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Self-Service Technology Contribution for Achieving High Levels of Service Performance and Support Customers in a Better Service Experience: A Study of Fast-Food Restaurants

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Master's in Management of Services and Technology

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Abstract

Fast-food restaurants are known for their ability to prepare and deliver meals faster than traditional restaurants. These restaurants are part of a market segment responsible for 50% of the total sales in the restaurant sector. To reach their main goals and continue with a high level of sales, fast-food restaurants have implemented self-service technology-based solutions, in order to increase efficiency, quality, reduce costs and save time.

When talking about self-service technology in the fast-food industry, the main tools used are self-order kiosks and online food delivery apps. These solutions are based on an interface that allows the customer to see images of the order, as well as to customize the orders and access specific information about any ingredient. This study is concerned with understanding how self-service technology can help fast-food restaurants to achieve high levels of service performance, as well as support customers with a better service experience. Both service performance and service experience are important to the success of the business, and the technology used needs to be well aligned with them. Considering this, six fast-food restaurants were analysed according to both perspectives, as well as 32 customers were interviewed, and 95 online reviews were collected. All this data helped to provide conclusions regarding the implementation of self-service technology in the six fast-food restaurants, and how does that impact the service experience and performance of the business.

Keywords: Fast-food restaurants, Self-service technology, Service Performance, Service Experience

JEL Classification System: L83, O14,

Resumo

Os restaurantes *fast-food* destacam-se por terem um serviço que permite a preparação e entrega de refeições, de forma mais rápida, quando comparados com restaurantes tradicionais. Este modelo de restaurante faz parte de um segmento de mercado responsável por 50% das vendas totais do setor da restauração. Para atingir os seus principais objetivos e manter o elevado nível de vendas, os restaurantes de *fast-food* têm implementado soluções baseadas em tecnologia *self-service*, que permitem aumentar a produtividade e qualidade do serviço, assim como reduzir custos e tempo.

As principais tecnologias *self-service*, utilizadas em restaurantes *fast-food* são os quiosques e as plataformas online de entrega refeições. Estas soluções baseiam-se numa interface que permite ao cliente visualizar imagens do seu pedido, bem como customizá-lo e aceder a informação específica sobre os alimentos. Assim, o presente estudo pretende compreender como é que a tecnologia *self-service* pode ajudar estes restaurantes a alcançar um serviço com boa *performance*, bem como proporcionar aos clientes uma boa experiência. A *performance* e a experiência são dois fatores chave para o sucesso do restaurante, e a tecnologia *self-service* utilizada deve estar alinhada com estas variáveis. Assim, este estudo contempla seis restaurantes de *fast-food*, que foram estudados de acordo com ambas as variáveis. Para tal, foram entrevistados os gestores de cada restaurante, assim como 32 clientes dos mesmos, tendo sido ainda recolhidas 95 avaliações de clientes *online*. Os dados recolhidos permitiram tirar conclusões sobre a implementação da tecnologia *self-service* e sobre o seu impacto ao nível da experiência e *performance*, associadas ao serviço.

Palavras-chave: Restaurantes *Fast-foods*, Tecnologia *Self-service*, *Performance* do Serviço, Experiência do Serviço

Classificação JEL: L83, O14,

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List Of Abbreviations

Self-Service Technology (SST)

Technology Readiness (TR)

Self-order Kiosk (SOK)

1. Introduction

We are currently living in an ever-changing, fast-paced world, where people's dependency on technology is constantly increasing. Research has shown that technology can enhance the resilience and adaptability of organizations when facing critical events, such as economic crises or social crises, allowing services to survive in unstable environments. (Nah and Siau, 2021).

In the hospitality sector, technology took some time to arrive, since this industry comprises services that are mainly people-oriented, meaning that they are usually more focused on the human aspects of the service. However, the advances in technology have shown developments that are directly related to increasing productivity, quality, reducing costs and saving time. With all these positive aspects, technologies have entered this industry in various forms, such as self-service kiosks, virtual reality, chatbots, blockchain, and others. (Seyitoglu et al., 2021).

More recently, given the impact of the COVID-19 pandemic, the need for contactless services is considerably higher than ever. In addition, the lack of employees within the services across the hospitality industry, has emerged the necessity of adopting automation technologies. (Seyitoglu et al., 2021). Considering the competitiveness that exists in this sector, business owners strive to provide unique experiences to customers and often choose to invest in innovative technology. (Lee et al., 2019).

Self-service technology (SST) is, for many businesses, a chosen path to obtain better results when providing a service, given the fact that, according to previous research, many customers prefer to interact with SST rather than people (Shiwen et al., 2021). The restaurant sector is an interesting area to study the adoption of self-service technologies since the customer is the key for the success or failure of the business. Previously to the adoption of self-service technologies in restaurants, it's essential to gain an understanding of customers' preferences, with the main goal to align them with the service that is being provided and with the technology that will be implemented. Accomplishing the alignment between technology, customer value and usefulness, can play a significant role in keeping the business competitive in the market, also allowing them to maximize customers' positive reactions when interacting with technology-enabled services.

A type of restaurant that has been investing in technology in order to provide a faster and more innovative service to the customer is the fast-food ones. These restaurants are made for people who search for food that is easy to eat, cheap and is served quickly. The menus are designed with the main goal of cooking food easily, without requiring experienced chefs, being

the ingredients also easy to cook. These restaurants strive to provide customers with a standardized and consistent service, regardless of the location of the establishment, providing customers with the feeling that the food and the service are the same whatever they are.

Since fast-food restaurants strive to serve their customers as quickly as possible, they rely on technological tools to help to attain that goal, specifically self-service technology-related tools. When talking about SST in the fast-food industry, what is most used in these restaurants are the self-order kiosks (SOKs) and the online food delivery apps. However, most of these restaurants still have the traditional service, managed by the employee. The drive-through is also a reality in the fast-food industry since most restaurants have that modality.

With this in mind, and with the certainty that SST is not leaving the fast-food restaurant's reality, it's important to understand "How does SST help these types of restaurants achieve higher levels of service performance as well as support their customers in a better service experience?"

In order to answer the research question, it was first necessary to define the main variables of service performance and service experience that were relevant to the analysis, considering the context. Regarding service performance, the variables studied were operations control, cost control, efficiency, and process standardization, while in service experience the variables studied were time-saving, utility, customization, and convenience. Then, it was important for the relevance of the study, to keep it as closer to reality as possible. As so, we follow an exploratory and qualitative methodology and the study counts with a set of six fast-food restaurants, in which all the mentioned variables were explored. Interviews with each restaurant manager were conducted, in order to collect the necessary data. Furthermore, 32 fast-food customers were also interviewed, and 95 online reviews of each restaurant were collected, in order to complement the analysis.

During the analysis, a sub-question has arisen: How does each restaurant position itself concerning service performance and service experience? To answer these two questions, a framework based on a cartesian plane was developed, which contained at each both service performance and experience. The main goal, to be achieved with this framework, is to place each restaurant in its quadrant, according to the conclusions drawn from the study.

Regarding the structure of this thesis, it is divided into four main chapters. The first one concerns to the literature review, which contains information about what is SST, how is the fast-food industry nowadays as well as other relevant topics present in the literature to help

comprehend the main research question. The second chapter comprises the research methodology, where it's explained how the data was collected and analysed in this research. The third chapter contains the findings and analysis, where all the variables of service performance and service experience were analysed according to each restaurant scenario. After that, in the fourth chapter are presented the main conclusions that were drawn from the study. The final chapter presents the limitations of the study, in order to be considered for future research.

2. Literature Review

2.1. Self-Service Technology

Self-service technology (SST) was defined by Meuter et al., (2000) as “technological interfaces that enable customers to produce a service independent of direct service employee involvement”. Restaurants, hotels, airports, gas stations, and supermarkets, among others, have invested in this type of technology to provide their services, believing this would be a game changer for the business's success. The fact that no physical interactions are needed to provide a service allows firms to reduce costs and improve customers' experience, while productivity and efficiency grow. (Walker et al., 2002).

When looking at previous studies, it's possible to highlight that companies invest in SST because of three main purposes: provide customer service, perform direct transactions, and self-help. Regarding the first one, SST is frequently used as a form of customer service, since several types of information can be provided through technology, such as frequently asked questions, billing payments, delivery, tracking, among others. The second area concerns direct transactions, which enable customers to order and buy resources of a company, without any physical interaction with an employee. Finally, self-help refers to enabling individuals to provide services and to self-learn, for example, by taking online courses. (Meuter et al., 2000).

With SST, firms can improve processes, reach more efficiently service standards, and extend the lack of services provided. This type of technology can also bring benefits for its users, such as the convenience of location and easier accomplishment of tasks, which are factors that contribute to the customer's happiness with the service. (Safaeimanesh et al., 2021).

One example of success using SST is the quick service restaurants, often known as fast-food restaurants. In these types of establishments, SST allows customers to better control their experience with more satisfaction, enabling managers to benefit from reduced labour costs. (Rastegar et al., 2021). Also, allied to this, fast-food restaurants have been reporting an incensement in sales since the introduction of SST (Meisenzahl, 2021).

2.2. The Fast-Food Industry

Fast-food is a term used for food that is usually quickly prepared and served. Fast-food restaurants together with fast-casual restaurants belong to a segment, in the restaurant industry, called quick-service restaurants. This segment is responsible for holding 50% of the total sales in the restaurant sector. (Sena, 2020)

Fast-food restaurants are usually very convenient and customers often pay immediately after they make an order. The meals tend to be made in a short period and it's possible to eat inside the restaurant, however, the food is often served in packages ready for take-away. (Hussain et al., 2013). Menus differ little in each location, and customers enjoy a similar experience, regardless of where they are. Meal choices are less expensive and it's very common for these restaurants to present their customers with a combo meal package that combines a meal and a drink. In addition, these types of establishments often provide their customers with a drive-through option, which is a form of take-out service where consumers purchase and collect their meals without leaving the car.

Nowadays, the fast-food industry has been facing some challenges, such as the tendency for progressively more people to prefer healthier food options. Generally, fast-food restaurants have a reputation for selling mostly unhealthy food and having poor working conditions for their employees. Nevertheless, restaurants in this industry have been making some changes in order to overcome these challenges. For example, regarding health concerns, some fast-food restaurants have been investing in fresher ingredients, with less prejudicial substances, as well as providing side dishes containing vegetables and fruit, to go with the main meal. (Sena, 2020).

Fast-food consumers are usually very price sensitive since they expect a cheaper meal when compared to traditional restaurants. When the labour costs increase in this type of restaurant, managers must be careful in order for the meal prices don't get significantly higher, otherwise, consumers stop seeing fast-food as a low-cost meal option, which so characterises this business. Consequently, restaurants are investing in creative ways to reduce operations costs, which mainly involve investing in technology, specifically self-service, such as self-service kiosks or ordering applications (Sena, 2020). Restaurants that invest in technological solutions to improve business operations tend to increase efficiency and reduce costs.

Self-service technology is present in the restaurant operations of several fast-food restaurants. However, it only brings value for the restaurant if it helps to improve the restaurant operations and performance, and if it beneficiates the customer experience. Thereby, this study needs to focus on the importance of self-service technology in fast-food restaurants, mainly by understanding its effect on service performance and on the customer experience.

2.3. Service Experience In Fast-Food Restaurants

When restaurants implement technology-based solutions, the customer experience is one of the most important factors that command if the service has been able to achieve a good

performance, allowing as well to draw some conclusions about the most important factors for achieving a good service experience. (Djelassi et al., 2018). SSTs are more likely to be used by customers if they provide them with a useful and satisfying experience and, by knowing what are the most important characteristics that customers value, it becomes possible to build a more accurate path to predict their behaviour more effectively and provide them with technology-based solutions that will meet their needs.

In the fast food industry, the restaurant needs to leverage the fulfilment of the customers during their service journey. This can be achieved by investing in superior customer service. Good customer service can achieve customers' expectations, making them satisfied with the service. On the contrary, bad customer service causes disappointments and complaints, which will be translated into a loss of sales (Kanyan et al., 2015). A proper service experience is good for both customers and managers, and the introduction of SST in quick-service restaurants has been able to bring some benefits to both sides.

