, since they are bound to metrics, each key results needs to have like 0 to 1 numeric value. It was by the pure use and enforcing OKRs to be used on the company, we need to also come up with easy ways of building these metrics, that can be seen and shared by everyone in the company. So, I think that project management in the company is an effort. Because we also need to build all these analytical tools that we didn't have in the past. And that is one of the reasons why OKRs are changing the conception of the company, because we need to start caring about business analytics that we didn't use in the past. So, I think that is the major problem, with the implementation of OKRs, was that the company itself didn't have the tools nor the motivation from within the teams, nor anyone really helping each team to define these numeric values for this Key Results. And if you cannot measure, you cannot act upon. And I think that this has improved, and it is very nice that on these Scrum events, we see many engineers and technical people caring about these metrics and constantly talking about that, consider this on their day-to-day activities; see if they are or not contributing to these metrics, that form the OKR framework.

RP: And do you think that these OKRs may be a good way to guide the work that will be done by the developers, and by the teams?

TM: The OKRs are not about performance reviews. They are mainly about aligning and giving transparency to the whole company. So, if you align the objective of individual people, with the objectives of a team, and then, if the objectives of the team are aligned with the interests of a company, everybody, at least, has a north star to point at, and to work towards to. So, I think it is good for everybody, we don't need to be like miscommunicating, or having people doing work that might not be so useful, or if it is useful, it is not useful on this right moment. So, I think that in terms of transparency, I think that it also makes everybody more relaxed and calmed, because they know what is expected by their teams and by them individually. So, yes, I think it helps a lot. It also decreased the amount of project management necessary, and that goes back to another question you put. If each individual knows what they can do, and self-align their midterm work with big goals, they don't need

to be micromanaged or be guided on a weekly basis, or on a project basis, they can make their own decisions.

RP: Perfect, Tiago. It was all my questions. I don't know if you have something to add, that you have in your mind, that you didn't cover?

TM: I think that what is the biggest change in the current world, of software development and other similar industries is that everybody is, and will be, mostly working remote. And, with that, people will be shared spread in different time zones, they would be like multicultural, and people need to start focusing on remote that is asynchronous, so, we would need to start relying even more on written forms. Not so much on mimicking what happens on a physical office with face-to-face meetings, synchronous chats, chat rooms, like we use Slack, etc. So, overtime, people need to start focusing more on how to work asynchronous, that is probably mostly alone, and feedback comes not instantly, but within hours or days. So, I think that this would be the biggest challenge in companies like us and everybody in general.

RP: Yes, that's interesting. Do you see the future being working asynchronous, and do you think it is possible to work efficiently and effectively while being totally asynchronous?

TM: I think that there are some moments in history when things change, that you just have to adapt to. So, it is not a matter of is it good or bad? Will it be better or worse? It is just that the reality is like this. Since people are working remote and they have full confidence on the companies where they work, and they are autonomous, it is normal that people would mix their life with work, so they would work on different time zones, they would work later, they would have bigger breaks, or no breaks at all. So, the expectation of having everybody working on the same time is not a reality anymore, so people just need to adapt.

RP: Ok, thank you so much Tiago.

8.7. Annex 7: Registration Units of Interviews

Categories	Registration Units	Participant
Contextualization	“before, we only had one development team, but then we decided to split it, based on the customer experience.”	AT
	“what defines a team is their commitment to the customer experience”	AT
	“Before, we didn’t. Before it was a very small company. It was just 10 people, for example, we had at most 5 developers or something like that, so it was very easy for Filipe, the co-founder, to tell each person what to do”	TL
	“Filipe was all over the place, being responsible for everything else”	TL
Structure/Teams	“OKR based on the experience of the customer”	AT
	“Every three months we use OKRs like a vision of where do we want to be in 3 or 4 months, to set up a target”	FG
	“in general, we use OKRs to define a vision for the next months”	FG
	“In the past, it was more of me and Tiago Matos”	FG
	“we were using a lot of OKRs based on functionalities to develop, or thinks that are not so measurable”	FG
	“Each team that we have, also has the capability of proposing any new suggestion, and the proposals are normally analysed and sorted by priority. That work has been mainly done by me and Filipe”	TM

	“In the past, we had also, every quarter, me and Filipe, we would talk with... and this is still valid, but perhaps with the inputs of more people, with the input of all these teams”	TM
	“And we would go to each of the teams, to one of its members, and we would do the same. This would create a Trello board”	TM
	“And on that board, we would compile all the ideas, and we would do some prioritization, in the sense of Should Have / Must Have.”	TM
	“We would also divide by teams all this work, and then we would go again to each of the teams, me and Filipe, presenting what were the results of this work, and that would be in terms of projects.”	TM
	“We use Scrum to manage the team activities”	FG
	“priorities for the team, because, normally, people work with different partners”	FG
	“there are some people working on customer support, so those people sometimes might request higher priority. There is a mixed input from different people.”	FG
Scrum	“So, we have to react with what is happening during every week.”	FG
	“So, we have to react with what is happening during every week.”	TM
	“we need to start caring about business analytics that we didn’t use in the past”	TM
Product Discovery -	“If someone is asking something in support, and we don’t have it, before saying we don’t have it, we go through all of our competitors and check if	AT

Product	they do have it. And if they do, we create a card,	
Delivery	you know, as a proposal.”	
	“I talk to the responsible of the team, I go, for example, to Bruno checkout, and Bruno says “No”. And then I go to Filipe, and he says “Yes”, and then Bruno does it.”	AT
	“what we currently have is that a lot of a Product Management comes from inputs that are direct from merchants, our clients, and they are absorbed, processed and categorized, or they are better defined by the support team.”	TM
	“They always have a lot of feedback, and they create proposals for new projects.”	TM
Challenges and Constraints		
	“We cannot still have a lot of people involved in management. I think it’s a tower size.”	FG
	“we don’t have like this middle management that deals maybe with product ownership.”	FG
Finance	“We are not aware if we are going to have a crash, like a big decline in sales, we have no idea if, for example, things are going to continue to increase, if other competitors are going to show, if, for example, something new is going to appear in Chile, our main market, or not.”	TL
	“there is a lot of uncertainty caused by the end of the pandemic, and exactly how is going to be the economic landscape”	TL
	“I think is the biggest challenge, because it affects, for example, if we are going to continue to hire more people, if, for example, the budget that we	TL

	have for certain projects is going to be there or not, if it makes sense or not.”	
	“Are we going to hire more people, can we keep them for the long term? Can we keep salaries raising all the time? How are we going to find revenue to pay for all of this?”	TL
	“pandemic forced us to stop most of the planed work, and just to be very reactive on things”	AT
	“Every time that we change the status quo, we have no idea how it is going to work, if people are going to be happier, if people are going to leave the company., if things are going to be for the best or not.”	TL
People	“With the pandemic we hired a lot of people, and this change it’s good, but also, at the same time, it’s risky, and we really have no idea of what we are going to metaphor into, and I think that is also the biggest change that we have.”	TL
	“growing with the right culture”	TL
	“And even when we grow bigger, we want to feel good in the company, to be motivated, and to feel empowered, and to keep involving,”	TL
	“Right now, with everybody working remote, is not so easy to do this, because you have to take into account different languages, time zones.”	TL
	“the pandemic blowing up in our faces, so we didn’t have really time to plan. It was reacting, mostly”	AT
Product	“But then, during these months, things happen, like a lot of customers request certain features, or sometimes we may have an issue with certain part of the software, like it have happened in the past.”	FG

