



**Lisbon School
of Economics
& Management**
Universidade de Lisboa

MASTERS IN MANAGEMENT (MiM)

MASTER'S FINAL WORK

INTERNSHIP REPORT

ACHIEVING NETWORK EFFECTS: THE CASE OF KATOO

SOFIA CARDOSO DE MENEZES BETTENCOURT BOTELHO

MARCH – 2022



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.. **MARCH – 2022**

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ABSTRACT

Products are said to exhibit network effects if a user's utility increases as more users adopt the same good. Network effects are a characteristic of information technology and communications products, and as the business environment becomes more heavily based on information systems, it is relevant to distinguish the specificities of network effects products and how a rigorous tracking of its key performance indicators may be critical to their success.

This report results from an internship at Katoo, a Spanish start-up that recently expanded to Portugal, which provides digital procurement tools to ease the communication between restaurants and their suppliers, bringing accuracy to their transactions. The main objective of the internship was to acquire the company's first Portuguese clients and to achieve an initial user base that would allow network effects to flow.

Going over to a literature review concerning the benefits of the food supply chain's digitalization and network effects' particularities, followed by an extensive description of the company's products and processes, it was possible to analyse some of the strategies used by the company and its pertinence in the context of the Portuguese market, through the internship experience.

Keywords: Network effects; food supply chain; user installed base; positive feedback loop; extrinsic value of a product

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CHAPTER 1 – INTRODUCTION

To conclude my Master's degree in Management with a Major in Marketing, I opted for performing an internship that would deepen my practical knowledge of digital sales in a start-up context, while contributing to the establishment of a newly launched company in Portugal. The internship was attended in the business development department of Katoo, a Spanish start-up launched in 2019, that provides digital procurement tools for restaurants and suppliers. Katoo's mission is to digitalize the procurement process of restaurants to their suppliers to increase efficiency and enhance transparency, to eventually contribute to the reduction of food waste along this segment of the food supply chain. What's particular is that Katoo's products' are said to exhibit network effects, a characteristic often present in information technology and communications products, that describes the phenomenon in which the value of a product to a user increases as more people adopt the same product. Network effects' products have their key success factors, market dynamics, and launching strategies.

This report is aimed to describe the internship performed and its contribution to the company, which will pass by, firstly, contextualizing the food and beverage industry, the benefits of the digitalization of the food supply chain, and the network effects concept through a literature review. Secondly, a presentation of the company is made through an external and internal analysis, followed by the practical example of network effects in the company's context. Thirdly, a description of the internship is presented through the explanation of the activities performed and their overall contribution to the company's strategy. Lastly, some conclusions and limitations on the topics addressed will be given. As the internship took place at Katoo Portugal, the report will focus mainly on the Portuguese subsidiary and corresponding market.

CHAPTER 2 - THEORETICAL BACKGROUND

2.1. Food & Beverage (F&B) Supply Chain

2.1.1. Characterization F&B Industry

The food and beverage industry comprises all organizations engaged in the production, processing, packaging, and distribution of edible goods, being one of the largest industries in the world regarding revenue and employment (Unicef, 2022). In 2021, the global functional food and beverage market was worth \$ 281.14 billion (Wunsch, 2021) which includes restaurants, food manufacturing companies, catering businesses, food distribution companies, among others. In this industry, the issues of sustainability and food security are often raised, as they are some of the greatest challenges faced by humanity in the 21st Century but also by being strongly interrelated with other global problems such as malnutrition, climate change, soil degradation, water quality, and biodiversity loss (SAPEA, 2021). Consequently, food-related issues are represented in the United Nations' agenda for sustainability and are meant to be redressed through eight of their 17 Sustainable Development Goals (Table 1), which mobilize the United Nations' member states and their organizations to jointly tackle global challenges towards long-term prosperity, from social and environmental perspectives (United Nations, 2022). Moreover, advances towards a sustainable food system require actions at all levels of the food supply chain and are fostering the redesign of supply chain management as it becomes increasingly relevant for consumers and other stakeholders (SAPEA, 2021). Therefore, practicing sustainable supply chain management through knowledge and innovation is becoming a comprehensive source of competitive advantage for organizations (Carter & Rogers, 2008).

Table 1 - Food Related Issues in the UN's Sustainable Development Goals

SDG	Related Actions
SDG 2: Zero Hunger	End hunger, achieve food security and improved nutrition, promote sustainable agriculture
SDG 3: Health and Welfare	Ensure healthy lives and promote well-being for all
SDG 5: Gender Equality	Achieve gender equality and empower all women
SDG 12: Responsible Consumption and Production	Ensure sustainable consumption and production patterns
SDG 13: Climate Change	Take urgent action to combat climate change and its impacts
SDG 14: Life Below Water	Conserve and sustainably use the oceans, seas and marine resources for sustainable development
SDG 15: Life On Land	Protect, restore and promote sustainable use of terrestrial ecosystems

Source: Adapted from SAPEA (2021), p.22

2.1.2. Digitalization of the F&B Industry

Food waste is one of the major issues at the core of the food and beverage industry, which can be described as the food lost along the food supply chain, by any of its actors: producers, processors, distributors, and consumers (Bellemare et al., 2017; Annosi et al., 2021). It has been estimated that each year, around 30% of production is wasted within the food supply chain (Gustavsson et al., 2011) and in Europe only, 88 million tons (Stenmarck et al., 2016; Annosi et al., 2021). Also, it has been stated that food waste is mainly created by overproduction, the gap between market demand and actual production (Gustavsson et al., 2011) which is a problem that could be solved through the usage of digital tools. Indeed, digital supply chain initiatives (i.e. digital tools, customer-centric platforms) have proven to increase the efficiency of the supply chain as it clears the way for real-time information, transactions, and coordination between participants to flow more easily (Annosi et al., 2021). Thus, digital

technologies may ensure the timely transit of goods along the supply chain so producers can more accurately supply the exact amount of food demanded by consumers, preventing overproduction. In summary, integrating digital technologies in the food supply chain can be of great use primarily for cutting food waste, but also because it brings transparency and operational efficiency in terms of productivity, quality, and cost reduction performance (Saryatmo & Sukhotu, 2021).

2.1.3. Digitalization through Operational Customer Relationship Management

Customer Relationship Management (CRM) can be defined as a process that analyzes a vast amount of data about transactions with customers, bringing understanding of customer behavior. Through the setting of business goals, through CRM, companies may obtain insights that will help them retain existing clients, increase their customers' lifetime value, and stimulate consumer loyalty and satisfaction. CRM can be administrated through dedicated software applications or others, like e-commerce platforms, that combine information technology and marketing, putting together information about customers in databases that can then be used for various purposes (Khlif, 2021). Khlif (2021) distinguishes three types of CRM: operational CRM represents the company's daily relationship with customers, analytical CRM uses operational data to draw conclusions, and collaborative CRM facilitates communication between companies and their customers. Digitalizing the food supply chain through operational CRM is then a way to gather useful data on the volume of goods transacted between actors in the industry, but also of the recurrence of these transactions.

2.2. Network Effects

2.2.1. Contextualization

Network effects can be described as a phenomenon in which the value of a product to one user is higher as more users adopt it (Katz & Shapiro 1985; Lee & O'Connor, 2003). This

concept was first mentioned relating to product utility, where the utility that a consumer derives from the consumption of a good, increases with the number of other agents consuming that same good (Katz & Shapiro, 1985). Katz and Shapiro (1985) stated that these effects may happen because of consumption externalities. Positive consumption externalities may influence other agents to associate more value to a product, therefore boosting its consumption. Through a direct effect, these externalities appear by the direct relationship between the number of consumers enhancing the quality of the product, meaning that a client gives more value to a network with other users simply by being able to communicate with them and being a part of the network. Whereas through an indirect effect, through the relationship between the expected size of the network and product features, the buyer will give more value to a product that is bought by many users because he expects the availability of features and complementary products offered by sellers to be somehow proportional to the number of units sold (Katz & Shapiro, 1985).