In more detail, the SST interface often allows the customer to see images of the order, as well as to access specific information about any menu item. This means that, with only a few taps on a screen, the customer can carry out any order in a simple way and within less time, since there is no need to interact with staff members and to be in large queues. Many studies have shown that customers often fear being misunderstood when placing an order or being judged by their options (Goldfarb et al., 2015). SST helps to remove this social tension between the customer and the worker, encouraging the customer to choose and spend more freely.

However, there are other benefits adjacent to SSTs, such as cost savings, less waiting time, ease of access and use, and the possibility of customization. (Meuter et al., 2005). The personal characteristics of each individual can as well influence the experience carried out with the technology (Johnson et al., 2008). In fact, several studies have found that technology readiness highly influences the perceptions of each person regarding the SST utility and quality, which impacts the customer's intention to even use the SST. (Rastegar et al., 2021). Therefore, it's considered to be relevant for this study to understand in more detail what is technology readiness and how is that connected to the propensity of the customer to use SST when available.

2.3.1. Technology Readiness

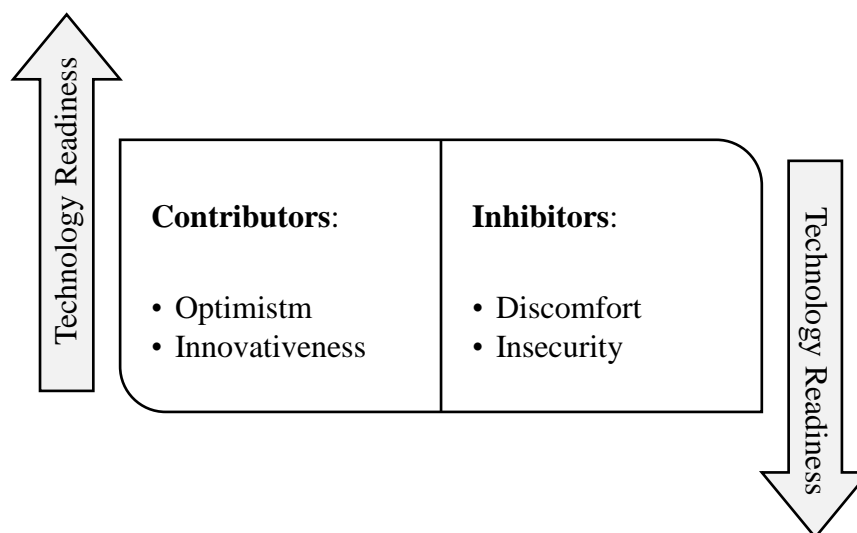
Technology readiness (TR) is one of the most relevant characteristics that can affect the adoption of SSTs. Parasuraman (2000) has pointed out that the construct of TR refers to

“people’s propensity to embrace and use new technologies for accomplishing goals in home life and at work”. So, this concept refers to individuals’ tendency to embrace and use technology.

The growth of technology-based products and services has been creating different opinions among customers. Some people are better prepared to embrace technological evolution, whereas others still present lots of frustration trying to use it effectively. Considering this, it’s possible to affirm that technology may cause positive or negative reactions among individuals, being able to influence customers’ decisions to adopt or reject new technologies, since TR effects the user’s perceived utility, perceived ease of use and perceived satisfaction with the technology. (Shim et al., 2021).

The TR concept englobes factors that encourage and discourage the use of technology. These factors are divided into four dimensions: optimism, innovativeness, discomfort, and insecurity. Optimism and innovativeness contribute to technology readiness, being seen as “motivators”, while discomfort and insecurity are seen as “inhibitors”. Parasuraman (2000) explained each dimension in more detail:

Figure 1: Technology Readiness Dimensions (Parasuraman, 2000)



- (1) Optimism: reflects a positive understanding of technology, believing that it can provide people with more control, flexibility, and efficiency.
- (2) Innovativeness: motivation to be a technology first adopter.

- (3) Discomfort: perceived absence of control over technology and feeling of becoming overwhelmed.
- (4) Insecurity: Lack of trust in the technology, not believing its proper functioning.
- (5) Insecurity: Lack of trust in the technology, not believing its proper functioning.

TR dimensions, in particularly optimism, have a major impact on the customers' willingness to use SSTs. When technology is associated with convenience, freedom, and control, it will be able to develop positive attitudes towards using SSTs. (Liljander et al., 2006). The TR of each individual can affect their experience with the usage of technology. When focusing on SST, it's possible to affirm that TR influences important quality factors: functionality, convenience, enjoyment, and assurance. (Shim, et al., 2021). These factors have an impact on the customer's experience when using a technology-enabled service: finding SST convenient and with relevant functionalities will bring customers the sense of security that the SST is capable to perform the intended tasks, which will raise a sense of enjoyment.

2.4. Service Performance In Fast-Food Restaurants

Technology is changing how services are delivered, which has been allowing customers and employees to receive and provide more efficient and customizable services, without direct support from employees. (Bitner et al., 2000).

Although technology is an important part of the operations of several businesses, it was not always present in the restaurant industry. Nowadays, SSTs are being explored in casual dining, but they are still majorly represented in quick-service restaurants, including fast-food establishments. (Rastegar et al., 2021). When a new SST ordering platform is implemented in a restaurant, it's very common for customers to reveal different levels of satisfaction with it, meaning that they will have different perceptions of the quality of the same technology. These different perceptions, regarding the same ordering system, can be explained by their level of technology readiness, which was previously stated in this study. (Shim, et al., 2021).

In the fast-food industry, one of the variables that can impact the performance of a fast-food restaurant is standardization. Process standardization plays a significant role in this type of restaurant since it helps to guarantee the restaurant standards across all locations. Standardizing the service, products, design, and delivery enables the achievement of high productivity at minimum cost (Tien, 2020). Nevertheless, according to Ogaard et al. (2005), product standardization can also negatively influence the business, because customers expect more than the standardized product, as they want to feel like their individual needs were

fulfilled. So, even though standardization is important in this type of business, local adaptation, and customization, aligned with innovation, are necessary to compete in the market. (Ogaard et al., 2005). Nowadays, several fast-food chains choose to add differentiated menu options to their typical menus to meet the customers' needs.

Another important variable that has a significant impact on service performance is efficiency. SST is responsible for much improvement in restaurant operations' since it enhances the efficiency of the service. When customers use SST to make their orders, restaurants automatically incur in fewer expenses by replacing the employee with the ordering system. The technology present in the new ordering system will allow to better control the restaurant operations and increase service productivity, since it will enable more effective communication in the restaurant and an improvement of the overall organization and information control. (Shim, et al., 2021).

In the presence of SSTs, customers can better control their dining experience and make it more pleasant for themselves, a factor that can boost sales. Some of the technologies used in fast-food restaurants are online food delivery, digital menus, apps for smartphones and self-service kiosks (Rastegar et al., 2021).

McDonald's was a pioneer in introducing self-service kiosks. These kiosks are usually large touch screens that allow customers to order and pay for their menu items without human interaction. The main goal of McDonald's when introducing this kind of technology in their services was to reduce queues and improve the service experience for each customer, making it more customizable for every individual. Fast-food restaurants regularly need to accommodate lots of people, and this can be more easily managed through the adoption of self-service kiosks. Kiosks are a perfect example of how SST can increase sales and diminish labour costs, as well as enable customers to pursue their orders without the embarrassment of their choices, encouraging them to choose more freely and spend money without restrictions. (Rastegar et al., 2021). Regardless of whether the majority of restaurants still prefer to invest in face-to-face interaction, the COVID-19 pandemic is speeding up the need to have contactless usage across the world.

2.5. Overview of the Literature

From the previous chapters, it's possible to conclude that SST is very important for the efficiency of the operations in fast-food restaurants, representing positive benefits for managers as well as for customers, by enabling both sides to better control their processes.

SST in fast-food restaurants is developed and implemented with the main goal of contributing to the improvement of service experience and performance, making the ordering process more pleasant, and allowing individuals to choose freely any item on the menu, without fearing judgements or misunderstandings. SST allows as well to save time and customize orders.

Considering what was previously said, fast-food restaurants can be analysed bearing in mind two different fields: service experience and service performance. The service experience is directly related to the customers' perceptions of the service, involving some variables previously mentioned, such as time-saving, utility, customization, and convenience. The performance is more related to service management and involves operations control, cost control, efficiency, and process standardization. The following framework was developed considering all these variables found in the literature review, in order to study more in-depth each variable and apply them to a sample of fast-food restaurants in Portugal.

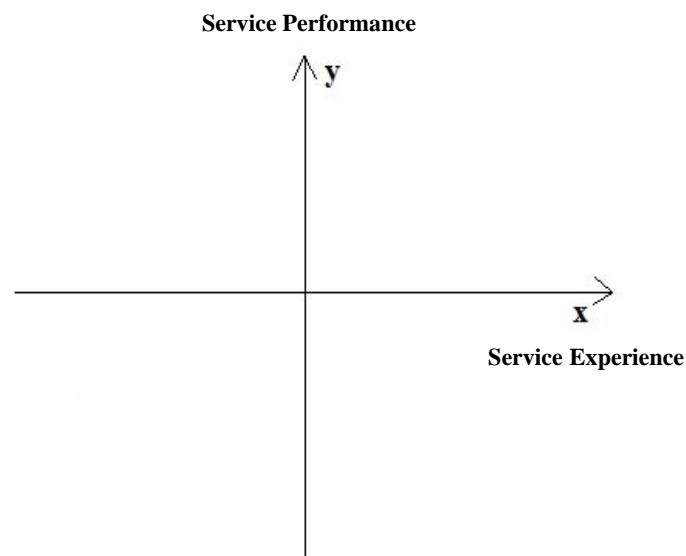


Figure 2: Study Framework

3. Research Methodology

This chapter covers the description of the research question and its main objectives. Furthermore, it contains a detailed description of the methods and strategies used to answer the proposed research question and it's divided into the following sub-chapters: industry context; research question and methods.

3.1. Industry Context

The current study was conducted in Portugal, in the Lisbon Metropolitan Area, which is the metropolitan area with more population in the country. It encompasses 18 municipalities, grouped into two sub-regions: Greater Lisbon and Península de Setúbal. Overall, this area contains 2.870.770 people. (INE, 2021).

Portugal, and more precisely, the Lisbon Metropolitan Area, can be considered has a relevant location to conduct the present study, since most of the restaurant establishments in Portugal are located in Lisbon (31.8%) (Gabinete de Estratégia e Estudos, 2019). The research questions are meant to be answered in the context of fast-food restaurants, being important to gain some insights about the restaurant business in Portugal.

Looking more in-depth at the sector of accommodation and food service activities, in which restaurants are included, it's possible to affirm that this sector is vital in the Portuguese economy. In 2019, it was responsible for an income of 16.248,0 million euros and for employing around 320 thousand people (Pordata, 2019). The pandemic has negatively affected this sector, and most recent data shows that, in 2020, the income has decreased to 9.611,4 million euros (Pordata, 2020) and employment has also decreased to around 240 thousand people in 2021 (Pordata, 2021). However, despite the COVID-19 crisis, the sector of accommodation and food service activities continues to have high importance in the Portuguese economy and is mainly represented by restaurants, since in the total sector, restaurant establishments hold 74.49% of the enterprises, 72.37% of the turnover and 75.05% of the number of employees. (Banco de Portugal, 2020).

In addition, it's also appropriate to mention the importance of tourism in Portugal, which is directly and positively related to the success of many restaurant businesses. Looking back at 2019, before the pandemic, the consumption of tourism in the economic territory (CTTE) represented 15,4% of the Gross Domestic Product (INE, 2019).