	“I think now, it’s more of having a better product compared to other competitors and also, it’s a bit to keep improving our product. We also need to create more awareness about the product”	FG
	“we have to react to these external forces, change our business model, change our product. We have to be constantly adapting.”	FG
Issues and Possible Solutions		
Structure/Teams	“Someone that can bridge external support, that can bridge conversations with external entities, and that can bridge that with the developers. And that can take responsibility for something. That can allocate the resources the team has, like developers, to allocate to a certain priority. I think it is something missing.”	FG
	“co-founders were all over the place, and now we are meta morphing into something that is more vertical.”	TL
	“we end up with Filipe and Matos being working a lot of hours, exhausted,”	TL
	“We are trying to also increase the cross-team work, by joining one support person, and one design person, maybe in the future, one businessperson”	TM
	“we are trying to bridge the teams, because right now the teams are not multidisciplinary”	TM
	“we are trying to bridge then in terms of assigning a responsible to each development team”	TM
	“that was been going slowly but steady”	TM
	“I think that the major problem right now in terms of project management is that each team is not multidisciplinary”	TM

OKRs	“I don’t see clearly who is the responsible, for example, to get answers about what happens if we don’t improve the full resolution times. What happens if this is 0.0. What happens? What actions will we do to improve this? Or are we going to consider it or are we going to do a meeting or something. This is something that we need to define”	AT
	“decrease the development tickets. Ok, it's a boosted thing, but one way to decrease the development tickets is to just close the email, you know? We don’t receive more tickets. We don’t really want to decrease the development tickets, we want development tickets, because we get feedback from people.”	AT
	“I think there is a disconnection between this objective to the customer experience”	AT
	“we lack an explanation. Why did we decided this to be an objective?”	AT
	“it is hard to be aligned to things that are not very clear”	AT
	“what does it mean? Sustain Jumpseller growth. What the hell? Increase fulfilments. Increase the number of companies? This is not very specific here, nobody cares.”	AT
	“Increase customer experience, satisfaction. So, this is a bit tricky, because the customer satisfaction with the design was very good. One hundred percent of the tickets that are attended by the design team are positive feedback, so this is a one hundred percent satisfaction. So, they chose this one because it was already good. It was to just choose something easy to do. Not very good.”	AT

	“I think that the company, right now, is talking about it, is being aware of what we need to do, the epics of what we should do.”	TL
	“I think that is the major problem, with the implementation of OKRs, was that the company itself didn’t have the tools nor the motivation from within the teams, nor anyone really helping each team to define these numeric values for this Key Results.”	TM
	“Normally, there is a Product Owner that sets the Product Roadmap for the team”	FG
	“In some teams we have a Product Owner. Let’s say, for example, on the store team I do the Product Ownership role, I think that in checkout it is Bruno, but it is also shared with me and Tiago Matos, and in the apps, we do a mix of all together.”	FG
	“we need to work more on the ownership of a certain functionality”	FG
Scrum	“I think an issue is, let’s say, some companies have like a team of product owners, where they have meetings, they set the roadmap of the product, and each one is responsible for a certain part to deliver. We don’t have so much that.”	FG
	“I think that someone responsible for owning, like a Product Owner owning some part of the product, would have helped, because that person would be responsible for being in communication with customer support, looking for customer feedback, being in communication with developers to be sure that something is done, and they understand the priorities.”	FG

	“In the past we had objectives for certain functionalities”	FG
	“Now, we don’t have that, but if we have a team of Product Owners, then, they could have certain targets to deliver a functionality by a certain time”	FG
	“product management has a solution for this, because it is going to be an important instrument to help alleviate the top management, for example, with delegation of certain responsibilities to the teams.”	TL
	“even those teams to have their own product management, where they can prioritize their work without any interference of Matos or Filipe.”	TL
	“there was a kind of a disconnection between us and the market, between us and the client.”	TL
	“We don’t really have someone who is doing a lot of market research”	AT
	“It was not part of the business development area to study what our competitors do. Now, I am there. Perhaps I can help with it.”	AT
Product Discovery -	“We need development, and that is going to be a pain for me, as a business developer member who is not a developer”	AT
Product Delivery	“We don’t have a structure here to convert business ideas into development / into production.”	AT
	“If you do some research and you have a proposal for development, it will be very hard to get some help. It’s very, very hard.”	AT
	“I think the biggest problems is that we constantly need to be competitive, we constantly need to be	TL

doing the next most important task, the most valuable next item”	
“They probably are aware of everything, but most of the people that are within the teams like the team members, like the frontline employees, I don’t really think that they are that much aware of what is happening with the client.”	TL
“And I think that Product Management in here, is key, because you are listening to the consumers, you are measuring them, and you are giving this feedback to the teams, so that they can inspect and adapt.”	TL
“We will do discovery, we will find opportunities, when this could be a risky thing, we are changing with Product Management to a profitable thing. We are going to discover, and we are going to take advantage of the new opportunities and not just being afraid of the change”	TL

Source: Author own elaboration based on interviews.

8.8. Annex 8: *Issues and Possible Solutions*

Categories	Issues	Possible Solutions
Structure / Teams	Manage big projects that involves cross-team work	Have someone that leads the project and bridge teams
	Teams don't have all the skills necessary to perform their work well	Move to multidisciplinary teams + shared specialists (with developers, support, designer, marketeer, businessperson)
	Co-founders burden with the amount of work they are supervising	Move to vertical management - requires the company to grow in terms of number of people
	There is no one responsible for the metrics and helps teams to define them	OKRs-taskforce and motivate teams to focus on it
	There is a disconnection between the teams OKRs and the company objective	Define OKRs based on outcomes
OKRs	Some OKRs are not meaningful, specific, adequate to the work of the teams, challenging	Help defining OKRs and its metrics
	It is not clear who is the responsible person for the OKRs, and what happens if it is not achieved	Create a new and clearer format for the OKRs, with more details about the responsible, completion score
	It is missing an explanation about the OKRs which prejudices alignment	Talk with people around the company, improve descriptions of the OKRs and add metrics to measure

Scrum	OKRs are not defined by functionalities, someone needs to take ownership of that	Help teams defining their product roadmap
	Not all the teams have a person executing the work of Product Owner	Assume the PO role in one team: Learn the details of functionalities and customer feedback, suggest improvements/new ideas, estimate cost and benefits, coordinate efforts/priorities, solve dependencies between functionalities
	Co-founders are supervising all the work	Have a PO in each team to prioritize their work without any interference with the co-founders, to help alleviate the top management with delegation of responsibilities
Product Discovery – Product Delivery	When discovering something new to do, it is a pain to implement it (there is no structure/process)	Implement Dual Track-Agile to convert business ideas into development/production (actual products) – bus-dev
	(Some) people are unaware of what is happening in the market and its risks	Do product discovery to find opportunities and adapt in the next quarter – cancellation project
	There is no one doing market research - discover most important tasks to do	Listen to the consumers, measure them and give feedback to teams, to inspect and adapt – NPS

Source: Author own elaboration based on interviews.