Farrell and Klemperer (2007) defined network effects from the perspective of the product, saying they exist if one agent's adoption of a good benefits' other adopters of the good (representing a "total effect"), or if it increases the incentives of others to adopt it (representing a "marginal effect"). They added that a product displays direct network effects if the adoption by different users is complementary, and incentives to adopt increase as more users adopt. Exemplifying, the users of a telecommunications network or speakers of a language directly gain when others adopt it because they instantly receive beneficial opportunities to interact with other users. On the other hand, a product displays indirect network effects when the adoption by other users increases the possibilities of trading with other potential sides of a market. When an additional buyer arrives, the "marginal effect" on sellers attracts additional sellers, and the total and marginal effects of additional sellers on buyers can then be indirectly attributed to the additional buyer (Farrell & Klemperer, 2007). From another perspective, it has

been stated that direct network effects can be categorized as demand-side network effects, given that the number of adopters itself affects the rate of adoption, while indirect network effects are rather on the supply side (Choi et al., 2008). Negative network effects also exist, where excessive network usage or greater network size can decrease the value of the network. Negative network effects in software products can happen in two ways: network congestion, where excessive simultaneous usage of users can decrease product performance, or network pollution, where obsolete or churned users remain in the user database (NfX, 2022).

2.2.2. Competitive Environment

In the context of network effects, systems market competition can be characterized around three major issues: expectation, coordination, and compatibility. In other words, if rational buyers are faced with two concurrent systems, they will base their choice on the expected size of each network, which depends on the coordination between users, but also on the future availability of compatible products (Katz & Shapiro, 1994). Therefore, it is important to further develop some key concepts that enable a deeper understanding of network effects products markets, from which the installed base of users, consumer behaviour, critical mass, and customer lock-in.

2.2.2.1. Product Value for Consumers

The definitions of network effects stated earlier revolve around the increased value of a product for consumers, based on the adoption of that same product by other users. Both direct and indirect network effects add value to the product in some way, which brings us to further develop the concept of perceived value for consumers. Lee & O'Connor (2003) develop consumption behaviours specific to network effects products, explaining that the consumer value of a product is different for network effects products and nonnetwork effects products, distinguishing both the intrinsic and extrinsic value. The intrinsic value, common to all kinds

of products, refers to the attributes and functionalities of the product itself, and of the augmented product experience provided by it (i.e. physical attributes, after-sales support, maintenance packages). Whereas the extrinsic value of a product, which in their opinion is specific to network effects products, refers to the benefits derived from outside the product itself, such as the size of the installed base of users and the availability of compatible and complementary products that enable greater use of the basic product (Lee & O'Connor, 2003). They also specify that intrinsic value remains constant, while the extrinsic value is volatile according to the network effects context of the installed user base. A user's perceived value of a product may also comprise a trade-off between the benefits of the product (i.e. quality, benefits, utilities) and losses (i.e. monetary costs and non-monetary costs like time and sacrifices) (Woodruff's 1997; Cen & Lili 2020). When the good is durable, the user's consumption benefits will depend on the future size of the relevant network, and consumers will base their purchase decisions on expected network sizes (Katz & Shapiro, 1985). Hence, marketing strategies should be designed to influence customer expectations since it is a critical matter in the context of network effects (Lee & O'Connor, 2003).

2.2.2.2. Positive Feedback Loop and Consumer Lock-in

It can be said that in this market, the value of being a member of a network to one user is positively affected when another user joins the network (Katz & Shapiro, 1994). Direct and indirect network effects influence each other and generate a self-reinforcement character that can be seen as a positive feedback effect (Lee & O'Connor, 2003). In their study, Lee & O'Connor (2003) believe that this positive feedback loop is created by the extrinsic value perceived by the consumer, which is linked to compatible products and expected network size. Hence, competition in this market relies a lot on auxiliary products' scope leveraging the primary product's user set. The positive feedback loop in its extreme form can then lead to a winner-take-all market, where the brand with higher extrinsic value leads. Additionally, we

should reinforce the role of the expectations that adopters create in this market because it drastically affects the competition between systems, where users will join the expected “winner” and not the product that best matches their needs and tastes (Farrell & Klemperer, 2007). Therefore, in the market of network effects products, “locking-in” users might be a strategic issue to be considered by providers of networks. Through proactive actions, providers should focus on establishing a great enough installed base that would allow them to influence user preferences, given the context of a market that is sensitive to technological innovations, where “lock-in” may not be a permanent effect (Lee & O'Connor, 2003). One enabler of customer lock-in is switching costs, the costs in money, time or effort that a user incurs when switching from one provider to another. An appropriate definition of switching costs in the context of network effects is the perceived economic and psychological costs that make it difficult to move from one supplier to another (i.e. lost performance costs, uncertainty costs, pre-switching search, and evaluation costs, post-switching behavioural and cognitive costs, setup costs and sunk costs) (Lee & O'Connor, 2003). Hence, when these costs are high, the user is more easily locked-in to a specific product or service. Additionally, in markets exhibiting network effects, there is a natural tendency towards “tipping”, the phenomenon of a system standing out from the competition in terms of popularity, because of the positive feedback loop (Katz & Shapiro, 1994).

2.2.2.3. Critical Mass

The minimal number of adopters that make a network’s rate of adoption be self-sustaining is known as the critical mass (Lim et al., 2003). The term is often discussed together with the “late take-off phenomenon” in the diffusion of interactive innovations, which refers to the fact that the rate of adoption is slow in the early stage of diffusion, and then increases fast after the critical mass is reached (Lim et al., 2003). The concept of critical mass is also addressed with the “startup problem”, which alludes to the problem of how to achieve critical

mass (starting from a small or null initial user set), and how to determine the costs and practical difficulties of attaining a viable user group (Rohlf's, 1974). Rohlf's (1974) assumes the launch of a new network with a null initial user set and proposes four strategies that can help on the startup problem from the perspective of the network provider. These solutions may incur temporary losses for the seller since a positive action on his part is necessary to influence or create the adoption of an initial user set. Firms could use a direct approach pricing by giving the service for free to a weighted selected group of people for a limited time, or setting a low introductory price that could later be raised when a user base is installed. Also, they could do a selection of users from the community of interest groups of the network to test it or select a few substantial contacts, where a set of two or three self-sufficient users could be enough to ensure future growth. To summarize, the majority of network effects' products must achieve critical mass to fully benefit from the defensibility and positive feedback loop provided by their network effects. Before reaching it, the product remains quite vulnerable and may not present value to users. For these products, the challenge is often to find strategies to overcome the chicken-and-egg problem by creating enough initial value that will incentivize early adopters to start using the product, creating the installed base.

2.2.2.4. Benefits of Network Effects

When the utility that a user derives from using a network increases as others join it, then it can be said that the demand for it is interdependent (Rohlf's, 1974). Artle and Averous (1973), show that interdependent demand can sustain growth in a stationary population, by a mechanism of new users joining a system increasing incremental utility and inducing marginal users to join, which induces further growth. In the case of a hardware/software system, it is assumed that as more people adopt one piece of hardware, more supply of software will be available, which will lower the marginal cost of software and therefore its price. In this case, indirect network effects will make consumers give a higher value to the more popular system

(Katz & Shapiro, 1994), enabling economies of scale to software producers. Likely, the positive feedback loop caused by interdependent demand will also make consumers join the more popular network. In the case of a virtual network, the marginal cost of production is short at any volume (Lee & O'Connor, 2003), therefore, the marginal benefit of a user joining, directly reduces the customer cost of acquisition.