Considering this study tends to be more focused on fast-food restaurants when narrowing the search for that specific market, it's possible to affirm that fast-food consumers are growing

over time. A Target Group Index (TGI) study performed by Marktest has shown that more than 4,7 million people consumed fast food meals in restaurants in 2018, representing 55.2% of the mainland residents aged 15 and over. Among the Portuguese who report consuming meals in fast-food restaurants, 51% indicate that they do so at least once a month. The same study also reveals that this is a habit among younger people since around 73% of individuals with ages between 15 to 44 consume fast-food. The area of Greater Lisbon shows values significantly higher than the national average.

In order to answer the research questions, this study relied on data collected from a set of six fast-food restaurants, located in the region of Lisbon Metropolitan Area. The methods used to gather the necessary information are explained in the next section.

3.2. Research Question and Methods

The main research question is focused on understanding how SST can help fast-food restaurants to achieve higher levels of service performance as well as support their customers in a better service experience. To answer the question, six fast-food restaurants will be studied, in order to have access to different perspectives and achieve more reliable results. For this to happen, it will be important to know the restaurant managers' perspectives regarding the topics addressed, which will also be complemented by the customers' opinions.

SST is proven to be very important for both fast-food restaurant managers and customers, for many reasons, such as, it can increase sales, due to the fact that there is no pressure from employees to quickly finish the ordering process, giving the customer more time to see all the menu options and choose freely without any fear of judgement. In addition, it helps to reduce queues, making the ordering process more pleasant for customers. However, despite the benefits brought by SST, there is also a main challenge: when using this type of technology, customers are agreeing to do part of the work that was supposed to be done by the employee. To overcome this challenge, customers need to feel that the SST will bring them more benefits, resulting in a better service experience. So, in conclusion, when fast-food restaurants choose to implement SSTs, they will face some challenges, which can be overcome if, for example, the restaurant invests in an SST software that is appealing to customers, user friendly and useful. With the right approach, SST can be able to increase sales and improve the service and customer experience. (Venables, 2022)

Considering this, and with the information collected by the restaurant managers and the customers, it will be possible to draw some conclusions on how SST helps to achieve higher

levels of service performance as well as to support customers in a better service experience. In addition, it will also be possible to answer the following sub-question: How does each studied restaurant position itself concerning its own service performance and service experience?

3.2.1. Data Gathering Methods

By taking into consideration the research objectives and questions, it was clear that there was an existing need to establish contact with fast-food customers, in order to understand their thoughts, opinions and behaviours when interacting with the SST. It was by analysing those behaviours and perceptions that it became possible to identify customers' main reactions, expectations, and sources of satisfaction towards the SST functionalities that are present in fast-food establishments. Furthermore, to contrast and complement all the data gathered among the customers, it was also required for this study to understand the leadership perspective of the restaurant managers, with the aim of recognizing what are the main advantages, disadvantages, and challenges that the use of the SST may bring to the service. The analysis of both viewpoints (customers and managers) will provide conclusions about the SST impact on the service experience and performance of each restaurant.

Considering what was previously said, there was a need to collect non-numerical data. It was important for the relevance of this study that both managers and customers could feel free to speak and share any opinions and information about the proposed topic, without the boundaries of a quantitative research. Therefore, the qualitative method approach was implemented, since it gathered the necessary methods to conduct the research in all its strands, enabling to access certain aspects that weren't easy to find using a quantitative method approach. There were two main methods used to follow this research: interviews with customers and managers, and text analysis of online reviews of the fast-food restaurants.

3.2.1.1. Interviews

Interviews are a very useful method when the main goal is to access the attitudes and values of the individuals, which cannot be easily accessed by conducting questionnaires. The interview had open-ended questions, allowing to gather more complete answers. These types of questions are more suitable when the main goal is to access the interviewees' viewpoints, perceptions, experiences, and opinions. With interviews is possible to gain complexity and a level of detailed information that is not available in survey-based strategies. (Seale & Clive, 2012.)

The interviews conducted were semi-structured, in order to provide the conversation with more flexibility, allowing to draw more complete conclusions regarding the subject in question,

as well as to understand in more detail what are the perspectives and opinions of the interviewees. In this study, the interviews conducted had two main target groups: customers and managers.

Regarding customers, 32 individuals were interviewed. Out of those, 18 were females and 14 were males. The ages varied from 20 to 60 years old, however, most respondents had ages between 20 and 40 years old. Even though the majority of the interviewees were Portuguese, there were some foreign customers. The table in Annex A presents in more detail the characteristics of each interviewed customer. Regarding the manager interviewees, a total of six managers were interviewed, one by each restaurant. All individuals were male and had ages between 30 and 50 years old. The table in Annex B presents the characterization of each manager in more detail.

3.2.1.2. Online Reviews

In order to complement the interviews conducted among all customers, and with the main goal of obtaining a more detailed understanding about their perceptions and opinions, a total of 95 online reviews was collected, covering information about all the restaurants in the sample. Since the interviews were mainly focused on the customer experience regarding the usage of self-service technology, the reviews collected had the main purpose to understand the service as a whole, through the eyes of the consumer.

The insights gathered from the reviews helped to learn about the most negative aspects that customers face during the service. This has enabled to achieve a more accurate understanding of the entire service experience, learning what are the main problems that need to be addressed and how can self-service technology help to reduce or even solve the existing fails, building a better service experience for the customer and making the service more efficient and with superior performance.

4. Findings and Analysis

From the literature review, it was possible to understand that SST in fast-food restaurants can be one of the keys to the success of the business. To understand and measure how SST is in fact providing benefits to both restaurant managers and clients, two main areas are important to consider: service experience and service performance.

Recurring to the research methods presented in the previous chapter, management interviews of six different restaurants, 32 customer interviews and 95 online reviews were collected. After interpreting the assembled data, it was possible to obtain results and conclusions regarding the importance of SST in the service experience and service performance.

In the following chapters, both subjects will be analysed according to four variables each: in service experience, the variables studied will be time-saving, utility, customization, and convenience, whereas in service performance, the variables studied will be operations control, cost control, efficiency, and process standardization. Firstly, all variables will be examined from the perspective of each restaurant manager. Subsequently, the opinion of customers will also be considered, in order to complement the overall analysis. On a final note, the two analysed topics will be present in the proposed framework, which is divided into four quadrants. At the end of the study, it will be possible to place the six studied restaurants in each quadrant and see if and how is SST benefiting the business in terms of service experience and performance.

4.1. Restaurants' Contextualization

It's important to provide a brief resume of the studied restaurants before the beginning of the analysis. All restaurants are fast-food and are located in the Lisbon metropolitan area. In these types of restaurants, the customer can place an order recurring to different ways: traditional service, self-service and drive-through.

The traditional service is the one where the customer goes to the cashier and places the order without any technological help.

As for self-service, this method includes different ways to place an order. First, it can be through self-service kiosks, commonly addressed as SOKs (Self-order kiosks), where the customer can make an order by himself, with the help of a large screen, equipped with software that contains all restaurant food and beverage options. Second, the self-service order can be made through the use of an app, which also includes the entire menu options of the restaurant.

It's important to mention that, regarding the apps, there are online food delivery apps, which are independent of the restaurant and where the restaurant pays a fee to be in. On the other hand, restaurants can have their own apps, which are developed and managed by themselves.

Finally, customers can also arrive at the restaurant by car and place the entire order without leaving the vehicle, driving through the ordering, payment, and delivery points. This way is called the drive-through.

Despite all studied restaurants are fast-food, they recur to different uses of SST for customers to place their orders. The following table presents the ordering options inside each restaurant:

Restaurant	Traditional service	Drive-Through	Self-Order Kiosk (SOK)	Online food delivery app	Own Restaurant App
A	X		X		
B	X	X	X	X	
C	X	X	X	X	X
D	X	X	X	X	X
E	X	X	X	X	X
F	X	X	X	X	X

Table 1 - Characterization of the Restaurant's Service

4.2. Service Performance

The service performance is the first area that will be analysed. In order to do that, the following variables will be studied: operations control, efficiency, cost control and process standardization. Each variable will be studied according to the perspectives of the restaurant managers.

4.2.1. Restaurant A

Operations Control

There is a current urgent necessity to improve operations management in services since individuals' needs are rapidly growing and evolving (Roth and Menor, 2003). The use of technological tools in restaurants, including SST, can allow better control and improvement of service operations. This will not only benefit business managers in their management tasks, but

also customers will have a better restaurant experience in restaurants with improved operations control.

Restaurant A is a non-omnichannel fast-food restaurant, located in Lisbon, having only service inside the restaurant area. In this establishment, SST is used in the form of a self-order Kiosk (SOK). From the management perspective, SST has still some failures that could be improved, in order to better control the service operations. For example, when customers order a desert such as ice cream, the SOK should have an available option for the customer to select if it is to collect at the moment or after the meal. For other food items, such as salads, the customer should also have the option to choose one of the available sauces, instead of being the employee in charge of that choice. In the manager's words: "I think that for this kind of service the customer should have that option of informing if the ice cream is to eat posteriorly, like what happens with the coffee. (...) In salads, there should be an option to choose the sauce. What happens is that, when salads are a side dish, they always come with the same sauce. But when the customer asks for a salad menu, they have more sauce options. We have already had some complaints because of that, the customer saying that "they didn't give me the sauce, I had to go to the counter again.". But we could solve this by having the option in the machine to choose the sauce. And that would be more efficient. Communication would be much faster, we don't even need to interact with the customer, we already know that it's for later consumption or what type of sauce to deliver". (Excerpt 1)

Nevertheless, SOKs are very useful inside a restaurant. In this restaurant, before the SST technology was introduced, there were four cash registers open, in order to serve all customers. Nowadays, that number is lower because three SOKs were implemented in the service. This has been revealed to be a more effective approach to the service since SST has shown to be much faster than the employees. As the manager said "Before, to serve all people, we had to have four register machines, and even then, we were not as fast as the kiosks" (Excerpt 2)

Efficiency

Efficiency is very important in every kind of restaurant. Restaurant A has been working and investing in efficiency inside the restaurant, considering it a key element in the overall success of the business. SST has been playing an important role in this area, especially regarding one of the greatest bottlenecks in all fast-food restaurants: payments.

As it was mentioned before, in this restaurant it's possible to make an order using both SOKs and the cashiers. However, SOKs does not allow to make payments using cash. This

happens because, according to the manager, “cash payment causes a service delay”. So, to face this problem, restaurant A has chosen to forbid cash payments in SOKs, which causes no need to have an extra line for SOK payments. In the manager's words: “The big difference is that, when I use SOKs to make my order and I choose to pay in cash, the order doesn't come out in the kitchen, my order only goes out to the kitchen when I go back in the queue and make the payment in the counter. (...) There are other restaurants inside the brand where SOKs accept both types of payment, but it delays the service. There is a need to create an extra queue, which is very confusing and sometimes that aren't enough resources for that.” (Excerpt 3)

Other than SST, it's relevant to mention that the restaurant has also been promoting its efficiency using other methods. For example, instead of the traditional way of having a queue for each cashier, they were pioneers in implementing a single line for all cashiers. Since the smallest queue is not always the fastest, with only one queue the service flows more efficiently. Furthermore, the restaurant also changed the layout of the counter by placing all counters on one side only, so that there is more free space to put the largest possible number of trays with the customers' orders. As the manager explained: “We have a lot of service and we manage to have at least 12 trays in the counter. There's no point in registering orders if we can't carry them out”. (Excerpt 4)

On a final note, this restaurant also has monitor screens with the orders' numbers, so that customers can track their orders and pick them up as soon as they are ready. However, this is a matter that still needs improvement, as monitors are only possible to view from a short distance, which means that sometimes that area gets very crowded when customers are waiting to collect their meals.

Cost Control

Regarding the cost control subject, it's significant to mention that this restaurant has a policy centred on satisfying the customer. Even in the event of an error for which the customer is responsible, this restaurant provides that person with a new meal. For instance, when customers are adding or removing ingredients from their meals, in the SOK, there is a button that allows saving all the changes made, which customers sometimes do not press. In these scenarios, restaurant A accepts the error and makes a new meal for the customer, without any extra charges. As mentioned by the manager “(...) the problem of validating the changes when the person customizes an order. Here, the rule is: if the customer made a mistake, we give another one. We spend two products, but it's the rule. We recognize this, it is the policy of this

restaurant” (Excerpt 5). In these types of situations, the restaurant duplicates its costs, in order to benefit the customer and increase its loyalty and happiness towards the service.