8.9. Annex 9: *Plan and Implementation Activities*

Plan Items	Implementation Activities
Assess: PO course	Do Product Owner Open Assessment
	Do Scrum Open Assessment
	Do Course Product Leadership
	Do Certification Exam for Professional Scrum Product Owner I
Motivation Factors	Collect info/notes about current status
	Prepare Interviews
	Conduct Interviews
	Analyse answers and conclude
	Answers (Data) Presentation
New Product Roadmap Format	Create Product Roadmap board
Define the Product Vision	Define the Product Vision
Define OKRs + Metrics	Define all OKRs and its metrics Add links of metrics + monthly breakdown
Ensure Alignment	Create OKRs channel
	Do OKRs meeting
	Present OKRs board to all teams
	Meeting with #okrs-taskforce
	Meeting with #okrs-taskforce
Product Discovery	Overview Cancellation Project
	Meet with Developers to talk about cancellation
	Listen to the consumers using NPS

Dual-track Agile in Bus-Dev team	Bus-dev planning meeting
	Define plan to achieve OKR
	Organize the proposals to help planning
Product Owner on Business Development team	Do sprint planning
	Create ppt with current status and suggestions for Plan Features
	Go to #design planning meeting to explain plan features
	Meet with Elsa and Antero to explain plan features
	Go to #store planning meeting
Product Owner on Onboarding team	Meet with onboarding leaders
	Implement a weekly meeting for the team
	Meet with #onboarding team
	Create roadmap
	Do a list of all the guided steps
	Coordinate work
	Categorize Guided Steps
	Onboarding meeting
Evaluate Results	Prepare Surveys
	Conduct Surveys
	Analyse Survey Answers
	Answers Presentation
Define Long-Term Strategy	Meet with #okrs-taskforce
	Collect info from teams and customers
	Define plan to achieve the company goals

Source: Author own elaboration based on field notes.

8.10. Annex 10: *Validating Scorecard Items*

Variables	Quote	Participant
Strategy and Leadership		
The strategic plan is effective and used	“have specific and challenging projects and we show that this is important, (...) to be well managed in the project or in the product”	TL
Product strategy is clearly defined and communicated to all employees	“If the company has interesting and challenging projects and shows that it is important for users, and that it is the most important next item, it is good for the morale and for the teams”	TL
The product program has a long term thrust and focus	“we will do product discovery, we will find opportunities”	TL
Product strategy is used to align priorities with other functions	“OKRs and they are widely used, and they give a sense of alignment within the company, more in a mid-term approach”	TM
Strategies are flexible enough to respond to changes in the environment	“If the market is changing, it is not a problem because we will change with them”	TL
Team leaders are accountable for new product results	“who is the responsible? (...) What would happen if we don’t reach at least 70% of the OKR?”	AT
Leaders visibly drive innovation	-	-
Leaders adopt a consensus and shared approach to decision making	“I would have gone to every team: Het, we are thinking about this for the store team, what do you guys think? I would try to get political	AT

	about this, to get support for my idea”	
Leaders adopt a participative decision-making style	“help alleviate the top management, for example, with the delegation of certain responsibilities to the teams”	TL
Team leaders actively encourages the submission of new product ideas	“Each team that we have, also has the capability of proposing any new suggestion”	TM

Culture and Climate

The organization permits the emergence of intrapreneurs or product champions	-	-
The organisation provides support in terms of autonomy, time and rewards	-	-
Money is made available for internal projects	-	-
Adequate resources are available and committed to achieve product goals	“With the pandemic, we hired a lot of people”	TL
All employees participate in generating ideas	-	-
Senior management is committed to risk taking in product innovation	-	-
Failures and mistakes are tolerated and not punished	-	-
Knowledge sharing is encouraged and rewarded	-	-
All operations are driven by customer needs	“you are listening to the consumers, you are measuring them, and you are	TL

	giving this feedback to the teams, so that they can inspect and adapt”	
	“I do all this research. For example, I go, and I study the wine market in Porto, and I see where the companies open their online store. I see what these other platforms offer, and me and the team, we decided that this is what we need to”	AT
There is a formal idea generation process in place		

Planning and Selection

An effective product process is consistently implemented	“we follow the classic Scrum process of doing daily meetings, (...) review meetings every two weeks, following a retrospective (...) And then, planning sessions”	TM
A formal process is used to determine and update project priorities	“We have a meeting every two weeks, the planning meeting, and during that meeting, on the first part, we talk together about what should be the priorities for the team”	FG
Concepts are selected using pre-defined, multiple, and explicit criteria	“If we think of a functionality, or, let’s say, a bug, that our customers are complaining about, or if a lot of them are requesting a certain feature, we might give higher priority against the rest”	FG
Pre-development market and feasibility studies are rigorously undertaken	-	-
Projects are terminated if and when necessary	“during these months, things happen (...) so, we have to react to what is happening during every week”	FG

Project proposals are tested for alignment with organizational goals	-	-
The project and the spending breakdown mirrors the organizations goals and measures	“we are more aligning the OKRs with the business objectives, so that, the success of the team also brings success to the company.”	FG
There is a good balance of projects which maximizes the value of the portfolio	“we constantly need to be competitive, we constantly need to be doing the next most important task, the most valuable next item”	TL
The product portfolio is matched to the firm’s competencies and capabilities	“we discover what is important to do and then we find the right people to do it”	TL
The voice of the customer is built into all product innovations	-	-

Structure and Performance

Projects are developed using effective cross-functional teams	“We are trying to also increase the cross-team work, by joining one support person, and one design person”	TM
Project teams are organic, flexible and agile	-	-
All team operations are driven by customer needs	“with metrics, with listening to our consumers, they can come up with ideas and insights, so that the next quarter, the whole company adapts”	TL
Team leaders are involved in setting the product performance objectives	“we involve other people also”	FG

All team members are mutually accountable	“we see many engineers and technical people caring about these metrics and constantly talking about that”	TM
Team members are empowered to make decisions	-	-
Virtual team members are equipped with effective ICT tools	-	-
Team members’ rewards are equitable	-	-
Performance indicators are aligned with the organization’s goals	“Every three months we use OKRs like a vision of where we want to be in 3 or 4 months, to set up a target”	FG
Performance indicators encourage desired behavior	“consider this on their day-to-day activities; see if they are or not contributing to these metrics, that form the OKR framework”	TM

Communication and Collaboration

Gatekeepers are in place to continuously span the external environment	“someone who is doing a lot of market research (...) Business development area to study what our competitors do”	AT
Customers and suppliers are involved in the product process	People work with different partners. (...) Also, there are some people working on customer”	FG
Alliances are often formed with other organisations for mutual benefit	-	-

Communications among team members is efficient and effective	“people need to start focusing more on how to work asynchronous, that is probably mostly alone, and feedback comes not instantly, but within hours or days”	TM
Communications between teams is efficient and effective	“there is not a lot of communication between the business team and the design team, or the support team. (...) this is something we need to improve”	AT
Information on ideas generated, problems raised, and project status is accessible	“If someone is asking for something (...) we create a card”	AT
User needs analysis are undertaken and communicated to all	“Co-founders are aware of everything, but most of the team that are within the teams (...) I don’t really think that they are that much aware of what is happening with the client”	TL
Product strategy and performance measures are clearly communicated to all	“OKRs (...) are mainly about aligning and giving transparency to the whole company”	TM
Individual skills are effectively leveraged within and between project teams	“we appoint a member of one of the teams that we see is most suitable to run the project”	TM
Virtual team members seamlessly communicate with each other	-	-

Source: Author own elaboration based on interviews.