Network effects can also bring benefits by increasing the loyalty and satisfaction of consumers, thus enhancing customer retention. Customer satisfaction and customer loyalty are two indicators of long-term performance of network effects products (Lee & O'Connor, 2003). User loyalty can be defined as the behaviour pattern that makes a user choose a product when another alternative is available (Jacoby & Kyner, 1973), while user satisfaction refers to the overall evaluation of the buying process of a product or service (Fornell et al., 1996). In fact, user satisfaction can be a factor that influences user loyalty, together with perceived value and switching costs, elements to which network effects contribute positively (Cen & Li, 2020).

2.2.2.5. Challenges

The success of products in network effects markets is faced with challenges, namely when it comes to achieving critical mass, forecasting and quantifying network effects. Achieving critical mass is often hard because of adoption inertia, the uncertainty and tendency of users to not adopt, which can be due to the chicken and egg problem, or the feedback loop previously explained. In fact, in network markets, the feedback loop can also fall oppositely, whereas a network product may fall into a death spiral because of a self-reinforced lack of adoption (Farrell & Klemperer, 2007). Similarly, it has been stated that network effects may retard innovation. Farrell and Saloner (1985) exemplify this by supposing that if a new and superior technology appears, its potential adopters may not be willing to carry the costs of waiting for its corresponding network to be formed, causing adoption inertia. They also state that this is more likely to happen if the previous product's installed base was large and if the

new product is unattractive in its initial phase. Therefore, to break the lock-in cycle, the innovating product must be highly disruptive in terms of performance and bring enough extrinsic value to activate the positive feedback loop and a competitive installed base (Lee & O'Connor, 2003). Farrell and Klemperer (2007) verbally quantified network effects by defining total effect and marginal effect. The total effect refers to the benefits that a new agent's adoption of a network brings to the old user, and the marginal effect refers to the incentives created by a new agent joining the network that makes other potential users join as well. In the case of B2B digital platforms, network effects may be quantified through user loyalty and new users' conversion, which will depend on every real business case in hand (Cen & Li, 2020).

2.2.3. Network Effects Strategies

2.2.3.1. Product Compatibility and Network Ownership

Product compatibility may be a strategic feature of technological and network effects products. If two firms' systems are compatible, then we can say that the network is constituted of the users of both. When network effects are strong, the choice of making products from different firms compatible is an important issue of market performance, as it doesn't always benefit both firms, therefore, large and well-known firms will tend to be against compatibility as they might not significantly benefit from the partnership (Katz & Shapiro, 1985). Thus, a new firm with no reputation wishing to enter the market might rely on compatibility as a key success factor to increase the extrinsic value of its product, through indirect network effects (Lee & O'Connor, 2003).

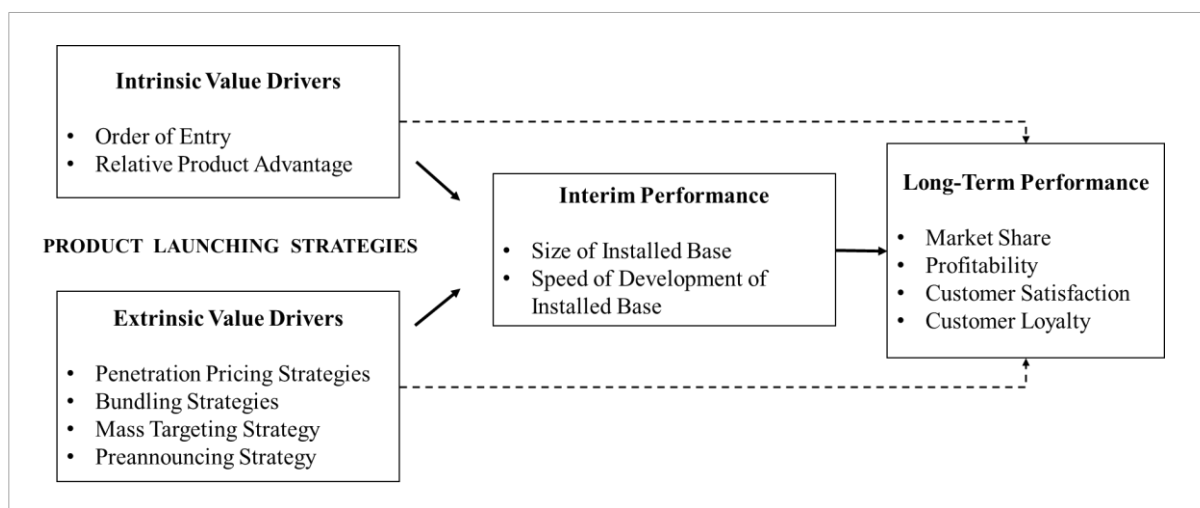
Products in network effects markets are often under-adopted. Consequently, firms may act to induce users to adopt by sponsoring the network, through ownership. In the case of the hardware/software paradigm, for instance, if there's a single owner of a system (both hardware and software are owned by the same entity) and assuming a lower profit margin on hardware, investing in a wider distribution of hardware (i.e. strategic pricing schemes), would be

compensated by the extra sales of software. In fact, this kind of strategy may be beneficial by promoting consumer confidence, but also by subtly passing on a message of commitment to consumers, therefore contributing to their expectations about the future size of the network (Katz & Shapiro, 1994). In other words, ownership is when a network provider who wants to expand the size of the network, voluntarily subsidizes marginal adopters (Farrell & Klemperer, 2007).

2.2.3.2. Entry Strategies

Finally, it is relevant to address four entry strategies in the market of network effects defined by Lee & O'Connor (2003), destined to grow the product's extrinsic value, the major source identified to trigger network effects. In Figure 1, we can observe a representation of the conceptual model presented in their study, where it is shown that network effects products' performance depending on the size and speed of expansion of its installed base, which in turn is caused by the product's intrinsic and extrinsic value.

Figure 1 – Product Launch Strategy and Performance of Network Effects Products



Source: Adapted from Lee & O'Connor (2003), p.245

We will focus on the strategies that drive the extrinsic value of a product since they are

specific to network effects products compared to regular ones. Firstly, the penetration pricing strategy refers to setting a low price in the initial launch phase of the product to develop the installed base quickly, trigger the positive feedback loop as soon as possible, and keep competitors away (Katz & Shapiro, 1985). These price incentives to early adopters will attract future users, and once the early ones are locked-in, then the seller has more flexibility to increase prices as customers will hardly accept to incur the switching costs of adopting an alternative. Secondly, a bundling strategy relates to the offering of several products as a set, at one single price. Combining the sale of two compatible products enhances extrinsic value by extending the network value through direct network effects, but also by exposing product compatibility through indirect network effects (Katz & Shapiro, 1985) which will overall reinforce the positive feedback effects (Lee & O'Connor, 2003). Thirdly, the targeting strategy allows a firm to directly choose whose segments to target, wherein the context of network effects, it was stated that targeting and locking-in the mass-market is appropriate since the priority is to establish the installed base as quickly as possible, which will grow extrinsic value just by extending the size of the network. However, in this context, mass-market strategy is driven by the creation of extrinsic value for consumers and not by production economies of scale since the marginal cost of production is short at any volume. Lastly, the preannouncement strategy refers to promoting the product before its launch, discouraging future competitors' entry in the market, stimulating the positive feedback loop, but also psychologically convincing adopters that the product will be the "expected winner" in the market (Lee & O'Connor, 2003).

CHAPTER 3 - COMPANY OVERVIEW

3.1. Presentation

Katoo is a start-up company founded in 2019 in Madrid, Spain, and provides procurement tools to facilitate communication between restaurants and suppliers. More

precisely, it provides a mobile application for restaurants to use and place orders to their suppliers, but also a web application destined to suppliers, for them to manage the orders received. Its main investor is Rocket Internet, a technology company that behaves like a start-up incubator and a venture capital at the same time, which is known for using a “copycat” business model, meaning it copies the business models of other existing successful start-ups (Maier, 2015). Therefore, Katoo is meant to be a copy of its main competitors, Rekki and Choco, which will be presented further. Katoo expanded to Italy in March 2020, and then to Portugal in September 2021, countries where its competitors weren’t still operating.