In addition, concerning this subject, SST has proven to be responsible for some revenue growth. “In the SOK, the customer is not pressured to pursue the order, chooses freely and the average revenue is higher” (Excerpt 6), as the manager explained. In a general view, 60% of the sales are performed with the SOK. The majority of the other restaurants that he manages have earned more profit in orders made with the SOK instead of the counter.

Process Standardization

From the management perspective, SST has its positive and negative aspects when it comes to process standardization. When interviewing the unit director of this restaurant, one of the first things mentioned was the fact that SOKs are mainly adequate for standard orders. When clients are customizing their orders in the machine, after they’re finished, there is a button that needs to be pressed in order to confirm all the changes made to the food. Most clients do not notice that button, and the order comes out has if they didn’t make any changes, which can mean that the system needs to be more user-friendly when it comes to customizing meals.

4.2.2. Restaurant B

Operations Control

Restaurant B has been experiencing a business expansion. Not only do they rely on sales made inside the restaurant, but they also have the drive-through modality. In addition, they also count on online food delivery companies that make it possible for customers to order and receive their orders without going to the restaurant. It has been a major challenge to manage all these platforms and to respond rapidly to all orders, as the manager explained – “What we need to be careful about is, with these new technologies, the number of orders that enter the restaurant begins to increase. In the past we only had the counter, now we still have the counter and the drive, we added the kiosks, and now we have three aggregators which are uber, bolt and glovo, and instead of two or three orders dropping at a time, we have several platforms dropping several orders at the same time and we have to increase the number of people in the kitchen and the number of products available to be able to respond quickly to all these orders that are arriving second by second. We managed to do hundreds of transactions in an hour.” (Excerpt 7).

Considering that orders can be placed through four different aggregators, SST reveals to be a critical factor in helping to achieve a more efficient control of the entire restaurant operations, allowing employees to rotate themselves between the different areas, for example, kitchen or drive, without having the obligation to be in the counters.

Efficiency

Payments represent a bottleneck in most fast-food restaurants, and this restaurant is no exception. According to the management, SOKs have the option of cash payment, which turns out to be very difficult when trying to improve the restaurant efficiency, because “there is a double stop. In other words, the customer has to place the order, make the invoice, and then he has to go to another queue again and make the payment. Then, he has to go to another queue to receive the order. Basically, if there were lines, there would be three (...) I think they (kiosks) should accept only payments with ATM, contactless or an app. For now, we don't have this development, it's just an ATM card, with no contactless” (Excerpt 8), as the manager clarified.

In order to improve efficiency in the restaurant, the fusion system was implemented. This means that there is a mix between the attendance and the delivery: “We had the classic service where each employee had a customer, and then we delivered that order, the person at the counter was the one who delivered the order. Then we switched to fusion, where we basically have people who serve and people who deliver. This was the first step to avoid N issues, namely the orders being faster. Now we moved on to kiosks, then applications come, we also have aggregators that also came to revolutionize our entire service here. This is a restaurant where 80% of sales are delivery. That is, almost the customer does not go to the counter.” (Excerpt 9)

Cost Control

In oppose to restaurant A, in restaurant B the revenue is not higher when customers go to kiosks instead of the cashier: “In this restaurant, while the counter profits 40€, the kiosks profit 15€. Meaning that, while there are four customers at the counter, there are 1.5 at the kiosk.” (Excerpt 10). The manager also clarified that this only happens because of the layout of the restaurant, since the first thing that the customer sees when entering the restaurant is the cashier and not the SOKs

Process Standardization

Just like most fast-food restaurants, process standardization is important for the good functioning of this restaurant business. In this restaurant, all employees are trained to prepare

the food in the same way, in order to keep the same standards in every order. This is very important because different employees work different shifts, a fact that can't compromise the meals' preparation.

4.2.3. Restaurant C

Operations Control

Nowadays, in this establishment, the dining service is geared towards new technologies that allow customers to make their orders, namely SOKs, online food delivery platforms and apps. For the management team, food delivery platforms represent some limitations that difficult operations management. The main problem is that these platforms are not managed by the restaurant itself, meaning that it's difficult to control how is the order delivered to the client and how long the driver takes to do it. In the manager's words: "in our restaurant, the customer uses the kiosks a lot (...) but he's inside the restaurant. If there is a problem, we can still fix it. If it's through the delivery apps (...) we are depending on third parties, and when the service passes to third parties, we cannot guarantee the speed of the picking, the speed of delivery, we cannot guarantee any deviation of products, partial or complete, no customer delivery delay time and customer interaction. These are the main aspects that we are still struggling with today with technology when the customer uses the apps." (Excerpt 11)

Regarding kiosks, it is important to mention that their use has grown more and more. The equipment comes with contactless technology integrated for payments, which has reduced the amount of cash inside the cash register. This improves the security inside the restaurant: "Today, with this system of kiosks and service, everything is connected. In the past, maybe it was easier for an operator to deviate cash or products, but nowadays that doesn't happen"

Efficiency

SST, in fast-food restaurants, is responsible for improving restaurant efficiency. In the present case, with the help of the kiosks, there is a much better balance between the number of customers that place their orders with the help of the employee and in the SOKs – "Just for you to see the importance of a kiosk, nowadays in the restaurant, of sales in store, possibly the counter is around 20%-30%, and the rest is all in the kiosks" (Excerpt 12), as elucidated by the manager. This is a good thing because it helps reduces queues, enables a better customer flow and it's easier to fulfil the orders. Furthermore, considering that all SOKs have one screen on each side, since there are four SOKs in this establishment, it means that there are eight new ordering stations. As the manager reinforced: "In the past, on average, there were five to six

cashiers, nowadays with kiosks we can reduce them to three and kiosks are eight” (Excerpt 13). This also has helped to withdraw some of the pressure felt by the employees, since now customers move to the delivery area to collect the order, instead of being near the employee all the time until the order is finished. Additionally, since all orders have numbers assigned, the employee can manage all orders more efficiently: “Numbering the causes less pressure on the employee because he is doing things normally, is interrupted less often, he is able to deliver to the table” (Excerpt 14).

Nevertheless, SST has been helping to achieve higher levels of efficiency, this restaurant faces some issues that technology cannot control. Despite the growth of the range of products, which is responsible for the rise of both the number of menus available and the complexity inside the kitchen, the restaurant didn’t have any structural changes to allow the adaptability of the business. As mentioned by the manager, “The infrastructure is not adapted to this level of sales. (...) what happens is that, previously, the restaurant had just the counter and the drive. We had to adapt it to SOKs, delivery and the drive (...) all confined within the same space. (...) we are putting everything inside a space that 20 years ago did not even have the range of products of today.” (Excerpt 15). This is an important problem in this restaurant, which strives to provide customers with efficient service.

Cost Control

Following the fast-food tendency, the manager of restaurant C also ensures that the average revenue made in the SOK is higher than the average revenue made at the counter. However, the average revenue made with delivery apps has even proved to be even higher than the kiosks: “While at the counter the average revenue is around 5€/6€, at the kiosks it’s already 7€/8€ per person. Lately, we have (...) menus available all day with more affordable prices. And in these cases, the counter is around 9€, the kiosks are around 11€, and delivery is around 13€-15€ because the delivery charges a fee, so they take advantage of the fee and order everything right away.” (Excerpt 16).

Regarding online food delivery, it’s significant to mention that, even though delivery apps are one of the most used forms of SST and the average money spent tends to be higher than the SOKs, the restaurant needs to pay a fee to the delivery companies hired.

Process Standardization

Other than recurring to SST, there are other ways to improve the process standardization inside the restaurant. As described by the manager, in the past there was a predefined plan where employees were assigned to do specific tasks. Nowadays, employees are trained to do almost every task, so when there is a problem, regardless of its nature, everyone is capable to solve it. The manager also highlighted the fact that the procedures' precision and the range of products have increased in the past years, raising the complexity in the kitchen. That is one of the main reasons why it's crucial to provide all employees with complete training that covers the various procedures carried out in the restaurant, in order to keep the same standards in every order.

Another thing that has been able to improve the standardization of the process is the fact that all menu items are only cooked when the customer has paid for them. In the past, the restaurant used a retention oven to put the products that weren't ordered yet. "Nowadays everything is done at the moment, which has eliminated errors, eliminated barriers, and it's more accurate". (Excerpt 17)

4.2.4. Restaurant D

Operations Control

Currently, this restaurant uses SST to improve its processes and the overall customer experience. It's possible to place an order at the counter, as well as at the SOKs, drive, and through online food delivery apps. This implies that the restaurant needs to have a solid control of its operations, since orders can arrive through different channels. Thus, the manager has said that this operations control has been very challenging because of the unpredictability since, suddenly, all channels can start receiving lots of orders. In order to respond to this challenge, there is a planning, that is done previously, that includes a sales estimate, as well as the number of employees needed in the restaurant to successfully conduct the entire operations. Also, it's a very positive thing that all employees have experience in the majority of the restaurant areas, being able to dislocate themselves between the sectors that need more help at each moment: "The great advantage that we have is that our employees know how to do everything, that is, they are versatile. By being versatile, we managed to play a little with them "now you help in the drive because the drive is full, now you go to the living room because the room is busier" or even in the delivery part, which sometimes moves a lot, we have to put more employees there." (Excerpt 18)

Following what was previously said, the manager has mentioned that other than the flexibility of the employees, technology is very important when managing all the different ordering channels in the restaurant. In the managers' words: "In the past, we had four counters. (...) At the moment, we have eight SOKs in the room where the customer automatically places an order and pays. We have more three counters, and two cashiers in the drive-through. (...) In our application, hundreds of people can now place an order. How does this help us in the operation? It's just that if I know that all the counters and SOKs inside the restaurant are full and there are, let's imagine, 10 people placing an order through the delivery app and our app, I might be able to have a reaction time to prepare or even to limit the order to only 10 people. Because if I open my mobile window to 1000 people, I won't be able to serve 1000 people. And I think that in this part, technology helps us, where we can perhaps define gaps there in which maybe "ok, I can give response to 20 mobile orders". From the 20 orders forward, the service has to get a little limited or there has to be a message saying, "your order may take 15-20 minutes", and technology can help us with this." (Excerpt 19)

Efficiency

Regarding efficiency, some of the topics mentioned in the chapter regarding operations control can also be applied to this topic. By having employees that are trained to work in the majority of the restaurant areas, and by investing in technology in order to plan and control the restaurant operations, the level of efficiency has raised, since the restaurant is better prepared to answer the challenges that are felt and to better control the orders' flow and fulfil more effectiveness the customers' needs.

Cost Control

Regarding cost control, the manager has mentioned that SST does not help to reduce costs, at least personnel-related costs. In fact, even though there are fewer employees on the counters and there are more self-ordering machines, the orders flow as increased, which means that there is a need to hire more people to be in the kitchen and give response to all orders that arrive.

Process Standardization

In this restaurant, giving the fact that most orders are made recurring to the SST, there is no way to know who is the customer making the order. This is a key topic that allows keeping the same level of standardization in all orders since regardless of the person, the orders will be delivered according to the same standard.

4.2.5. Restaurant E

Operations Control

Regarding operations control, this restaurant has several channels from where customers can make orders: counters, SOKs, restaurant apps, food delivery apps and drive. Food delivery apps have usually very high affluence, and sometimes, when combined with other channels, the kitchen cannot give a response to all orders that are arriving. So, like some of the other restaurants, employees have the option to pause the acceptance of orders on this platform. That feature allowed them better to control the service and to keep the same standards in each order. Formerly, the employee needed to pause the acceptance of orders manually but, nowadays, since the restaurant keeps investing in technology, they have developed an algorithm that, by combining the volume of the orders and the restaurant resources, can calculate if the restaurant is able to accomplish all orders that are entering the channel. If the algorithm sees that the restaurant is overloaded, it automatically pauses the acceptance of requests in the app.