8.11. Annex 11: *Survey Themes and Categories*

Theme	Category	Nr of Items
Product Roadmap	Strategy and Leadership	2
	Culture and Climate	1
	Planning and Selection	0
	Structure and Performance	1
	Communication and Collaboration	2
Product Vision	Strategy and Leadership	4
	Culture and Climate	1
	Planning and Selection	0
	Structure and Performance	0
	Communication and Collaboration	1
OKRs Metrics	Strategy and Leadership	1
	Culture and Climate	0
	Planning and Selection	0
	Structure and Performance	4
	Communication and Collaboration	0
Alignment	Strategy and Leadership	2
	Culture and Climate	0
	Planning and Selection	0
	Structure and Performance	1
	Communication and Collaboration	4
Scrum Planning	Strategy and Leadership	0
	Culture and Climate	0
	Planning and Selection	7
	Structure and Performance	1
	Communication and Collaboration	1

Notes. Categories and Nr of Items included in the survey conducted corresponding to the PIM Scorecard made on the study “Auditing best practice for effective product innovation management” by Cormican and O’Sullivan (2004). *Source:* Author own elaboration based on survey.

8.12. Annex 12: Survey and Statistical Results

Variables		Mode	Mean	Std Dev
1) Product Roadmap				
1.1)	Product strategy is clearly defined and communicated to all employees	3	3,54	0,81
1.2)	Leaders adopt a participative decision-making style	4	4,00	0,89
1.3)	All team operations are driven by customer needs	4	3,83	0,94
1.4)	Gatekeepers are in place to continuously span the external environment	3	3,51	0,94
1.5)	Adequate resources are available and committed to achieve product goals	4	3,94	0,79
1.6)	Information on ideas generated, problems raised, and project status is accessible	4	4,09	0,94
AVERAGE		3,67	3,82	0,88
2) Product Vision				
2.1)	The strategic plan is effective and used	4	3,51	0,87
2.2)	Strategies are flexible enough to respond to changes in the environment	4	3,80	0,92
2.3)	The product program has a long term thrust and focus	4	3,66	1,04
2.4)	Team leaders actively encourages the submission of new product ideas	5	4,20	1,06
2.5)	There is a formal idea generation process in place	4	2,91	1,16
2.6)	Customers and suppliers are involved in the product process	3	3,29	1,06
AVERAGE		4	3,56	1,02

3) OKRs Metrics

3.1) Performance indicators are aligned with the organization's goals	4	4,11	0,71
3.2) Team leaders are involved in setting the product performance objectives	4	4,09	0,77
3.3) Team leaders are accountable for new product results	4	3,54	0,87
3.4) Performance indicators encourage desired behavior	4	3,80	0,89
3.5) All team members are mutually accountable	4,5	4,11	0,95
AVERAGE	4,10	3,93	0,84

4) Alignment

4.1) Product strategy and performance measures are clearly communicated to all	4,5	3,80	1,04
4.2) User needs analysis are undertaken and communicated to all	4	3,40	1,15
4.3) Leaders adopt a consensus and shared approach to decision making	4	3,86	1,02
4.4) Product strategy is used to align priorities with other functions	3	3,71	0,81
4.5) Projects are developed using effective cross-functional teams	4	3,60	0,96
4.6) Communications between teams is efficient and effective	4	3,40	1,13
4.7) Individual skills are effectively leveraged within and between project teams	4	3,80	0,67
AVERAGE	3,93	3,67	0,97

5) Scrum Planning

5.1) An effective product process is consistently implemented	4	3,66	0,99
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5.2) A formal process is used to determine and update project priorities	4	3,57	1,15
5.3) Concepts are selected using pre-defined, multiple, and explicit criteria	4	3,43	1,02
5.4) Projects are terminated if and when necessary	3,5	3,60	0,83
5.5) The project and the spending breakdown mirrors the organizations goals and measures	4	3,74	0,65
5.6) There is a good balance of projects which maximizes the value of the portfolio	4	3,66	0,63
5.7) The product portfolio is matched to the firm's competencies and capabilities	4	3,77	0,68
5.8) All operations are driven by customer needs	4	3,91	0,94
5.9) Communications among team members is efficient and effective	5	4,14	0,83
AVERAGE	4,06	3,72	0,86
TOTAL AVERAGE	3,95	3,74	0,91

Source: Author own elaboration based on survey.

8.13. Annex 13: *Analysis of Open Feedback*

Category	Positive Feedback	Negative Feedback
Product Roadmap	3	6
Product Vision	2	7
OKRs Metrics	4	5
Alignment	3	9
Scrum Planning	4	6

Source: Author own elaboration based on survey results.

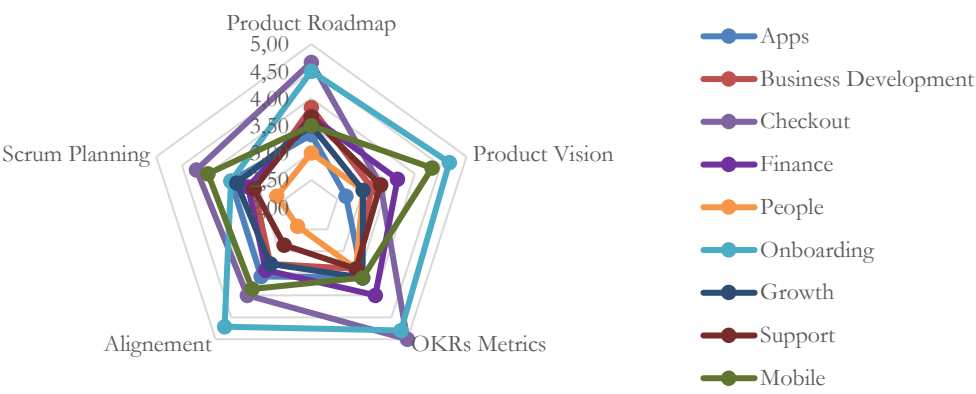
8.14. Annex 14: *Detailed Survey Results of the Company*

Category	Best	Worst
Product Roadmap	Participative Decision Making	Product Strategy definition and communication
	Customer Driven	Spanning of the external environment
	Available resources	
	Information accessible	
Product Vision	Effective and used Strategic Plan	Formal idea generation process
	Flexible Strategies	Integration of customers and suppliers in product process
	Long term focus	
	Submission of ideas	
OKRs Metrics	Indicators aligned with goals	Revamp and Improve Metrics
	Leaders involves in objectives setting	
	Leaders accountable for results	
	Indicators encourage behaviour	
	Members mutually accountable	
Alignment	Consensus in decision making	Communication of Product Strategy and indicators
	Effective cross-functional teams	Conduction of user needs analysis
	Effective communication between teams	Use Product Strategy to align priorities
	Leverage of individual skills in teams	

	Effective product process	Formal process to prioritize
Scrum	Project mirror organization goals	Use of pre-defined, multiple and
Planning	Projects maximize value	explicit criteria
	Match portfolio with firms	End projects when necessary
	capabilities	
	Customer driven	
	Effective communication among	
	team members	

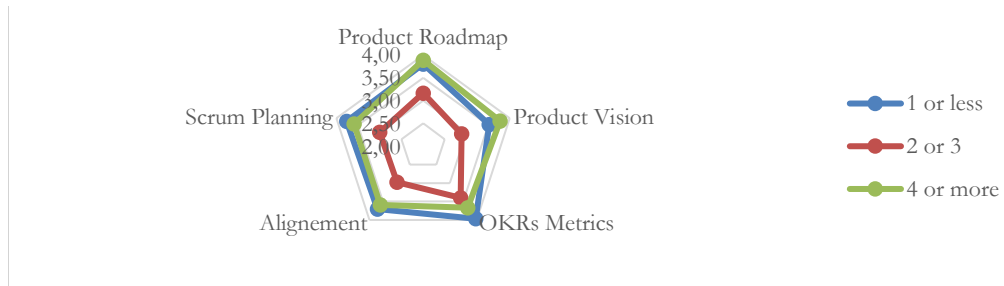
Source: Author own elaboration based on survey results.