3.2. Business Sector and Competitors

Katoo operates in the business-to-business software application market and targets many actors in the food & beverage sector. On one side, it targets companies in the food services industry (also known as HORECA) such as hotels, restaurants, and catering businesses, while on the other side, it targets food producers and distributors. In 2020, the Portuguese restaurant market was worth € 2.625 million, and in 2019 there were around 32.000 active restaurant companies (Informa D&B, 2021). Globally, Katoo directly competes with Rekki (REKKI, 2022) and Choco (Choco, 2022). Rekki was founded in 2016 in London, operating in the United Kingdom and the United States, while Choco, a German start-up, currently operates in Germany, the United States, France, Spain, Austria, and Belgium. The products of Rekki and Choco are quite similar in terms of functionalities, offering a desktop application for suppliers to use as a marketplace for their products, and a mobile application for restaurants to order to the suppliers who are registered. Their suppliers’ platforms work as a digital marketplace for them to directly sell their products to any restaurant, as opposed to Katoo. The only market where Katoo has direct competition is in Spain, against Choco. In Portugal, Katoo’s indirect competition is named WinOrder (WinRest360, 2018), a platform provided by WinRest360, the management software solution used in the majority of Portuguese

restaurants' points-of-sale. WinOrder is destined for Restaurants to use as a module of their existing software and only offers a desktop version, differing from Katoo.

3.3. Products and services

3.3.1. *Katoo For Restaurants*

Katoo's first launched product was Katoo for Restaurants, a mobile application focused on reducing the time spent in the ordering process to suppliers. The segmentation of Katoo For Restaurant's potential users is done using a firmographic approach, considering the industry and size of the company. The targeted companies are the ones providing food services (or HORECA), to which three sizes were defined, according to the number of existing points of sale. Katoo identified as target the small and medium companies because of the identified needs (Table 2).

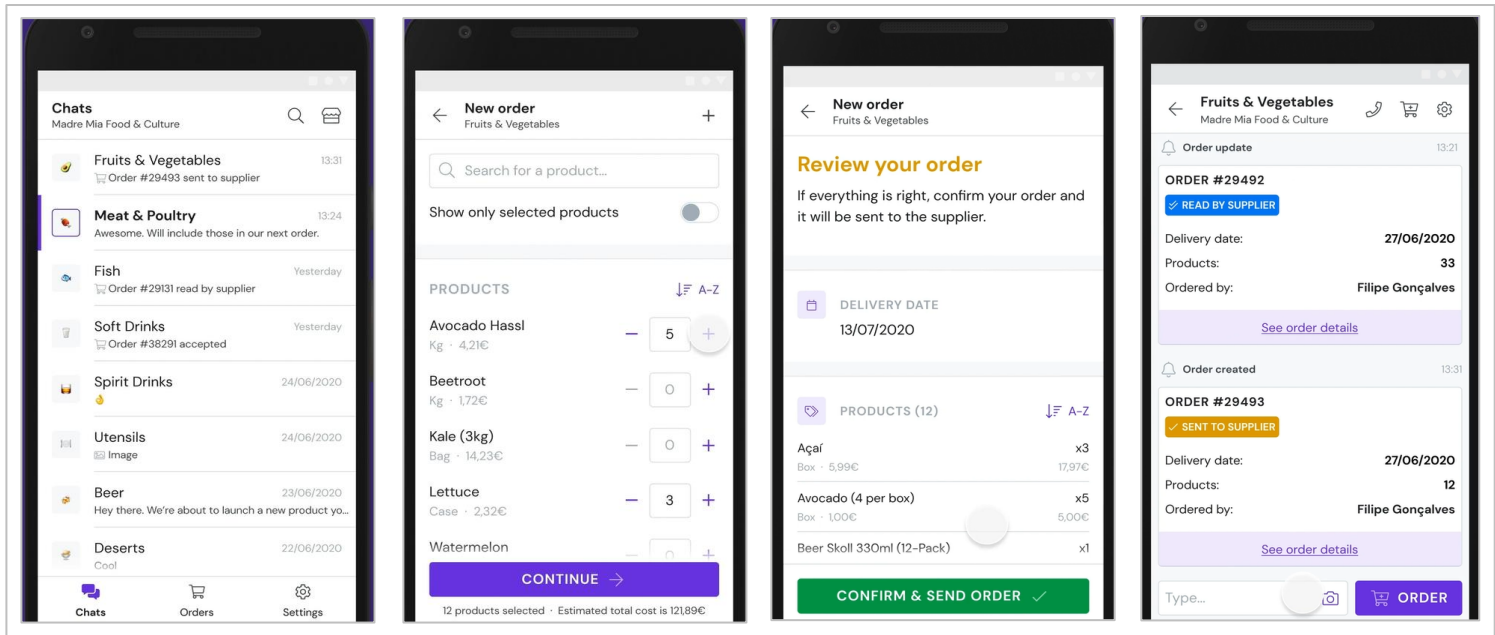
Table 2 – Katoo For Restaurants' Segmentation

Segment Name	Number of Points-of-Sale	Needs
Small	1 - 2	Katoo may be useful but not essential as their volume of orders may not justify the usage of an application.
Medium	2 - 10	Katoo may be useful to centralize the orders of all POSs without having to invest in sophisticated and costly software as they incur a manageable volume of orders.
Large	+ 10	Katoo may be useful to centralize the orders of all POSs. Nevertheless, the order volume may require more sophisticated and costly software that integrates with inventory management systems.

Source: Author

The application's functionalities allow restaurants to have visibility over their selected suppliers and products, and to place their orders through an intuitive and quick digital process (Figure 2).

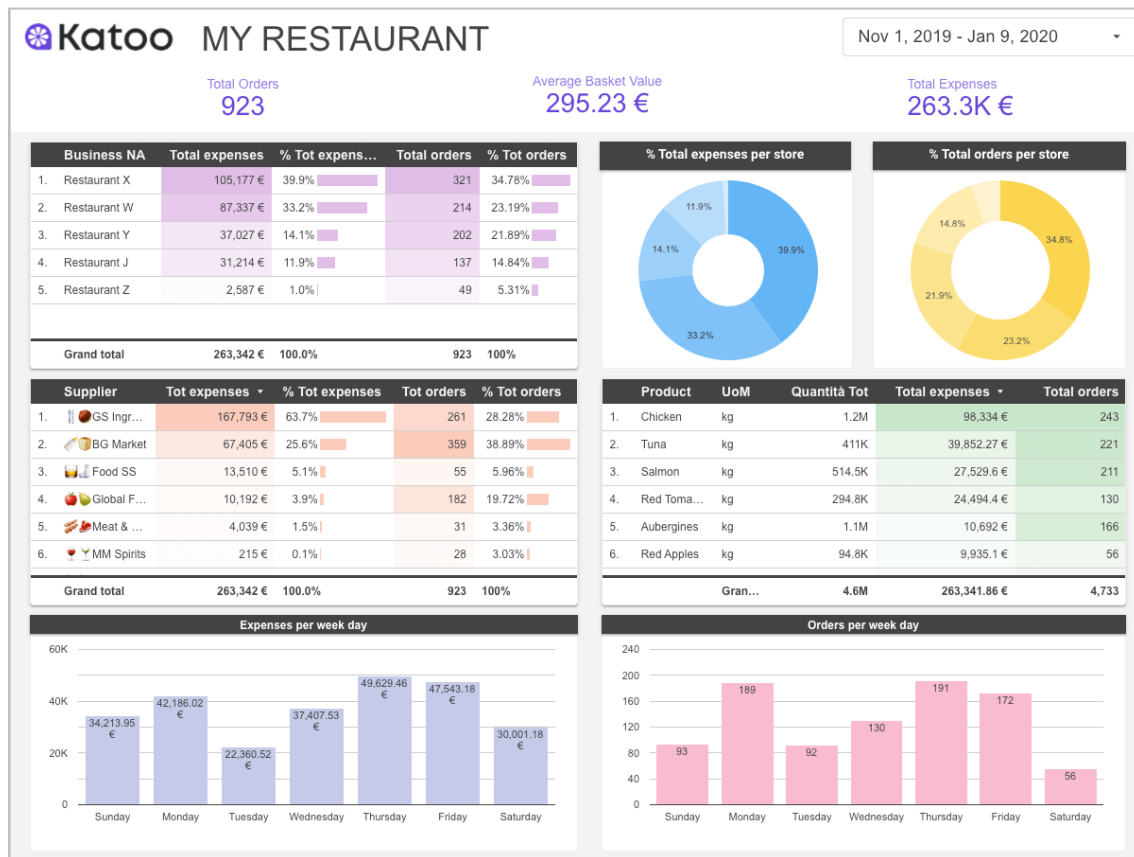
Figure 2 - Katoo For Restaurants Digital Ordering Process