Efficiency

After the interview with the manager, it's safe to affirm that this restaurant has been improving efficiency through the investment in technological tools that allow managing the service with more effectiveness and productivity. For example, as the manager explained, they currently use a technological tool that calculates the amount of protein the restaurant should have, in each hour, to successfully accomplish all orders that are arriving.

Regarding the drive-through channel, that same tool also calculates the service time, the number of cars and where is the bottleneck, whether it's in the payment, in placing the order or in its delivery. Has clarified by the manager: "so we have more than enough tools to allow us to manage our resources very efficiently. At the level of personnel, we also have a tool that tells us the level of staff and depending on the sales we are having at the time, the tool tells us how many people we should have and where we should allocate them. So there are complete tools, both in terms of personnel, of staff, as well as in terms of products, as well as in terms of ambience, level of products that are needed for the shift." (Excerpt 20)

Cost Control

Regarding cost control, the manager explained that they also rely on technological tools that allow them to have an accurate inventory, that is more precise, which allows them to control the waist and to have the necessary ingredients in stock to not lose sales. As the manager

clarified, they are using an internal and optimized system that combines information about the restaurant stock, the sales, and the planned inventories, in order to calculate how much of each product, the team needs to order. In the manager's words: "there is an internal link here, via an algorithm, which knows what our stock is, everything we have in the restaurant, the sales that are planned, and with that, it makes an ordering suggestion, depending on what we sell on average per product. This (...) helps us have a balanced cost control." (Excerpt 21)

Process Standardization

Regarding process standardization, the manager clarifies that this is very important in the restaurant, being present across the entire service, mainly in the kitchen. In all kitchen stations, the restaurant has a person with a designated role, one puts the bread, the other adds seasonings, and others wrap the meal. This allows for a much more homogeneous work, where the product is always made with the same pattern, accomplishing the same targets, and in the same way.

4.2.6. Restaurant F

Operations Control

Regarding operations control, the manager clarified that the biggest advantage that was brought by SST, mainly by the SOKs, was that it gives the customer total independence to make its order, customize it and pay for it, without needing any assistance from an employee. This allows the restaurant to better allocate its human resources to more complex areas that need more attention.

Efficiency

Self-service technology, as it was explained by the manager, came to help the restaurant attain higher efficiency levels, particularly in times of greater sales volume, since the employee is relocated to the needed areas to accomplish a faster production and delivery of products to the customer, without having to be present at the cashier. The introduction of this technology has increased the volume of orders, which is much higher now, and also provides the customer with more independence since each customer is responsible for their own order, and for the time spent on it.

Another thing this system does is to give the customer the option of having the food delivered to the table, which is much more useful for the customer and also helps the service to flow at a better pace.

Cost Control

The manager of this establishment didn't go into details about this subject, however, it's possible to affirm that the restaurant uses some of the same methods already mentioned in previous restaurants to manage the costs. One example are the inventories, which help in planning and predicting what will be the quantities needed for each product, in order for the restaurant don't lose sales or have too much waste.

Process Standardization

As for process standardization, this restaurant provides training to all employees, about most of the restaurant procedures, in order to employees know what to do if they are relocated to another station besides the ones which they are already familiar with. If every employee knows the same processes and the same methods to prepare the meals, standardization will be possible to achieve.

Also, since lots of orders are made through SOKs or online, there is no possible way to know the customer behind the order, giving no space to provide any special treatment to any customer.

4.3. Service Experience

The service experience is the second area that will be analysed. In order to do that, the following variables will be studied: time-saving, utility, customization, and convenience. Each variable will be considered in light of the perspectives of the restaurant managers, regarding each subject.

4.3.1. Restaurant A

Time-Saving

Restaurant A manager has acknowledged that SST is very important in saving customers' time, mainly because there is no pressure of choosing faster, making it easier for the person to manage their own time.

Utility

SST is very useful in this restaurant since it helps employees to give a better and faster response to all orders. If there were no SOKs in the restaurant, there would be a need to have more employees at the cashier. Since this doesn't happen, it's easier for the managers to better

allocate their human resources, as it is better for the customer, since they spend less time in waiting lines, for example.

Customization

As for customization, since in the machines, it's possible to have access to all the ingredients that compose the meal, it turns out to be easier for the customer to make any changes to the order, only having to pay attention to the "safe" button. Otherwise, the changes aren't saved, and the kitchen does not receive the order correctly.

Convenience

Regarding convenience, SST allows customers to serve customers faster, spending less time in waiting lines and giving them the opportunity to make all changes in the request as they want. What still needs improvement, which was already mentioned, is the fact that, for products such as coffee or desserts, there should be an option to pick those up after the meal.

4.3.2. Restaurant B

Time-Saving

SST has been performing an important role in helping restaurant employees to execute and deliver all orders. As it was explained in the interview with the manager, both SOKs and delivery platforms help to save lots of time customer service wise: "let's imagine that I have three people there (in the kiosks), if I had to have an employee for each one of them, I would have to spend more money and it wouldn't be so fast, because often what happens is, as I usually say, those three employees never skip work, they're always there. With the food delivery platforms the same thing." (Excerpt 22).

Utility

In terms of utility, it's possible to affirm that, due to the layout of the restaurant, the SOKs are not very often seen by the customers. This brings a utility problem since, if the machine is there but is not used, has little utility for the customers.

On the other hand, since most orders in this restaurant arrive through online delivery apps, it means that the restaurant is in a good location and is able to serve lots of customers that order in their own homes. This SST tool is very useful and convenient for these customers, providing them to not leave the comfort of their own homes in order to eat in this restaurant.

Customization

Regarding customization, it's important to mention that the introduction of the SOK is still new to this restaurant, and the software used isn't still very user-friendly, which may have an influence on the customization of the menu items by the customers.

Convenience

Considering that Restaurant B has four different methods which customers can use to place their orders, being the counters, SOKs, drive and delivery platforms, they are currently trying to develop an app which will facilitate even more the customers' lives. As explained by the manager: "we are also going to introduce a new system, which allows each customer to have the kiosk in their hand. In other words, an application where you place your order via your cell phone, the order is received by the restaurant, you pay for it through the application, you arrive at the restaurant and pick it up. Basically, it's like having a kiosk but on your phone.". This will be not only more convenient for the customers, but will also allow them to save time.

Furthermore, it has been pointed out that, in this restaurant, one of the main issues that is difficult for the service operation is related to the payment. Firstly, the SOKs used in this establishment does not have the option of performing payments using contactless, which nowadays is very important for every service to provide that possibility. Then, the SOK only has two different languages in which the customer can place an order: Portuguese and English.

4.3.3. Restaurant C

Time-Saving

Through the manager's eyes, SST has turned out to be very positive, not only because it allows employees to focus on other tasks, but also because it brings more convenience to customers and allows them to save time. Previously to the introduction of SST, employees were forced to ask lots of questions to customers, such as, if it is to eat outside or if the customer would like to add more items to the order, etc. These questions increased the customer's time at the counter when placing their orders, which wasn't a good thing to happen in a fast-food restaurant. Nowadays, using the SOK, customers are more comfortable since they are managing their own time, without any pressure from the employee.

Utility

This restaurant has an app, where the customers can place their orders anywhere, pay for them and collect them in the restaurant without needing to be in a queue. This is very useful for the customer, as well as for the restaurant, since this modality has the advantage of reducing the number of people inside the restaurant area, making it less crowded and easier to move around, as well as it's more convenient for the customer that can order the meal without any pressure or waste of time.

Despite the benefits mentioned above, the app has a major problem, since the restaurant is unable to solve most of the errors that might occur when the customer is using the app. As the manager explained: "if a customer makes a purchase with the app and wants to know if he has points, we have no way of knowing. When the customer enjoys the benefits of the app, we have no way of knowing. Because of data privacy, we can't see. The customer sometimes asks questions and we don't know how to answer. (...) just the other day, there was a customer who made a mobile order and was redirected to a page, which then made an update and went back. After that, it appeared a page showing it was complete, followed by another error. We were unable to know if the customer paid or not. This is a complication because then the customer says, "I paid and went to page x and the error came back, I already made the purchase 2 times, can you know if I paid 2 or 3 times?" there's no way to know." (Excerpt 23).

Customization

In this restaurant, SST is considered to be important, especially when customers customize their orders. The manager explained that: "It is also good in terms of special orders, because sometimes if there is an error, we will deduce that it was the responsibility of the employee, which sometimes causes some discomfort for the customer. If it appears in the SOK, it's already on the customer's side. If there is an error, it will be different." (Excerpt 24). It's relevant to mention that, in this establishment, there are usually employees helping people use the SOKs.

Convenience

As for convenience, this restaurant tries to make the experience more suitable for the customer as possible. For example, inside this restaurant, all tables are equipped with a QR code where the customer is automatically directed to a page where it's possible to place orders. This facilitates very much the flow inside the restaurant and there is no longer any need for the customer to stand in line. In the manager's words: "All tables have a number and the person

can enter the restaurant, sit at a table, scan the QR code, put the number of the table where he is sitting and we deliver the order to the table. The customer does not need to go to the kiosk or to the cashier, the order arrives in our circuit and we serve it. More and more people are choosing to do this” (Excerpt 25).

4.3.4. Restaurant D

Time-Saving

Just like the majority of the studied fast-food restaurants, SST has shown benefits in terms of saving time. The use of SOKs helps customers to save lots of time, since they don’t need to be in very large queues to place their orders. In addition, this restaurant also has a partnership with online food delivery apps and has its own app. In summary, customers also save lots of time with these apps since they have the opportunity to have the food delivered at home, by online food delivery companies, as well as they can choose to order in their own restaurant app and arrive only when the food is prepped.

Utility

Regarding utility, this restaurant has the traditional service, the SOKs, apps to order food and a drive-through. This means that the restaurant tries to be prepared for all types of customers, providing each one with the opportunity of ordering their meals through the method they find most convenient.

Customization & Convenience

Restaurant D’s manager has highlighted in the interview that one of the main positive aspects of SST in the restaurant is the convenience that is felt. For example, when using SST in the form of SOK, customers have the opportunity to see on the screen the product that they are choosing. When placing the order at the cashier, that is not possible. This is very useful mainly when customers want to customize the product: since they have immediate access to the ingredients of the food, they have the chance to eliminate or add ingredients according to their preferences.

4.3.5. Restaurant E

Time-Saving

Restaurant E, along with all restaurants of the same brand, changed the layout of the SOKs a few months ago. The new layout is more user-friendly and helps customers to save time during

the ordering process. This happens because, nowadays, the machine has the option for customers to specify, from the beginning, what they want to eat, and after that, the kiosk only shows the options that are aligned with the customer's preferences. "At this point, if you go with the idea of "I just want to eat chicken today", there is an option where you choose chicken and only chicken meals appear. The kiosk layout is much more user friendly" (Excerpt 26), as the manager explained.

Utility

As it was mentioned, this restaurant has its own app for customers to make orders. From the manager's perspective, nonetheless the app represents a strength for boosting sales and reducing the number of customers inside the establishment, it has a utility problem. As the manager explained: "the restaurant is constantly innovating, recently we launched an app for mobile orders. What happens here? We have a tool for a target audience that cannot use it. I will try to explain, this tool is used exclusively for orders to be made through an app on a mobile phone or tablet, and we know that children or younger people are often using these technologies. However, due to the lack of financial capacity in terms of debit cards, ATMs, etc., the use of the tool turns out not to be a reality. People can order, but in the end, they will always have to pay at the store, so it doesn't get much easier. As long as there is no possibility to use MB way or a card that parents can charge so that the children can redeem the money that is there to make the payment, the payment will always be an operational barrier." (Excerpt 27)

Customization

In restaurant E, customization is a possibility that all customers have access. They can do it at the counter, such as in the self-service machines. These machines have already proved to be very important to this subject, because the large screen allows customers to see all the ingredients that a specific menu item includes and remove the ones they don't want. Also, in the delivery apps, whether those of the restaurant or external to it, it's also possible to customize the food.