8.15. Annex 15: Survey Results Average by Team



Source: Author own elaboration based on survey results.

8.16. Annex 16: *Survey Results Average by Years Working at the Company*



Source: Author own elaboration based on survey results.

8.17. Annex 17: *Survey Results by Team*

Team	Best	Worst
Apps	OKRs Metrics	Product Vision
	Scrum Planning	Alignment
Bus-Dev	Product Roadmap	OKRs metrics
	Scrum Planning	Alignment
Checkout	OKRs metrics	Product Vision
	Product Roadmap	Alignment
Finance	OKRs Metrics	SCRUM Planning
	Product Roadmap	Alignment
People	OKRs Metrics	Scrum Planning
	Product Roadmap	Alignment
Design	OKRs Metrics	Product Vision
	Alignment	Scrum Planning
Growth	OKRs Metrics	Product Roadmap
	Product Vision	Alignment

	OKRs Metrics	Product Vision
Support	Product Roadmap	Alignment
	OKRs Metrics	Product Vision
Store	Product Roadmap	Alignment

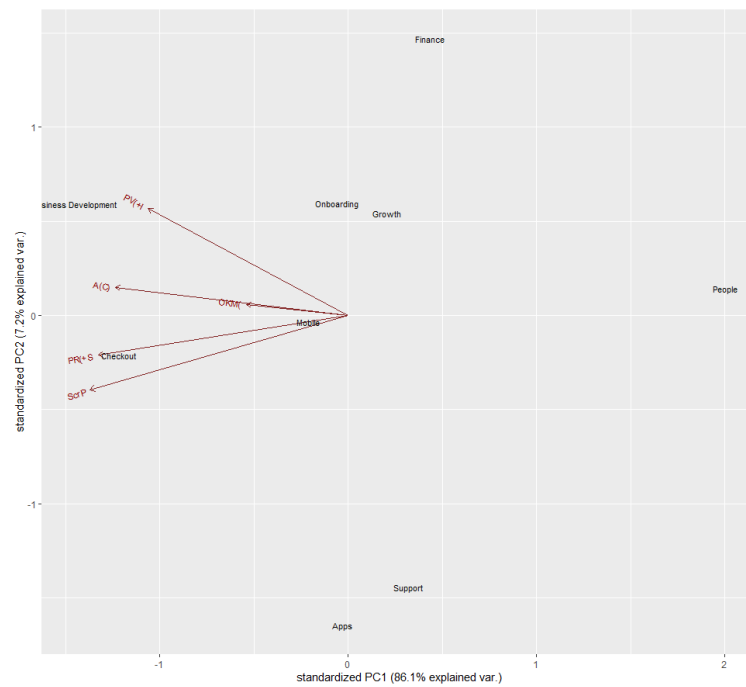
Source: Author own elaboration based on survey results.

8.18. Annex 18: *Survey Results by Years Working at the Company*

Team	Best	Worst
1 or less years	Product Roadmap	Product Vision
	Scrum Planning	Alignment
2 or 3 years	OKRs Metrics	Product Vision
	Product Roadmap	Alignment
4 or more years	Product Roadmap	Scrum Planning
	Product Vision	Alignment

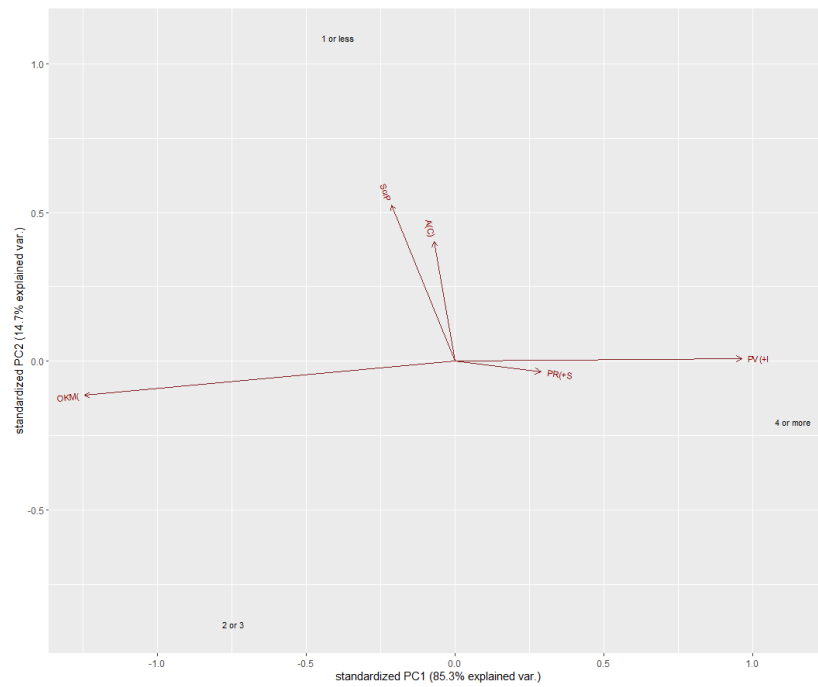
Source: Author own elaboration based on survey results.