Source: Katoo Website (Katoo, 2022)

The user can track his orders through the app, by being able to check if the supplier has read and accepted the request. The application also provides a chat for restaurants to directly communicate with suppliers, and an order draft functionality that can be used as a shopping list, to easily track what products are missing and avoid stock-offs. Additionally, each point-of-sale account can have an unlimited number of users, accessing and having visibility over each other's orders and drafts. This way of placing orders allows clearer communication between restaurants and suppliers, centralizing all orders in the same platform, which allows them to save time, reduce waste, increase operational margins and improve overall efficiency. Apart from the application functionalities, the HORECA client has also access to expenses report generated daily, where they can assess the expenses incurred on each supplier, by time filter and by product category, providing an accurate view of their actual expenses with procurement, and enabling more precise control over them (Figure 3).

Figure 3 - Katoo for Restaurant's Expenses Report Example



Source: Katoo Website (Katoo, 2022)

The application can be downloaded on App Store for iOS devices or the Play Store for Android devices. Katoo for Restaurants' promotion is mainly made through inbound digital marketing, aiming at creating and distributing content that draws people to their website, but also through outbound marketing, by a sales force who directly addresses the target audience. Firstly, through inbound marketing, Katoo's website presents its products and benefits, together with buttons that redirect the visitor to the submission of a personal data form (i.e. business name, city, contacts), consenting on being further contacted by a sales agent. There is also a WhatsApp chat button, to directly interact with an agent via WhatsApp.

Secondly, Katoo's ads are present on Facebook and Instagram targeting restaurant owners and users in the food industry. When clicking, the prospected user gets redirected to the same personal data form available on the website. Parallely, prospects may opt for directly

downloading the app on their phone, which will redirect them to a demo video and then to the same personal data form previously mentioned. Through outbound marketing, a sales force is proactively contacting targeted prospects over the phone, to present the product and do a demonstration.

To use Katoo, the restaurant manager must transmit to the Katoo sales agent the minimum necessary information required to create the Katoo profile. This information includes the restaurant delivery address, the contacts and products of his suppliers, and the contacts of the users that must have access to the restaurant's profile. Then, he chooses the channel through which the order requests should be sent.

3.3.2. *Katoo for Suppliers*

The second launched product was Katoo for Suppliers, a web application intended to serve F&B producers and distributors, which can be segmented according to their size, according to the number of clients they serve. The target audience is small and medium enterprises, according to their needs (Table 3).

Table 3 – Katoo for Suppliers' Segmentation

Segment Name	Number of Clients	Needs
Small	0 - 500	Katoo may be useful but not essential as the volume of orders received may not justify the usage of paid software. Management can be done through alternative applications.
Medium	500 - 2000	If not using already another software, Katoo may be useful to centralize the orders of all clients without having to invest in highly sophisticated and costly software.
Large	+ 2000	Usually, already use sophisticated software to manage orders, sometimes even software developed on their own.

Source: Author

In terms of functionalities, the application allows suppliers to manage order requests.

Requests from clients using Katoo for Restaurants are automatically processed, while requests from others must be manually inserted into the system. The application allows suppliers to display their product catalogue and delivery rules (i.e. Deliveries are made between 9 a.m and 3 p.m), but also to broadcast promotional campaigns to specific customers using Katoo for Restaurants. Suppliers also benefit from the chat, which allows them to speak to their clients through Katoo’s app directly (Figure 5).

Figure 4 - Katoo For Suppliers (Orders’ Tab)

Order ID	Order Date	Delivery Date	Client	Cart	Notes	Status
38294	Today	Tomorrow	Kitt Maria Carmen	9 products 12 items		PENDING REVIEW
38294	Today	Tomorrow	Emporio Maria Garcia	7 products 123 items	We won't open in the morning, so delivery must be done after 1PM.	PENDING REVIEW
38294	Yesterday	Today	Alias Carmen Monzón	44 products 44 items		PENDING DELIVERY
38294	Yesterday	Tomorrow	Kitt Ligia Maciel	13 products 26 items	The soy sauce must be Kikkoman	REJECTED
38294	Yesterday	Today	Lila&Lola Isabel Marques	22 products 49 items		DELIVERED
38294	2 days ago	Yesterday	La Aspen Maria Pilar López	87 products 194 items	We'd prefer mature green tomatoes if possible.	DELIVERED
38294	5 days ago	02/06/2020	Kitt Ligia Maciel	9 products 9 items	We will be working closed doors on the day of the delivery and the doorbell is off. Please, call (+34) 661 483 444 when here otherwise we won't know.	DELIVERED
38294	30/05/2020	01/06/2020	Kitt Laura Fernández	19 products 42 items		DELIVERED
38294	29/05/2020	01/06/2020	Pasión Mediterránea Juan Jesus	11 products 44 items	We will be working closed doors on the day of the delivery and...	DELIVERED
38294	28/05/2020	30/05/2020	Taj Mahal Antonio Luis Sánchez	6 products 11 items		DELIVERED
38294	28/05/2020	29/05/2020	Casa Dolce Casa Josefa Pérez	99 products 1342 items	The delivery must be signed by our coworker José.	PENDING REVIEW
38294	27/05/2020	30/05/2020	Ritual Rebeca González	4 products 40 items		REJECTED
38294	27/05/2020	30/05/2020	Kitt	49 products		PENDING DELIVERY

Source: Katoo Website (Katoo, 2022)

Additionally, Katoo developed partnerships with providers of Enterprise Resource Planning (ERP) software, a type of software that organizations use to manage day-to-day business activities, from which SAP (SAP, 2022) and Holded (Holded, 2022), to be able to integrate Katoo for Suppliers with the supplier’s ERPs. This integration is meant to coordinate the suppliers’ sales processed through Katoo with their inventory management system, turning the process more efficient. The application’s pricing is composed of several parcels (Table 4).

Table 4 – Katoo for Suppliers’ Pricing

Price Component	Price (€)*
Setup Cost (one-shot)	2000
Integration Cost (one-shot)	5000
Commission price (per order)	2% (of transacted value)

Note: * = approximated values

Source: Author

The suppliers’ application can be accessed as a Software as a Service (SaaS), by logging onto Katoo’s website. Being a SaaS means that Katoo’s supplier application is fully managed by Katoo, from the servers to the data itself. Katoo for Suppliers’ promotion is done on the same channels as Katoo for Restaurants.

To use Katoo, the prospected client must provide the sales agent with the necessary information to create the profile, and to sign a contract guaranteeing his commitment.