Convenience

This restaurant uses technology to improve the customer experience. As explained by the manager, inside the restaurant there are SOKs, where customers, after placing the order, can choose to have it delivered to the table. That is possible because they have at their disposable numbered plaques with GPS tracking incorporated, meaning that the customer can sit anywhere

in the room, and the employee will deliver the meal to the table. This brings much more convenience to the customer, that does not need to be standing while waiting for their order, as it also helps to control the customer flow inside the restaurant, making it less crowded.

4.3.6. Restaurant F

Time-Saving

The time-saving in this restaurant is possible mainly because customers have at their own disposal SOK that contains all the information needed for customers to order their food. The software has the entire menu that is available for customers, at the moment, allowing individuals to choose freely and manage their own time while doing so.

The restaurant also counts on online food delivery apps and has its own app as well, proving customers with more options to order their meals and save time.

Utility

SST has proven to be very important in fast-food restaurants, and this establishment is no exception. When talking about SST in the form of a kiosk, the manager clarified that, when customers use SOKs, it's very useful for the overall good work of the restaurant service, since the big screen allows customers to make their own orders, customize them, and also provides images of the chosen products. Besides this, in the SOKs, customers have access to an allergens document, that is always available, which facilitates the customer ordering process.

Customization

For restaurant F, customization has been a growing challenge. As the manager explained, customers' needs are getting more and more complex and the number of orders without any ingredient change has been decreasing. Almost every order is unique, due to the different preferences of the customer, which tend to make menu changes in the SOK, when it's easier to customize the products.

Convenience

Being a restaurant that allows customers to place their orders with the help of the employee or with technological tools, it's possible to affirm that this establishment is concerned with providing customers with the best and most convenient option for them to place their orders, also improving their satisfaction with the service.

4.4. Customer's Feedback on Restaurants' SST Tools

In the previous chapters, all purposed variables were analysed from all managers' points of view. Since customers are an important part of any restaurant's success, people's opinions about the SST tools used in each restaurant were collected and will be presented in this section, in order to complement the analysis.

4.4.1. Restaurant A

When analysing the customer's feedback regarding the SST tools used in restaurant A, it's possible to find different opinions, some of them more favourable to the use of SST, and others more against it.

Starting with the less positive opinions, some customers affirm that SST tools only work in fast-food restaurants because of the service provided, which is not as focused on customer experience, but on the speed and efficiency of the service. Also, regardless of the experience sought, SST should never be the only option available for customers to place their orders, since the software present in most machines is not always user-friendly and easy to use. This is mostly felt by some customers in this restaurant, especially when they need to customize their orders. Another less positive topic pointed out by some customers is that the restaurant SOK doesn't accept cash payments and doesn't have the option of making the order at the SOK and paying afterwards at the counter, compelling people to place their orders at the counter if they want to pay for them, is cash.

On the other hand, some customers associate very positive feelings with SST. They mention that the SOK makes customers order without pressure and more willingly. The machine also makes customers immediately aware of the amount of money that is being spent, since they can consult the cart at any time of the purchase. Some customers also find the SOK a very smart alternative to the cashiers, especially when the restaurant is full, which allows them to avoid waiting in lines.

4.4.2. Restaurant B

Restaurant B has a specific layout where the SOKs are not evident in the room. The first thing customers see when entering the restaurant is the cashier, meaning that they often tend to go to them instead of the SST.

From the customers' opinions, it's possible to affirm that there are some good and bad comments regarding the general service of the restaurant. On the positive side, some customers

feel that this is a good fast-food restaurant, where employees are friendly and efficient, and the service is good, as well as the food. However, there are some negative comments towards the service and the SST, since some customers have mentioned on their online reviews that the employees aren't very organized, the service is slowly than expected, with lots of mistakes in the orders. Also, the waiting times are higher than expected and sometimes employees don't help customers in the best way. An example of that is the following situation reported by a customer: "they (employees) don't know how to tell people what menus there are in the restaurant. They just tell us to look up (to the screen that shows menus). Then I came to find that there are a lot more options than the ones on the screen when I searched in the self-service kiosk. I could have eaten better and cheaper" (Excerpt 28)

4.4.3. Restaurant C

In restaurant C, customers express different ideas regarding the service and the help of SST in it. Some customers affirm that, sometimes, machines are very difficult to use and are preferable to go to the cashier, since the employee is a very important part of the service experience and is very helpful in case of doubts. Also, some customers feel that, when they are ordering their meals with the SST, it could be very hard to reverse their choices, in case of any mistake. In addition, it was also pointed out by some customers that the SST doesn't comprehend all the available options in the restaurant, for example, doesn't allow them to choose a beverage with or without ice.

In order to provide some real examples where the SST showed to have failures, some situations exposed by the customers in this restaurant will be presented:

- Excerpt 29: "self-service machine did not have paper to prove payment for the order".
- Excerpt 30: "The order had to be completed at the counter because the automatic machines weren't capable of completing the order".
- Excerpt 31: "Ordering machines do not work properly, when asked for help it was not provided".

Nevertheless, there are still some customers who revealed having very positive experiences using SST. Several clients have expressed that it's very positive to have the SST option in the restaurant since it's fast, useful, has fewer waiting lines, and it's easier to be aware of all menu options available. Also, it was mentioned that the SST tools have all of the available restaurant items, meaning that customers have all the information to be able to choose freely what to order. In situations of customized orders, some individuals affirm that it's much simpler to customize

the order on the machine, as everything is immediately visible and there is no uncertainty if the employee understood what was asked. On a final note, there are still some customers who mention that SST is crucial in fast-food restaurants since they help them to save time and choose more freely, without any constraints associated with the communication with the employee.

4.4.4. Restaurant D

In restaurant D, just like the ones above, customers have different opinions about SST. Some of them reveal that SST does not influence their satisfaction at all, since they consider that contact with the employee is very important in any restaurant. There is a customer that explained: “I only use self-service if it is immediately and significantly faster because it is usually confusing when making the order and paying” (Excerpt 32).

In this restaurant, some conditions have affected the customers’ willingness to use technology, such as:

- Excerpt 33: “the payment in machines is not working”.
- Excerpt 34 “I had difficulties with the order in the machines and there was no one to help”.

Furthermore, the customization of the menu items using SST is still under debate among customers at this restaurant, since some people find it very hard to customize the food recurring to technology, whereas others find it much easier and less susceptible to errors.

Unlike the previous opinions, there are still people that find it very positive when a restaurant recurs to technology, since they find it a much easier way to order and pay. Some customers go even further, saying that not only fast-food restaurants should invest in technology, and it would be very possible if, in the future, the restaurant invested in robots to deliver the food to the table.

In this restaurant, there was a foreign person interviewed that expressed the opinion that SST is crucial for individuals from other countries, that don’t know the language, because, especially in the machines, they can choose the language in which they want to order. As it was explained: “SST allows you to customize the order and is particularly necessary when the person is from another country. It’s often difficult to explain in a different language all the specifications of the order, and because there are several languages in the machine, there is no need for that” (Excerpt 35).

4.4.5. Restaurant E

In restaurant E, from the collected commentaries of the online reviews, there are lots of customers that still prefer to have a traditional customer service, where the communication with the employee is much valued. This is possible to affirm because most of the positive comments about this restaurant mention the helpfulness of the employees:

- Excerpt 36: “Very caring staff, it seems that it was not fast-food. Good job.”
- Excerpt 37: “Friendly staff”
- Excerpt 38 “Excellent service with delivery to the table”
- Excerpt 39: “The team is fantastic”
- Excerpt 40: “Food prepared quickly. Excellent service and good conditions.”

On the other hand, when talking about the use of technology in the restaurant, some commentaries have demonstrated customer dissatisfaction towards that subject. Some customers feel like employees force them to use SST, as well as they feel like the ordering process gets much slower when the customer does it all by himself. Both situations are exemplified in the following commentaries:

- Excerpt 41: “Too much antipathy with customers. They want to force the use of self-service machines. The employee must not have liked to hear that I did not want to use the machine and used the intercom to communicate internally that I would have to order at the machines. I went to another restaurant, they lost customers.”
- Excerpt 42: “The waiting time has gotten much worse since they changed the type of service because now, with the customer making the entire order by themselves, everything takes a longer time. But the problem is not unique to this restaurant but to all those who have this type of service, as the service took much longer. I've already gone to one that still has both types of service and I always choose the old one, which is much faster. The service was worse due to the delay.”
- Excerpt 43: “Nice location. Neat establishment. Quick service. As a side note, I still don't like the new machines, I prefer the old-fashioned cashier.”

Summing up, there are some SST-related issues the restaurant could consider in order to improve the customer experience, which is very important for the customers of this restaurant, as it was proved by the previously mentioned commentaries.

4.4.6. Restaurant F

In restaurant F, several online reviews were also collected, in order to understand customers' opinions and insights regarding the service. In some reviews, customers demonstrate their satisfaction towards their experience, affirming that the restaurant is a very pleasant space to dine in, with employees that provide good customer service, as well as efficient. Below are presented some comments that agree with the previous statement:

- Excerpt 44: "A very nice place to have a meal"
- Excerpt 45: "One of the best experiences in terms of time spent waiting and quality of the meal"
- Excerpt 46: "Good service and quick execution of the order process."
- Excerpt 47: "Pleasant space and efficient service"

In some other comments, customers also mention the disorganization in the restaurant, saying they received the wrong meal or there were missing products.

Regarding the technological part of the service, there are some mentions regarding the lack of languages in the SOKs, since it's harder to follow the payment instructions in a foreign language. On the other hand, some other reviews clarified that the SOKs have some gaps, for example, assigning the same order number to different orders. The reviews of both situations just described are, respectively, presented below:

- Excerpt 48: "Very good service (...). I just think the machine's menu should have more languages, it's a bit complicated for non-Portuguese people to pay by card."
- Excerpt 49: "Today there were two orders from the self-order kiosk with the same number 7. I was given the wrong one."

One thing that has been proven to have a positive impact on this restaurant is the customers' satisfaction towards the restaurant app. Has it was mentioned before, the app allows customers to order and pay with their phones. After that, they just need to choose if they want to eat inside or outside the restaurant. In case of a take-out, customers just need to arrive at the restaurant, park their cars in a specific spot, and the food will be delivered to them by an employee. In case they want to eat inside the restaurant, they just wait for the employee to deliver their meal to the table. Here are some of the positive commentaries about this particular service:

- Excerpt 50: "The new system works fine. Order food, park on the right side and someone will deliver it to the car and then you can leave"

- Excerpt 51: “Buy in the app, arrive at the restaurant and have the meal ready. And just sit and eat. Excellent”

5. Conclusions

Following the analysis carried out in the previous chapter, this section will be presented the main conclusions of the research. The proposed framework, presented in the literature review, will be now useful to place the restaurants in their respective quadrants, according to their levels of service experience and service performance.

It's possible to affirm that, despite some exceptions, most of the restaurants have shown similarities in the majority of the variables studied. In summary, Restaurant A is the only one where the service takes place only inside the restaurant since they don't rely on delivery or drive-through modalities. They use SST in the form of a self-order kiosk, and their software still has room for improvement, for instance, there are missing some details that could make the service more efficient, such as including the option for the customer to collect some items later. Also, the monitors that display the order numbers aren't positioned correctly in the room, since is not very easy to see them. However, they have improved their efficiency in other aspects, such as regarding the payments, since SOKs do not accept any order that is not paid directly with a card, avoiding the customer to get in a second queue to pay. This way, customers are directed immediately to the cashier if they intend to pay using cash. This has helped customers to reduce their waiting time and has helped the employees to be more efficient when doing their jobs. In addition, the restaurant has implemented a polity of one queue only, where customers make only one line to be attended, regardless of the cashiers open. This has, as well, helped to improve the speed of the service and the satisfaction of the customers, who order and get their meals faster.