8.19. Annex 19: PCA biplot – Current Team



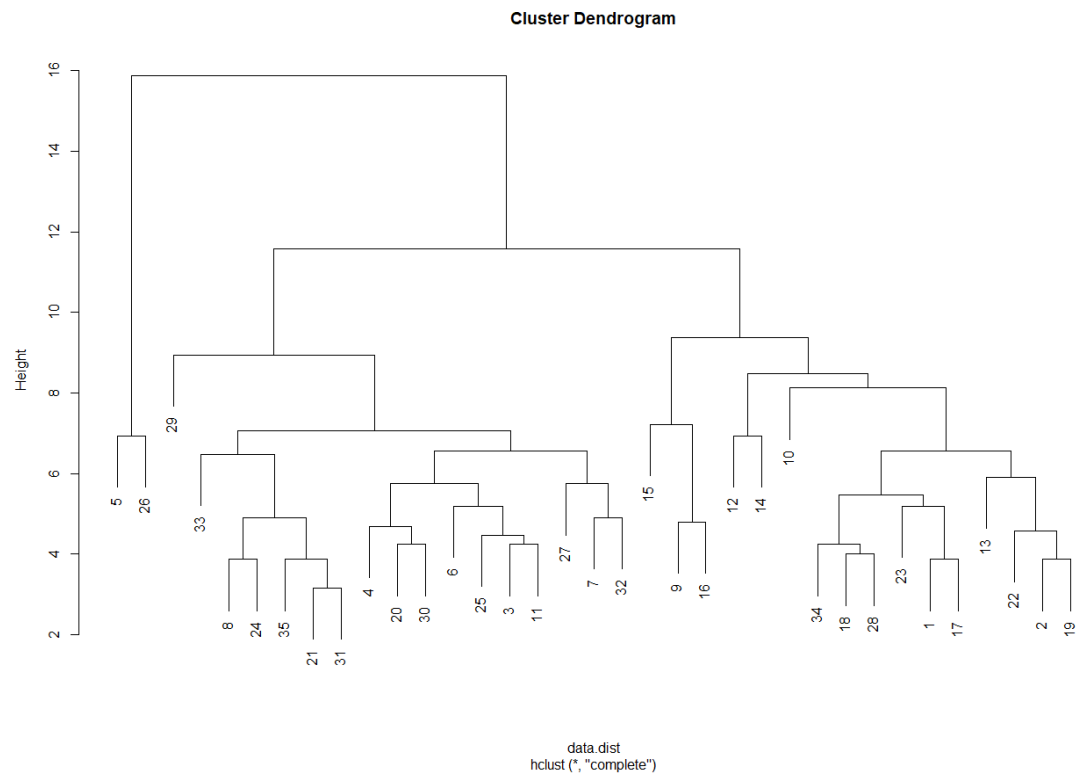
Source: Author own elaboration based on survey results.

8.20. Annex 20: PCA biplot – Years Working at the company



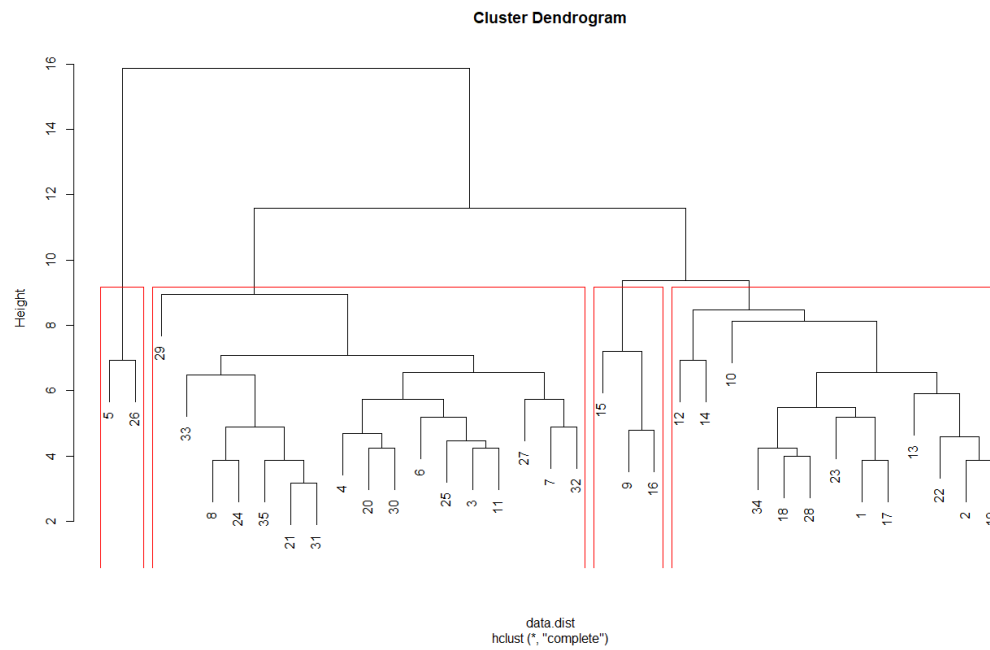
Source: Author own elaboration based on survey results.

8.21. Annex 21: *Cluster Dendrogram*



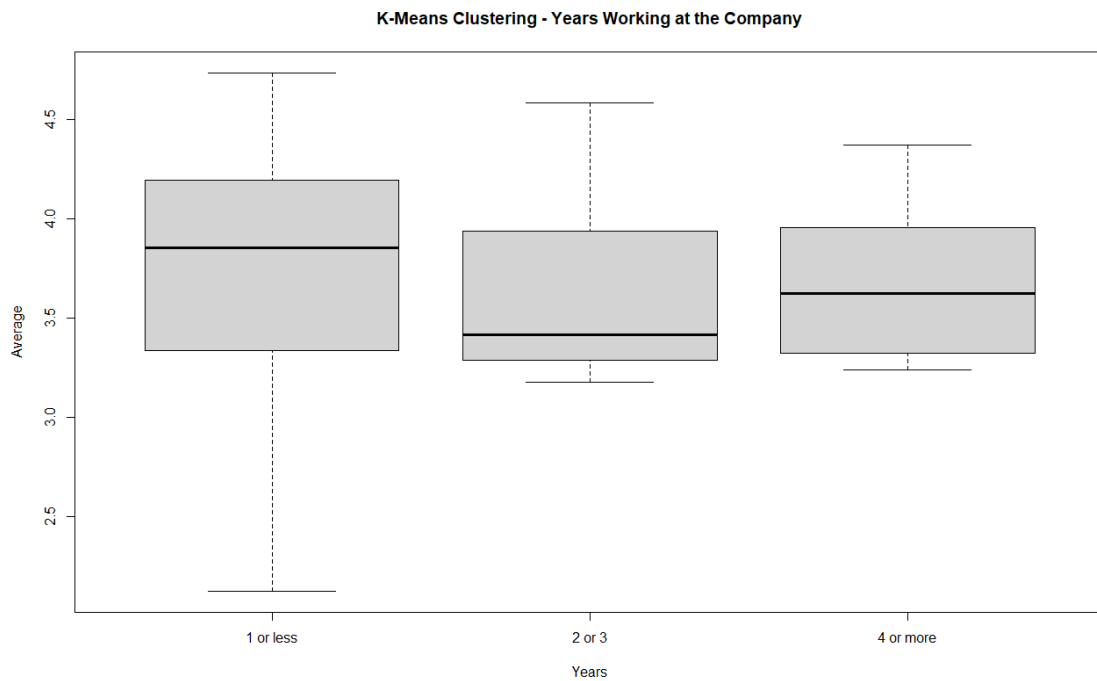
Source: Author own elaboration based on survey results.