3.3.3. Additional Services and Product Development

Besides its products, Katoo offers individualized and specialized customer support to its users. A department of customer success is responsible for assisting the users’ needs that may arise and for updating customer profiles in a spectrum of 24h. The team is reachable through WhatsApp messenger and e-mail. Moreover, Katoo is now focused on developing new value propositions to complement the existing products, which will pass by continuing to improve the applications but also partnering up with providers of value-added features. Upgrading Katoo for Restaurants will improve the user experience by adding new operational functionalities, which will increase intrinsic value and allow a steady growth of monthly active users and increased client retention. Secondly, investing on the suppliers’ side may bring opportunities in providing a State-of-the-art SaaS for suppliers, no matter their size and level of professionalism. Thirdly, Katoo is developing the integration of a Fintech solution to include

payments and billing solutions in Katoo's apps, which will allow restaurants to pay their suppliers, and suppliers to do the billing and invoicing through Katoo. Nevertheless, payments and billing are only possible if both sides are using Katoo. Katoo's financial partners are MangoPay (Mangopay, 2022) and Hokodo (Hokodo, 2022), the second one offering a "buy now pay later" solution.

3.4. Network Effects at Katoo

3.4.1. *Katoo's Strategy*

Katoo presents two products that target actors on the same market, aiming to serve as an intermediary between the two, which challenges them to create a need on both consumer sides. Katoo's final objective is to create a business-to-business two-sided marketplace, but their strategy relies on going through several stages of client awareness that will allow them to acquire an initial installed base to eventually reach critical mass. The first phase corresponds to the launching of Katoo for Restaurants' platform, a free mobile application meant to be easily distributed among HORECA clients, with the sole objective of turning their process more efficient. In the meanwhile, suppliers would start receiving orders through Katoo and becoming aware of the brand, then with the collected knowledge from first experiences with Restaurants, the suppliers' app could be developed more accurately. The second phase coincides with the launching of Katoo for Suppliers, where the main objective is to onboard as many suppliers as possible, integrate payments, and start monetizing the business through the sales of the paid application. At the end of this stage, the critical mass should be achieved and network effects should organically work. The third phase would be to use the installed base of restaurants and suppliers to create an online marketplace, a B2B two-sided platform that would bring together the demand and supply of food procurement, bringing the desired transparency and efficiency to the supply chain.

3.4.2. Katoo's Network Effects

Network effects describe the phenomenon in which the value of a product increases as more users adopt it. In the case of Katoo, direct network effects manifest through the fact that a restaurant will more easily join Katoo if its suppliers are using it. Likely, a supplier is more prone to buy Katoo's software if the volume of orders coming through Katoo is large enough to justify the costs of implementing it. Indirect network effects come likewise, as users will give more value to Katoo when expecting the features and availability of complementary products to be wider because of the number of users. In this case, we can call restaurants the buyers and suppliers the sellers. Indirectly, an additional buyer joining the network attracts additional sellers, likely, an additional seller will attract additional sellers. Here, we observe the marginal effects of the additional buyers and sellers. Moreover, negative network effects also exist, firstly, network pollution is common as it is hard to keep information about restaurants and suppliers updated. Katoo serves actors in an ever-changing environment, where the transacted products are nondurable goods, making it difficult for sellers to keep prices and available quantities stable. Also, the information displayed about suppliers who aren't registered at Katoo can easily become obsolete, as it can only be updated by the restaurant using it. Nevertheless, the mechanisms and particularities of Katoo's network effects can be identified at all stages of their strategic roadmap.

The first phase of Katoo's strategy intends to acquire the initial installed base that will lead to the achievement of critical mass, the minimal number of adopters that make the further rate of adoption self-sustaining, which passes by attracting the higher number of restaurants to start using Katoo. To overcome the start-up problem, a direct approach pricing can be identified, since Katoo for Restaurants is completely free for any HORECA client. Although this first phase may present losses for the company, the objective is to influence the first adopters and create brand awareness. Once the initial user set is in place, Katoo's value for

consumers starts increasing, namely its extrinsic value, based on the expectation of the future size of the network of Katoo users. Moreover, when targeting HORECA groups from two to ten points-of-sale, we can expect the user base to grow exponentially, which facilitates the product's adoption and the positive feedback loop. Before joining Katoo, restaurants usually consider the trade-off between the benefits and losses of joining. If from one side they believe that the tool shall improve operational efficiency and internal organization, they may at the same time be reluctant to commit to the timings of enrolling in the onboarding process, in the loss of direct personal contact with their suppliers, and also with sharing sensitive data with a company they just met. A major reason for adoption inertia is the fact that Katoo for Restaurants doesn't integrate with other tools used by restaurants (i.e. inventory management software, point-of-sale invoicing systems). If the benefits overcome the losses perceived, then the customer is more likely to join the network. As of December 2021, Katoo for Restaurants had approximately 1000 users in Spain, Italy and Portugal combined, acting as the initial user set.

The second strategic phase is the launch of the suppliers' application. At this point, suppliers are already aware of Katoo's value proposition by positive feedback generated from their existing clients, the HORECA agents using Katoo for Restaurants. On the suppliers' side, several partnerships have been developed to increase both intrinsic and extrinsic value of the product, like integrating Katoo's order management software with suppliers' ERPs, but also the financial solutions that would allow payments and billings to be made through it. Additionally, Katoo has total ownership over its network, providing tools to both sides of its targeted audience (buyers and sellers). As mentioned previously, network ownership is a valuable strategy for network effects products as it promotes consumer confidence by showing commitment to the network, therefore contributing to the expectations about the future size of the network, together with product compatibility. Nevertheless, switching costs are

significantly higher for suppliers than for restaurants, as it implies not only a monetary cost but also emotional costs incurred with the risks of data migration and trusting a company with no reputation with some of their key processes. The success of the second phase is already relying on the success of network effects generated by the first one and assumes that an installed base of suppliers is being constructed. As a result, network effects should turn the rate of adoption self-sustaining with the onboarding of suppliers, where, one supplier influences all their HORECA clients to join Katoo, which will indirectly influence their own suppliers to join the network, and so on. It's relevant to identify the launching strategies used by Katoo, meant to increase the extrinsic value of their products. From those referred by Lee & O'Connor (2003), firstly, a penetration pricing strategy was chosen by offering the first product for free, allowing them to acquire early adopters and attract future users. Parallely, a targeting strategy to the mass market on the F&B industry is followed for both products, which may allow them to establish installed bases on both sides of the market, and eventually locking-in their consumers. Once customers are locked-in, Katoo would then have the flexibility to practice competitive prices as users would hardly bear the switching costs of adopting an alternative.

Finally, the third stage corresponds to the conversion of both products into a single marketplace product, where the existing installed base on both sides would ensure Katoo to be the "expected winner" in its operating market, especially in the countries where there's no competition. In a B2B marketplace, both buyers and sellers are influenced by each other because of the trading opportunities that become possible. Direct network effects arise from both sides being able to reach a broader audience for their products, and indirect network effects arise from both sides believing that more features and complementary services will be available in the future.

3.4.3. Measurement

The quantification of the installed base and subsequent network effects is done through

key performance indicators defined internally. Katoo uses their first product as an Operational CRM to monitor user data on restaurants, like the recurrence of their orders, monetary volume transacted, and also the nature of the transacted products. The scope of the internship only includes the first stage of the identified strategy, therefore, there is not enough data to parametrize the sale of Katoo for Suppliers, quantify the usage of Katoo's applications with real data, nor the network effects generated.

The Restaurant's application user base can be quantified according to the monthly active users of the platform and related transactions (Table 5).

Table 5 – Katoo For Restaurants' Key Performance Indicators

KPI	Unit	Description
Monthly Active Users (MAU)	Number of users	Users having placed at least one order in the last month;
Lost Users	Number of users	Users not having placed an order for more than two months;
Orders	Number of orders	Number of orders placed in that month;
Average Basket (Avg. Basket)	Value (in Euros, per order)	Average monetary value of the orders placed;
Gross Monthly Value (GMV)	Value (in Euros)	$GMV = MAU * Orders * Avg. Basket$

Source: Author

The Gross Monthly Value is the main indicator driving Katoo's growth, and it should increase 10% every month. For this to happen, the number of active users should increase steadily every month, together with the number of orders and the volume of products transacted through the application. Finally, network effects would be calculated after the number of new users generated by existing users, at the different stages of activity. Some indicators have been

discussed and defined to be further used by the company (Table 6).