Restaurant B, unlike restaurant A, has the traditional dine-in service, also having drive-through and agreements with online food delivery companies. This restaurant also uses SST in the form of kiosks. However, this establishment is a new adopter of this technology, still having much to improve in the subject. For example, this restaurant's machines are the only ones that do not accept contactless payments. In addition, the existing SOKs inside the restaurant is located in a place where customers can't easily see them, consequently, they rarely use them. Despite this, it's important to mention that, regarding the restaurant operations, this restaurant has adopted the fusion system, which allows it to fulfil orders more efficiently.

Concerning restaurant C, they have the traditional service, drive-through service, agreements with online delivery platforms and they have their own restaurant app. The use of kiosks in this restaurant is constantly growing. Nowadays, 70%-80% of the sales on-site are

made through kiosks. This has proved to be very good for the business, since it helps to reduce queues and improve the overall efficiency, once employees are more focused on fulfilling the orders. Employees are trained to be prepared to help in most of the restaurant areas, in order to answer correctly to any challenges felt during the service. In addition, before the introduction of SST, employees were encouraged to do lots of questions to the customers that implied a suggestive sale, which sometimes wasn't well received by the customer. Nowadays, SST is the one responsible for that, and customers feel less uncomfortable about those questions. Also, they are managing their own ordering time in using the kiosk. Customers of this restaurant also tend to use a lot of online food delivery apps, and the average money spent using that modality is higher than in the SOKs. Finally, the restaurant still has its own app for customers to place their orders, which brings lots of benefits, such as the improvement of the efficiency and customer flux in the restaurant.

Regarding restaurant D, it also counts with all the previously mentioned service methods. The manager has highlighted the importance of SST in the service, especially the relevance of having a SOK in the dining room, which does not only improve the service operations, the efficiency, and the time saved, as well as it is essential when customers want to customize their orders. Table service is also included in this restaurant since customers can order using the SOK or the restaurant app, and the employees deliver the meal to the table.

Restaurant E is not different from the previous two, counting as well with the various forms for the customers to place their orders. This restaurant doesn't not only rely on technology for the ordering process, but it also invests in service management tools in order to keep improving its efficiency. For example, they are able to automatically manage the acceptance of orders in the online delivery apps, having also technological tools to control the drive-through flux and to better estimate the needed inventory. This helps to reduce waste levels, contributing to effective resource management. This restaurant also has table service. However, there is still a topic that has room for improvement, which is the restaurant app. Although it is a useful platform, it only accepts online payments, making it more difficult for young people to use it, since they need to have a credit card.

Lastly, restaurant F follows the same service methods as restaurants C, D and E, counting with the traditional service, as well as the drive-through and SST tools, such as SOKs, online food delivery apps and their own restaurant app. Customers are very independent in this restaurant, since they place their orders mostly through technological methods. The restaurant

app has been increasing overall sales, being also an important tool for the general success of the business.

Regarding the sub-question, it's possible to conclude that restaurants C, D, E and F are very similar between them, since they are all from the same brand and have to respect the same rules. However, it's also clear that restaurant E is slightly more technological oriented, investing in lots of tools to control its operations. Restaurant A has only the traditional service but has invested a lot in improving the efficiency of the service, being very customer oriented. Restaurant B is the one that presents more SST-related gaps, probably because they are still new adopters. Considering this, the figure presented below shows the framework present in the literature review, now fulfilled with the studied restaurants.

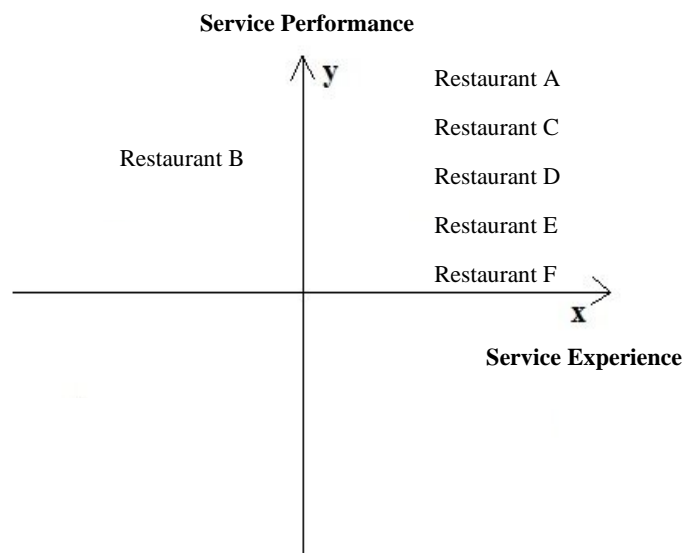


Figure 3: Final Framework

Finally, answering the main question of “How does SST helps fast-food restaurants to achieve higher levels of service performance as well as support their customers in a better service experience?”, it's possible to conclude that, by having an interface where customers can choose any item on the menu, customize it, and pay for it, all in the same platform, customers can manage the time they spend placing an order, as well as they can choose more freely, without any fear of judgment. On the other hand, employees are able to perform more tasks besides registering orders, allowing an optimized distribution of resources. In addition, technology helps to mitigate errors and to control costs. In the majority of the studied restaurants, most of the sales are made in SST platforms, especially in the SOKs. This is very

positive because it helps to reduce queues, to control more accurately the customer flow and to improve the efficiency of the restaurant' operations. SSTs are convenient and useful for customers and restaurant managers since they are able to concentrate the biggest part of the customer journey on one screen. All SST modalities, being the SOKs or the delivery apps, bring lots of benefits for the service, and some restaurants even invest in creating their own app, as we have seen before in the data analysis chapter. Even though self-service technology isn't flawless, it has proven to be very important for the success of any fast-food restaurant, allowing to provide a more efficient and customizable service and, at the same time, reduce costs and improve the customer experience and service performance.

6. Limitations of the Study and Future Research

This study was conducted with commitment, trying to bring new insights regarding the self-service technology tools used in fast-food restaurants nowadays, and how are they helping restaurants to attain good levels of service performance and service experience. With this in mind, the information collected from all the studied restaurants didn't only contain the managers' inputs, but also the views and thoughts of the customers that frequent those establishments.

However, this study has some limitations that should be considered in future research:

1. The present study only includes restaurants that are located in the Metropolitan Area of Lisbon.
2. The SST tools presented are only the ones used by fast-food restaurants. There are some other technological tools used by other restaurants that are not fast-food.
3. Four out of the six restaurants belong to the same brand, being difficult to enhance their differences in the majority of the discussed topics. Also, due to this factor, the four restaurants use the same tools of self-service technology.
4. In some restaurants, it was possible to conduct personal interviews with the customers and combine them with online reviews, as for the other restaurants it was only possible to collect online evaluations.

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8. Appendix

Annex A - Characterization of the interviewed customers

	Gender	Age	Portuguese Nationality?
1	Male	20-30 years	yes
2	Female	20-30 years	yes
3	Female	20-30 years	yes
4	Female	30-40 years	no
5	Female	40-50 years	yes
6	Male	20-30 years	yes
7	Male	30-40 years	yes
8	Male	20-30 years	no
9	Female	30-40 years	yes
10	Female	20-30 years	yes
11	Male	30-40 years	yes
12	Male	30-40 years	yes
13	Female	20-30 years	yes
14	Female	50-60 years	yes
15	Male	40-50 years	yes
16	Male	30-40 years	yes
17	Male	40-50 years	yes
18	Female	30-40 years	yes
19	Male	40-50 years	yes
20	Female	40-50 years	yes
21	Female	40-50 years	yes
22	Male	50-60 years	yes
23	Male	30-40 years	yes
24	Male	30-40 years	yes
25	Female	30-40 years	yes
26	Female	20-30 years	no
27	Female	40-50 years	no
28	Female	20-30 years	yes
29	Female	30-40 years	yes
30	Female	20-30 years	yes
31	Female	20-30 years	yes
32	Male	20-30 years	yes

Annex B - Characterization of the Interviewed Managers

Gender	Age	Function	Experience in the job	Restaurant
Male	40-50 years	Unit Manager	15 years	A
Male	40-50 years	Area Manager	5 years	B
Male	30-40 years	Operations Manager	1,5 months	C
Male	30-40 years	Operations Manager	5 years	D
Male	30-40 years	Operations Manager	2 years	E
Male	30-40 years	Operations Manager	1 year	F

Annex C - Interview Script for Customers

- 1) Do you have any experience using self-service technology?
- 2) Do you think it's positive to have the option of self-service technology in the restaurant?
How can that improve your experience in the restaurant?
- 3) If you have more times the option of using self-service technology, would you use it or would you still prefer the employee?
- 4) What would improve your satisfaction with the restaurant experience? Does self-service technology have an important role in your satisfaction?
- 5) Do you feel that you save time when interacting with self-service technology? Is that important to you when you are at a restaurant? Why?
- 6) Do you think that it's more likely to experience errors in your order when you use self-service technology or when you interact directly with the employee?
- 7) Do you feel that you can trust self-service technology to guarantee that your order is properly placed?
- 8) Have you ever had a bad experience using self-service technology?
- 9) Have you found failures when using self-service technology? Please provide an example.
- 10) Do you think that the self-service technology functionalities have errors? If those errors were corrected, would you use it more often?

Annex D - Interview Script for Managers

- 1) What is your level of leadership?
- 2) What is the function title?
- 3) How long have you been in that position?
- 4) What are your main tasks?
- 5) What are the main bottlenecks that you find in the service?
- 6) Can self-service technology help to solve some of those problems?
- 7) In your opinion, what consists of an efficient service?
- 8) Is the service more efficient when the customers use the self-service technology instead of recurring to the employee? Why?
- 9) Is self-service technology helping in the control of the operations in the restaurant?
- 10) What are the main problems that you think self-service technology has?
- 11) Does SST help to control costs?
- 12) Do you have any suggestions regarding the improvement of self-service technology in the restaurant?
- 13) Any future projects regarding self-service technology?
- 14) Would you like to add something?

Annex E – Interviews

Restaurant A

1. Current position and how long have you been in it?

Unit Director, doing this job for 15 years.

2. What are your main tasks?

Recruiting, schedules, training, training shift managers, placing inventory orders, checking employees' training levels, monitoring daily sales, customer satisfaction surveys, corrective actions, weekly inventories, and respective analyses.

3. What are the main bottlenecks/problems that occur during the service?

Bottleneck takes place at the counter, usually when there is a special order. As a rule, when you are late, it is because most of the time there was a special request. The big problem is ordering

a special order at the machine: usually, the customer makes his selections but then has to validate them at the end. Usually, the customer (especially the foreigner) doesn't validate, sits at the table, goes to bite the sandwich, and goes back to the counter... these are not the biggest difficulties we have, as a rule, it's not in the normal order, it's when it's in a different order. And sometimes it's not even because it takes time, it's because the order doesn't match what the customer wants. The customer is not always right. There are also flaws in the kitchen, often the kitchen does it correctly and then they change the order. In that case, the restaurant is developing a new labelling system to make it easier to avoid mistakes. In our case, we only have one sales channel, but when there are 3 sales channels, such as drive, take-away, and counter, everything falls into the same system. They go through some keys to specify if it's on a motorcycle, take away and also for the counter, to immediately identify which channel it is.

4. Could some of the problems you mentioned have been solved with self-service technology?

Here I don't know, here it's not very easy. Here we have a different system because the products are made, they are not exposed. I think here the self-service system didn't work. We already have the question, which helps a lot, of asking if it is with ice, or without ice, and of being the customer to do the refill alone. Now there are a lot of people who don't like anything with ice. Customers always order without ice and then we say that he makes their drink and that helps a lot. Too many problems in the drive, they ask for no ice, and then it comes with ice. Or whoever is ordering doesn't write it down and the other person doesn't read it. Here the self-service won't work, I don't believe it works, because the product is made at the moment. We don't even work with the retention oven, most stores work with 4/5 hamburgers each, which have an expiration date. We make the hamburger at the moment. Maybe there is a hamburger that has already been ordered. We do not work with retention greenhouses, so our complaints rate is very low. When it's in the oven, it's losing its shelf life.