8.22. Annex 22: Cluster Dendrogram with 4 clusters



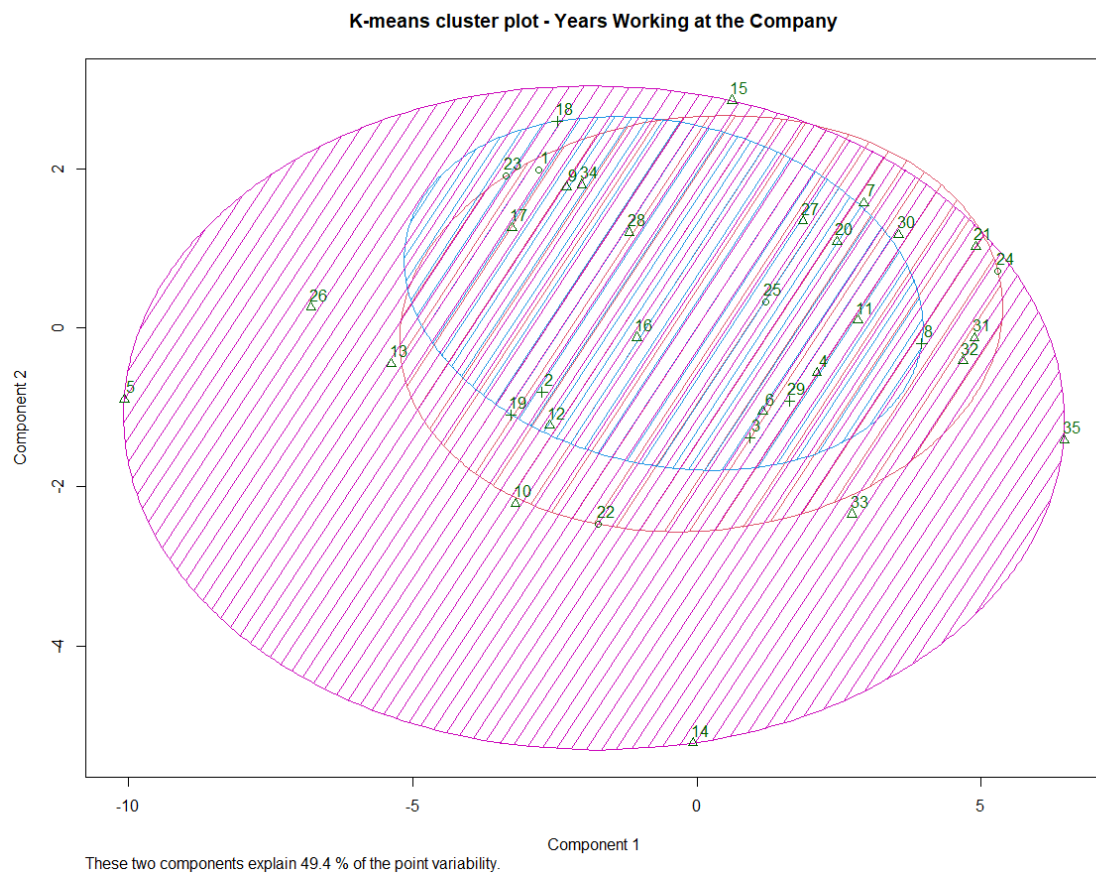
Source: Author own elaboration based on survey results.

8.23. Annex 23: *K-Means Clustering – Years Working at the Company*



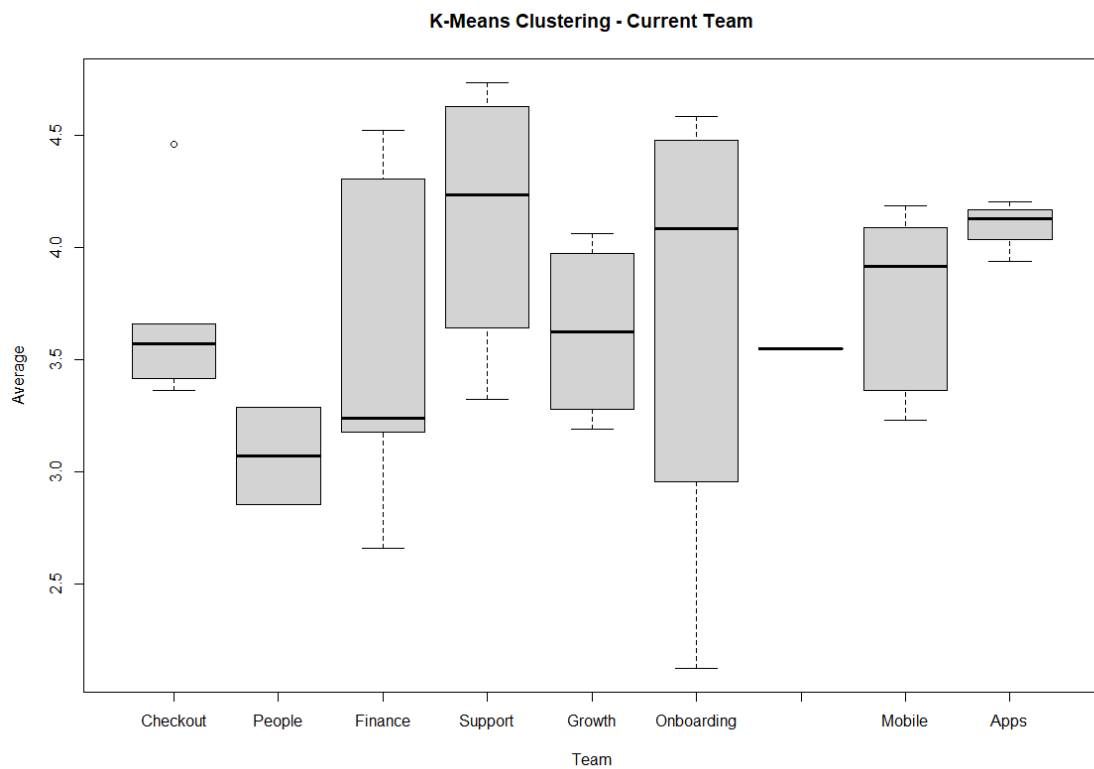
Source: Author own elaboration based on survey results.

8.24. Annex 24: K-Means Cluster plot – Years Working at the Company



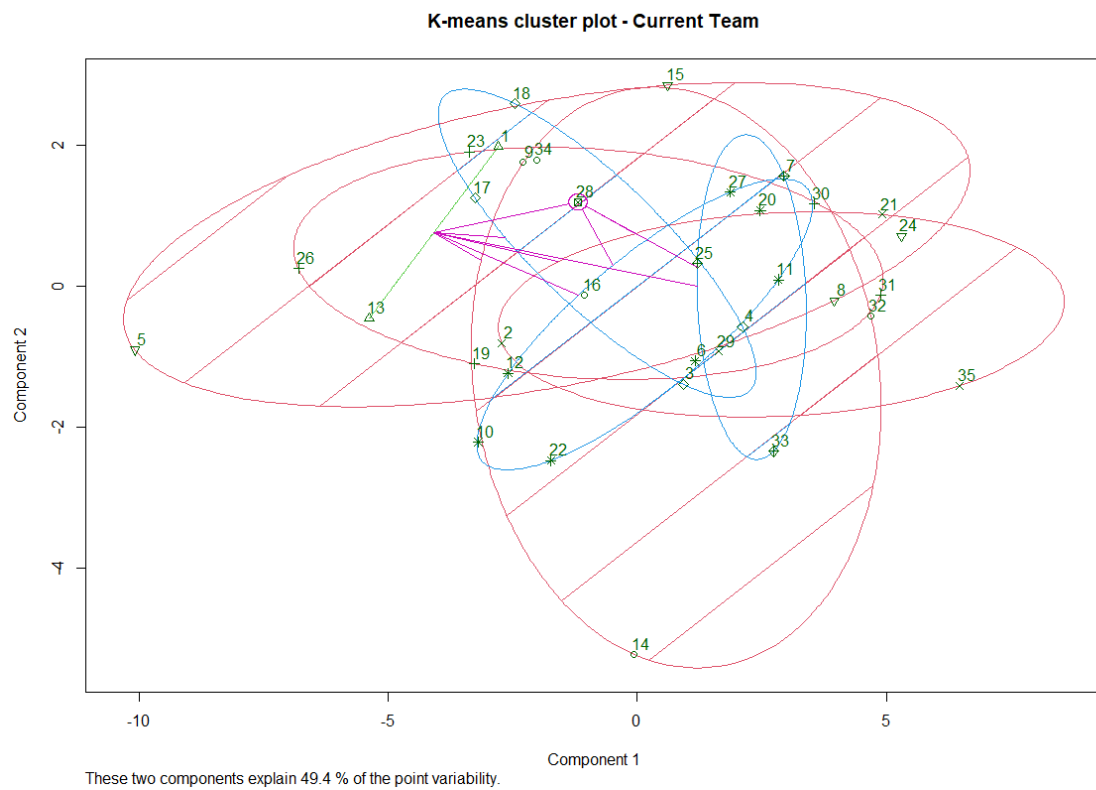
Source: Author own elaboration based on survey results.