Table 6 – Key Performance Indicators to Measure Network Effects

Number	KPI	Unit
1	Points-of-sale onboarded through suppliers	Number of POS
2	Points-of-sale (from #1) that bring 2+ suppliers	Number of POS
3	Contracts signed with suppliers brought by POS (from #1)	Number of contracts
4	POS brought by suppliers (from #3)	Number of POS

Source: Author

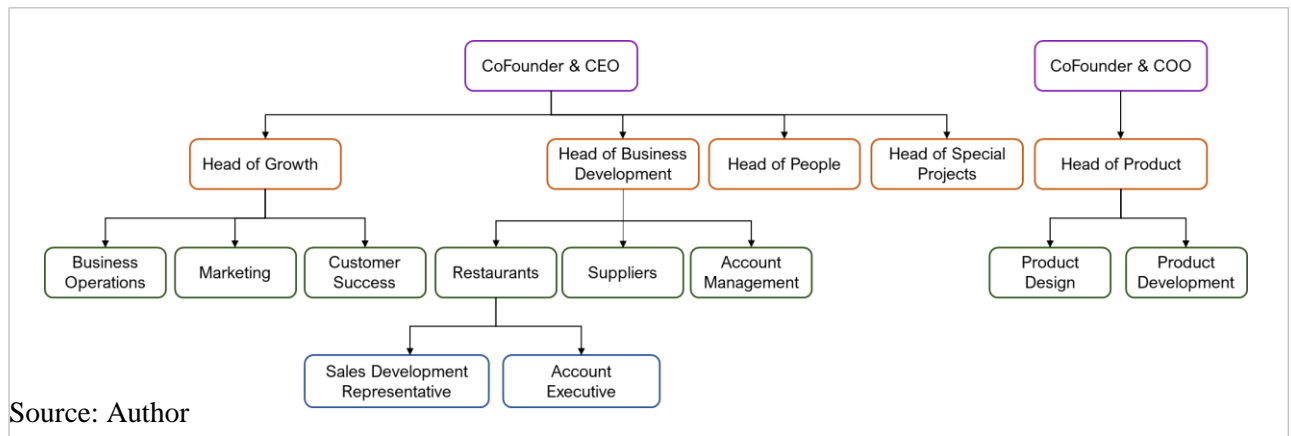
CHAPTER 4 - INTERNSHIP OVERVIEW

In this chapter, a description of the internship is done, firstly stating the company structure and the role of each department. Secondly, the company's sales cycle is explained and illustrated by the main activities performed during the internship. I joined Katoo as an Account Executive, in the Business Development department. The internship took place from the 22nd of September 2021 until the 31st of January 2022.

4.1. Company Structure

Katoo employs around 130 people in Spain (70%), Italy (20%) and Portugal (10%). As observed in the organizational chart (Figure 6) the company is composed of five areas: Growth, Business Development, People, Special Projects, and Product Development.

Figure 6 - Katoo's Organizational Chart



Each department is managed by one functional leader, and the more crowded areas are the operational ones, to which the business development contributes the most as Katoo’s a sales-driven company (

Table 7).

Table 7 – Headcount proportion by functional area

Area	Headcount Proportion*
Growth	20%
Business Development	50%
People	4%
Special Projects	2%
Product Development	24%

Note: * = approximated values

Source: Author

The department of Growth is responsible for all the activities driving Katoo’s growth. Business Operations are in charge of processing clients’ data and the creation of the user profiles on the platforms. Marketing is in charge of generating leads, managing promotion budgets across all channels, and also of the external communication of Katoo. Customer success is in charge of making operational changes to existing user profiles and customizing them to their needs. Data

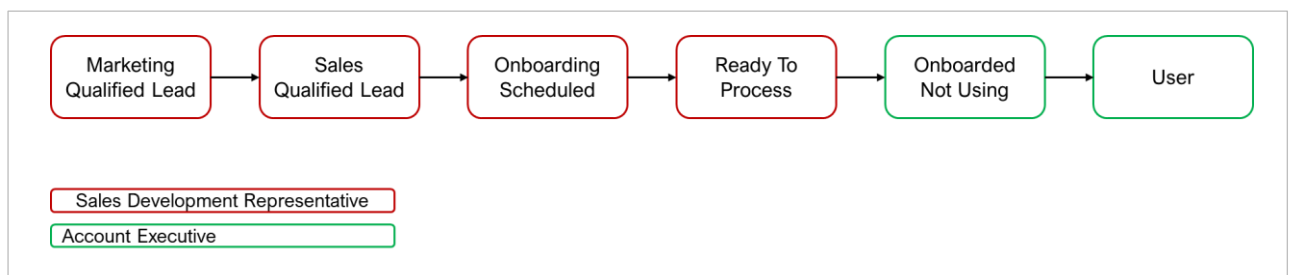
and Insights are in charge of guaranteeing that every corporate decision is based on data by developing business intelligence dashboards and analysis to drive activity, mitigate risks and evaluate results. The People department is composed of talent recruiters and people coordinators, in charge of talent retention, career progression, and happiness management. The Special projects area acts as a consulting unit transversal to all areas and runs short-term projects and initiatives across the company. Finally, the product development unit comprises engineers, product designers, and user experience experts, who develop, test, and implement Katoo’s platforms.

4.2. Internship Scope

4.2.1. Business Development Department

The business development department is the area in charge of acquiring and retaining clients. Reporting to the global business development functional leader, there’s a responsible for Katoo for Restaurants, a responsible for Katoo for Suppliers, and a team lead of Account Management. I was included in the sale of Katoo For Restaurants, reporting to the Portugal Sales Manager. The team was composed of Sales Development Representatives (SDR) and Account Executives (AE), whose responsibilities were split throughout the sales cycle (Figure 7).

Figure 7 - Katoo For Restaurants’ Sales Pipeline Stages



Source: Author

Sales pipelines were managed on a customer relationship management software, Hubspot, where ideally, a prospected client goes through all the stages in the sales pipeline (Table 8).

Table 8 – Katoo’s Sales Pipeline Stages

Stage	Description
Marketing Qualified Lead	A lead was moved into the sales pipeline, through inbound marketing or outbound scrapping, but still hasn’t been contacted.
Sales Qualified Lead	The SDR has contacted the lead to pitch and do a product demonstration. The lead is qualified and might be interested.
Onboarding Scheduled	The prospect is interested and wants to follow up on the process. It has agreed to send over the necessary information to create a Katoo profile.
Ready to Process	The prospect has sent the necessary information over to the SDR. The SDR has sent it to the AE.
Onboarded Not Using	The AE has created the prospect’s profile but hasn’t activated it yet.
User	The prospect did the first order through Katoo and is now a user.

Source: Author

Sales Development Representatives are in charge of first approaching the client to pitch and provide initial product demonstrations. After that, they must collect the necessary information to create the user’s profile. The client is then passed on to the responsibility of the Account Executive, which is in charge of completing a template and transmitting it to the Business Operations department, which will create the profile. Once the profile is ready, the Account Executive is responsible for assisting user conversion by accompanying clients on their first order through the application. Once the user is active, its account is passed on to the Account Manager, who is responsible for retaining it, by ensuring user satisfaction and loyalty. This department is also responsible for growth opportunities within the existing clients, aiming to integrate more points of sale per client. The business development department’s key

performance indicators (Table 9) are meant to calculate and follow up on the efficiency of each of the sales cycle' stages and are crucial to ensure the return on investment from marketing and sales force.

Table 9 – Business Development Key Performance Indicators

KPI	Unit	Description
Activations	Number of users/month	New activated users;
Ready to Process	Number of users/month	Activations in the pipeline;
Conversion Rate	Percentage / month	Percentage of sales qualified leads that turn into users;
Qualification rate	Percentage	Percentage of marketing qualified leads that turn into sales qualified leads;
Churn rate	Number of users	Percentage of users who haven't used the app for more than two weeks;
Average Sales Cycle	Days	Average duration that it takes to turn a marketing qualified lead into a user;
Cost of Acquisition	Value (in Euros)	Cost incurred by the company to onboard a user.