8.25. Annex 25: K-Means Clustering – Current Team



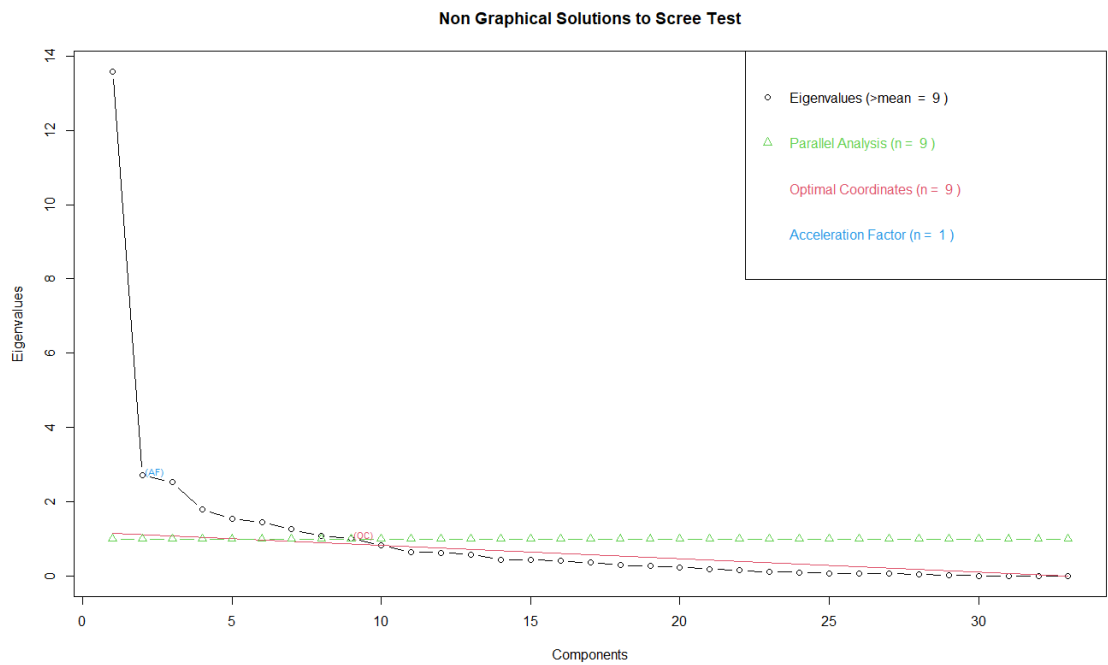
Source: Author own elaboration based on survey results.

8.26. Annex 26: K-Means Cluster Plot – Current Team



Source: Author own elaboration based on survey results.

8.27. Annex 27: *Screepplot*



Source: Author own elaboration based on survey results.

8.28. Annex 28: *Nine-factor solution with Varimax rotation*

Manifest Variable	Fact 1	Fact 2	Fact 3	Fact 4	Fact 5	Fact 6	Fact 7	Fact 8	Fact 9
Strategy and Leadership									
1.1)	0.511								
1.2)	0.647								
2.1)									0.561
2.2)	0.397								
2.3)	0.461								
2.4)	0.499								
3.3)	0.626								
4.3)	0.515								
4.4)	0.239								
Culture and Climate									
1.5)							0.306		
2.5)							--		
Planning and Selection									
5.1)				0.629					
5.2)				0.873					
5.3)				0.512					
5.4)								0.660	
5.5)		0.859							
5.6)		0.622							
5.7)		0.694							
Structure and Performance									
1.3)					0.814				
3.1)					0.223				
3.2)					--				

3.4)		0.199
3.5)		0.195
4.5)		0.355
5.8)		0.719
Communication		
and		
Collaboration		
1.4)		0.628
1.6)		0.649
2.6)	0.433	
4.1)	0.515	
4.2)	0.705	
4.6)	0.161	
4.7)		0.188
5.9)		0.152

Source: Author own elaboration based on survey results.

8.29. Annex 29: *Nine-factor solution explained variance*

Factor	Eigenvalue	% Variance	Cumulative %
1	4.639	0.141	0.141
2	3.722	0.113	0.253
3	3.282	0.099	0.353
4	3.034	0.092	0.445
5	2.933	0.089	0.534
6	2.366	0.072	0.605
7	2.025	0.061	0.667
8	1.436	0.044	0.710
9	1.298	0.039	0.750

Source: Author own elaboration based on survey results.

8.30. Annex 30: Cronbach Alpha Test and Spearman's Test

Construct		alpha	rho				
			A	B	C	D	E
A	Strategy and Leadership	0.891	1				
B	Culture and Climate	0.372	0.734*	1			
C	Planning and Selection	0.829	0.674*	0.670*	1		
D	Structure and Performance	0.815	0.829*	0.664*	0.678*	1	
E	Communication and Collaboration	0.806	0.842*	0.805*	0.729*	0.789*	1

Notes. *Significant at the 0.05 level. Source: Author own elaboration based on survey results.

8.31. Annex 31: Discussed Recommendation for next Iteration

Category	Topics to Improve (Symptoms)	Reason (Causes)	Recommendation (Treatment)
Product Roadmap	Product Strategy definition and communication	New metrics do not have an history, so it is difficult to set an accurate target value	Drop target concept
	Spanning of the external environment	Teams focus only on the metric being tracked and ignore the rest	Define Main and Secondary Metrics
Product Vision	Formal idea generation process	Each team define and organize its own epics	Creation of a single product backlog
	Integration of customers and suppliers in product process	There is no one responsible for compiling their feedback	Study the possible solutions to achieve company goal
OKRs Metrics	Revamp and Improve Metrics	New quarter	Review the Metrics and Improve
Alignment	Communication of Product Strategy and indicators	Only one meeting with the entire company	Conduct All-Hands Meeting
	Conduction of user needs analysis	Little research done by teams	Do research to sustain the ideas
	Use Product Strategy to align priorities	Little guidance	Scrum Master and Product Owner help in OKRs definition

Scrum Planning	Formal process to prioritize	Each team choose its process phases	Follow a research– planning – implementation cycle
	Use of pre-defined, multiple and explicit criteria	Each team used its own prioritization approach	Classify ideas/activities according to Impact/Effort Matrix
	End projects when necessary	Not all the teams have a person with this responsibility	Have a Product Owner in each team

Source: Author own elaboration based on field notes.

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