Source: Author

4.2.2. Main Activities and Objective Key Results

During my internship, I was an Account Executive for one month, and a Sales Development Representative for three months. The activities performed during September and October as an Account Executive focused on closing deals and ensuring user conversion (Table 10). As a Sales Development Representative, the activities performed focused on managing and developing the sales pipeline of inbound and outbound prospects and collecting the necessary information to create a complete user profile (Table 11). As an SDR, I was confronted with monthly sales targets, which consisted of acquiring 23 new points of sale,

every month (Table 12). User acquisition is completed once the necessary information to create the user's profile is collected.

Table 10 - Activities Breakdown (September – October 2021)

Task	Recurrence	Tool
Inserted collected data on the CRM system	Daily	Hubspot
Updated client's status update on CRM system;	Daily	Hubspot
Created templates with client's data to create users;	Daily	Notion
Supported operations' department requests to complete missing data;	Daily	Notion
Performed phone and video calls to assist clients in the placement of the first order through the app (user activation);	Daily	Phone / Video call
Communicated team results' in global channels.	Daily	Metabase / Slack

Source: Author

Table 11 - Activities Breakdown (November – January 2021)

Task	Recurrence	Tool
Contacted leads to verify interest;	Daily	Phone / video call
Provided initial product demonstrations;	Daily	Phone / video call
Sent written communication to collect information;	Daily	E-mail / WhatsApp
Contacted clients to follow-up on the information requested;	Daily	Phone / WhatsApp
Inserted collected data on the CRM system;	Daily	Hubspot
Updated client's status update on CRM system;	Daily	Hubspot
Communicated team results' in global channels;	Daily	Metabase / Slack
Prepared weekly sales department meetings.	Weekly	Notion

Source: Author

Table 12 – Personal Objective Key Results

	November	December	January
Expected Target	23	23	23
Achieved Target	29	26	23

Source: Author

CHAPTER 5 – CONCLUSION

5.1. Introduction

Katoo emerged to digitize a segment of the food supply chain through the launching of communication tools that ease the communication between make two sides of the same market to increase operational efficiency and enhance transparency. These products are typically said to exhibit network effects, the phenomenon where its value increases as more users adopt it. Network effects' products usually succeed differently; they are introduced to the market as broadly as possible and are managed with the objective of rapid market penetration to acquire the necessary initial installed base. The initial user set allows the positive feedback loop to start, which will, in turn, increase the extrinsic value of the product, accelerate the speed of development of the installed base, whereas network effects would be self-sustaining towards long-term performance. Through Katoo for Restaurants, their first product, Katoo could obtain and use the data transacted between restaurants and suppliers, using then the product as an Operational CRM tool which allowed them to monitor key performance indicators that would measure the desired and prospected network effects.

5.2. Discussion

Katoo opted for following a three phases fragmented strategy, the one where we're at today being the first, and meticulously chose the strategic network effects' elements to engage

in at each phase. The company's strategic decisions showed an engagement to the deployment of network effects by looking after several key aspects of network effects strategies mentioned in this paper's literature review, nevertheless I believe it also failed in covering some of the crucial elements. Lee & O'Connor (2003) highlighted the importance of building extrinsic value for the product, which refers to the installed user base of users and compatible products. In the launch of Katoo for Restaurants, from what I could observe, the company failed to transmit the extrinsic value of the product by not developing any partnerships and by failing to transmit enough confidence on the future size of its installed base. Furthermore, the concept of critical mass defined by Lim et al. (2003), which corresponds to the number of active users that make the network's rate of adoption be self-sustaining seems to not have been achieved.

On the another hand, Katoo opted by having the ownership of the network which gives them the capability to subsidize marginal users of the network, having practiced strategic penetration pricing to induce the adoption of Katoo for Restaurants, which contributed positively to the feedback loop, as referred by Lee & O'Connor (2003). Despite a positive feedback loop, Katoo failed to lock-in their consumers, probably because of the lack of valuable extrinsic value perceived by their users. Also, through Katoo for Suppliers, the company focused on developing partnerships to obtain product compatibility, as stated in Farrell & Klemperer's study (2007), which increases the extrinsic value of the product by influencing the expected size of the network perceived by customers

5.3. Theoretical Contribution

Operating in a dynamic and ever-changing environment, integrating a new tool can be more difficult than expected. Even though Katoo engaged in several key aspects for their network effects to be successful, I could observe that the network effects' key elements all influence each other, whereas if the perceived value of the product by consumers is not strong

enough, then the critical mass is directly compromised, which can be enough to lead a product to failure. This work can then contribute to Lee & O'Connor's study (2003) to understand how companies can build extrinsic value for their product, but also how to mitigate the risks of not achieving enough differentiation. Moreover, within this report we could confirm the importance of the concept of critical mass in network effects products, as in the case of Katoo, given that the business failed to achieve the minimum number of users for the rate of adoption to be self-sustaining. This given, I believe that an interesting way to go deeper in Lim et al.'s study (2003) would be to develop the nature of the metrics used to calculate the critical mass according to the type of company, given that they are different from business to business.

5.4. Practical Contribution

Katoo's success is highly dependent on its network effects, which are hard to forecast. To thrive, Katoo would need to ensure that its monthly active users increase together with the volume of orders placed through the app, but also with the global value transacted, which is hard to predict as the industry where it operates is volatile and consumer behaviour is hard to foresee. HORECA businesses work with non-durable goods that they provide from suppliers and that they provide to end-customers, which puts enormous pressure on the quantities consumed and prices charged because of the difficulty in forecasting demand and balancing procurement and sales. From what I could perceive from the Portuguese market, the product was well-received and positive feedback was generated by modern mid-sized food services companies owned by young entrepreneurs, as opposed to strong resistance and rejection from the part of traditional ones with hierarchical established processes. Despite Katoo's efforts, the business as it was at the time of the internship wasn't successful enough to raise the next round of investment, which forced them to reposition and build a new product, eradicating the previous two products, Katoo for Restaurants and Katoo for Suppliers. The new product is a B2B marketplace, which puts together restaurants' demand and suppliers' supply on the same

platform.

I believe that launching two distinctive products was a complex and ambitious strategy for a newborn company with no reputation, not only because the final goal is the establishment of a business-to-business marketplace, but also because Katoo is operating in a complex sector, where their strategic choices may not have been the most adequate. Also, I believe that providing a product for free might compromise the customer's commitment, and not providing any compatible products for the first launched product may compromise the extrinsic value perceived by the initial user set at launch. Therefore, improvements that I would suggest to the company would be to work closely with the key data on which network effects depend, and to beware of overinvesting if these variables aren't behaving as they should. Also, if the company is to sponsor the marginal users of the initial launched product, then it should guarantee that it is a product-market fit, because if the product's intrinsic value isn't significant, like product differentiation, then its extrinsic value may not be sufficient to succeed.

5.4. Limitations and Further Research

The limitations of this report are related to the strategic milestones' timing. Katoo's strategy is moving towards the achievement of network effects but today we have only visibility over the first phase, which limits the critical appraisal of the choices made. Certainly, allowing real-time information and coordination between participants to run more easily may from one side, help Katoo reaching their prospected clients more easily, but also highlight the benefits that digitalization can bring to this segment of the food supply chain. An analysis of the previously mentioned key performance indicators should be pertinent to assess the overall success of Katoo's strategy. Nevertheless, the road to reducing food waste by countering over-production is long, and I believe that a business-to-business marketplace gathering restaurants and suppliers' needs in real-time should provide the transparency and efficiency necessary to diminish the gap between market demand and actual production, therefore reducing food waste.

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