5. If you had to describe what an efficient service would look like from start to finish, how would you describe it?

Our service is becoming more and more efficient. Although our score is not good, this is due to the price index, which they complain about. Most of it is there. Then, when he complains about the price, he complains because the table is dirty... but the main thing is the price. Our service started with just 4 cashiers and rows. We chose later, we were pioneers by making only one row. Sometimes there are 4 people there, but not always the smallest line flows more, it's not

true. We split it here to be just a line, as soon as a counter becomes available, call. Even so, we took a long time. Then we changed one thing that the brand has, but we are the only exception, the only restaurant that doesn't work like they do: We don't pay cash. Paying in cash delays the service further. The big difference is that, when I use SOKs to make my order and I choose to pay in cash, the order doesn't come out in the kitchen, my order only goes out to the kitchen when I go back in the queue and make the payment at the counter (**Excerpt 3**). We make a sequence here, either pay by a card or not. If you pay by card at the kiosks, you automatically leave the kitchen and just come to the collection area, it is already more efficient. Those who have more difficulty paying with the machines, pay in line. We make this different from the rest of the brand because in the other restaurants there are still two payments. And I understand, in schools, they can have kids, but it delays the service. Or you have to create an extra queue, which is always a big mess, the person has already paid and goes to the queue again, then there are not always human resources available to have another cashier and that cashier is specific, they only receive money from orders from the kiosk. For example, we have 3 cashiers there, 1 makes any type of payment, and 3 only pay the kiosk in cash. In our case, it doesn't because it's not active. If I made the payment in cash, I placed the order at the kiosk, I receive a password and I have to go to that counter to make the payment. Only then does my order come out in the kitchen. As soon as you pay, the order goes straight to the kitchen.

Then another thing we did recently (1 month ago), was we closed all the counters (we had counters scattered all over the counter), and we put all counters on one side. Because We have a lot of service and we manage to have at least 12 trays in the counter. There's no point in registering orders if we can't carry them out (**Excerpt 4**). Perfect services do not exist, but we are on our way. But you have to have a team. But it's almost on the verge of being the best it can be. Sometimes people fail, or we have a lot of people... but if people ask and if there are 5 elements in front and 5 in the back, the service flows. If all the equipment is working, and above all, the main thing is organization. You don't have to be many, you just have to be organized.

Another difference that we have here to provide a more perfect service is English. We still don't speak English very well and then we have another problem, which is that those who come don't speak English very well either. And this becomes difficult. Bilingualism only exists on machines. In deliveries and preparation, it's very difficult, being a store and having the weight to change a system... we think this is easy, but it's not that easy for a technician to do only table and preparation in which everything is written in English and French. I think where we are, we should do that.

About the order preparation view, we have monitors with order numbers. Just in the morning, I had said that we needed 1 more monitor so that the space on the other side could also see because they can't see it from there. Then sometimes it's just screaming the numbers that go... because sometimes people are here and they're not focused on this. Perfect service is not, but we try to do our best.

If we go to see our service times, we take a little longer, in the sense that we don't have the products already made. It took us another 1 minute, 1 and a half minutes... but the focus is on quality above all, being done at the moment. We have more people for that too. As long as in the general result, sales increase productivity, more customers appear, are more satisfied, more money comes in, we can hire more. The more I sell, the more I can hire, and the more money goes into the register. I think we are heading towards the service we want.

6. Is there any difference in the efficiency of the service when a customer orders at the kiosk or the counter, apart from payment issues?

In the SOK, the customer is not pressured to pursue the order and chooses freely, being the average revenue higher (**Excerpt 6**). Some people don't like suggestive selling. They choose what they want. There, by chance, they already have English and Spanish. During the week, we have a percentage of 40% of sales at the counter and 60% of sales at the kiosks, but this is justified for a reason: The staff has a discount, and the discount does not have access to the machine, you always have to come to the counter, and we have more staff during the week. On weekends there is less staff, and on weekends, machines exceed 55% of sales, sometimes reaching 55%-60% of orders. The balance of sales is 60% of orders placed at the machines and 40% at the counter. It's funny that in the pandemic when we closed for takeaway, the machines reached 70%. In machines, it's faster because there they serve 3 people at a time. There's no pressure from the person in the back waiting, it's much faster.

7. And what problems do you think the machines have?

They have some problems, namely the problem of validating the changes when the person customizes an order. Here, the rule is: if the customer made a mistake, we give another one. We spend two products, but it's the rule. We recognize this, it is the policy of this restaurant (**Excerpt 5**).

Other than that, suggestions: when a customer asks for ice cream, they should have the option of whether to take it away now or to eat it later. We think it's all simple, but then you get there

and the order is placed. We make the ice cream and the customer says, I just want to eat it later, we have to throw it away. When we ask, the order has been there for 3 minutes, making the ice cream takes 1 minute, delays the service, and the other products also lose useful time of validity. I think that for this kind of service the customer should have the option of informing if the ice cream is to eat posteriorly, like what happens with the coffee **(Excerpt 1)**. We already knew there that when this ticket comes out, it is not to be.

In salads, that should be an option to choose the sauce. What happens is that, when salads are a side dish, they always come with the same sauce. But when the customer asks for a salad menu, they have more sauce options. We have already had some complaints because of that, the customer saying that “they didn't give me the sauce, I had to go to the counter again.” **(Excerpt 1)** And the customer turns out to be right. But we could solve this by having the option in the machine to choose the sauce. And that would be more efficient. Communication would be much faster, we don't even need to interact with the customer, and we already know that it's for later consumption or what type of sauce to deliver.

8. Do you have future projects planned related to improving the self-service system?

No

9. Is there anything else you wanted to share?

We have already talked about several things, but the system can always be improved.

There are some when we opened a store here, not this brand, that were very confusing. I hadn't had any brand training, the store had been open for two weeks and it was a big mess. People paid, stayed there waiting for the dish (made at the moment) and the person who made it later when it was over said which dish was going to come out, and 7 people came soon, then there was confusion about who ordered it first. The pager system was introduced, and it worked. As soon as the customer placed the order, we gave the pager and then the customer could move, which before was pressure there at the front of the counter. So the person would go to the table when the pager beeped, he would deliver the pager and we would give the plate.

I believe that the future will go through a very similar system, other chains are already advancing in this, and the customer even places the order sitting down. But I think in the future it will be: I have this table, which is clean, I sit down, I place my order, I am at table 14 and I want X, and then they come here to deliver. Sooner or later there will be pilot experiments in this direction if there aren't already, and that will be the system. Instead of the person standing

in line, you can immediately place the order sitting. This technology would be a matter of being requalified and integrated into the system. It was to sit and have an iPad or connect through the mobile app. Then when they deliver the order to me, I validate it with a barcode or something. I think it will have to go through there, sooner or later, in these chains of mass consumption, with many transactions, then it will be faster. It's just that the difference is no longer the product, it's the service. It will have to be the service itself. Nowadays, in the catering chains that we know, it is increasingly difficult to be fast and with quality. Nowadays, to go to traditional restaurants, you have to sit down... There are situations where it is very difficult to find a place to sit, like in shopping malls. Here it hasn't reached that saturation point yet, but in the summer what happens, is the person makes the request, and then with children... it's terrible. The person should arrive, sit down, and place the order, it is much more comfortable. I think the future will have to be that way, to create more value and be differentiating. I see no one eats fast food, but it's always full. And what I see is that people eat here with pleasure. With technology, this will pass. Did anyone ever, 5-10 years ago, think about getting French fries at home, transported by a scooter? It still confuses me if that is good enough, but the truth is that people keep asking. Or people expect it won't pop, but at least I smelled like fried food at home.

10. Could this solution even help with classroom delays?

Well, that later has to be done by more people. A service with greater delay is when there are large families. Now when there are small orders it is fast, there are rarely exchanges. I've worked on a drive and that's not easy. When people are lacking, we are forced to work faster and then there are more mistakes. Some orders are large and you put everything in the bag, then you don't know what you put in... it's not a picking service, of knowing what's already in the bag. But now with this system that the brand is doing, it will help to avoid having these problems, for example, the customer arrives at his house with only 3 hamburgers instead of 4. It's unpleasant. With this system, I think it helped. Instead of the customer bringing the tray, it's the tray that comes here. Instead of having so many people at the counter, it's the people who walk around the room here. We have the same people to provide service, but quickly, but there, at the machines, the great advantage is that we have 3 employees there who are never absent, do not arrive late and do not respond badly to the customer. When there are mistakes, it is the person who is wrong, but we assume the mistake. We, with the machines, are trying to be more efficient within our brand, which has been doing this for a year and a half. Other chains have had it for a long time.

11. Has there ever been a situation where all the machines failed?

Already. We have had some difficulties with payments, either because they don't accept payment or because they don't double payment with South American cards. And we have even had the mistake of them not working. But it always happened during the week, for 20min, 15min. They always had a solution to pick up.

Before, to serve all people, we had to have four register machines, and even then, we were not as fast as the kiosks (**Excerpt 2**). That's fast... the perception that the customer has is that it may take longer, why? The customer forgets that they are not queuing, but their order is in a queue, virtual, but in a queue. And what is the queue? The trays. And what does this system give us, an interesting thing: when there is a delay in an order, the orders that fall there, we don't have to take the sequence, we can only go and prepare order B when order A is ready. No. Sometimes an order doesn't come out very often, and when it goes to cook, it takes 5 minutes. What happens, is we don't have to finish that one. We tell the customer it may take a little while and we continue to make other orders. This way it's much quicker. And above all, all the information comes out in the kitchen.

12. In these cases, to see which requests can be made while the others take longer, it is the official who does this management and identifies this.

Yes, he manages it himself and helps us not to be kept waiting. Now, what we need is space to have the trays, which is why we widened the counter and placed all the monitors on one side. That was the strategy we came up with, because it's no use having the requests there and then not responding. Now we also manage it better because we have more people, 11 or 12 people per shift. With more people there is better management, people get tired a lot and then there is a much greater probability of making mistakes in the requests.

One thing different from the traditional system that irritates people the most is that here everything is the other way around. The person pays, waits and is hungry. And the person gets hungry. In this system of sitting down and ordering, the person pays but is already sitting down. Then, the person often gets irritated. The perception of a hungry person is more difficult. We are evaluated almost every day here by the customer, and the customer only evaluates when they want to complain, they don't evaluate when the service was good. And normally, when they complain, they're right. We can't change issues related to price, but we have to look at the rest. But the complaints are few. There are some complaints from people of other nationalities because the product is not the same as what they are used to.

13. Are there any errors in the cashiers?

In the cashier, the error is more in the kitchen. But in the bulk, the error is not the one who registers or who makes it, it's the one who delivers. Many times they have the identification of the personalisation of the orders (for example, without tomato), and the delivery person sometimes delivers badly. If we take a percentage, 80% or more of the errors are in the delivery. Sometimes there may be a misinterpretation, but it's very rare. If the kitchen makes a mistake, when we see the order, we see immediately if there's an indication of more or less tomato, for example. But in a hurry, sometimes there's only a few of us and we deliver the order and it's not checked. And when there are families of 5/6 people, the error is even bigger.

Restaurant B

1. Current position and how long have you been in it?

Area coordinator, that is, I have several restaurants under my responsibilities. I've been at this job for 5 years.

2. What are your main tasks?

Training store directors, bureaucratic work at the restaurant level, controlling the products whether we have deviations or not, helping restaurants to identify where these deviations come from and take corrective measures, forecasting sales, and calculating how many people are needed to work. Basically, we always work to optimize the service, to give good customer service

3. Are there any problems in the restaurant that prevent the service from flowing?

We have had some difficulties in terms of payment, sometimes we have some mistakes. But this is an issue that involves another company because there are duplicated payments, which end up making the service difficult.

Our kiosk systems have been working very well, we haven't had any problems. In the beginning, yes, they blocked... But not now, the service has been fluid. What we need to be careful about is, with these new technologies, the number of orders that enter the restaurant begins to increase. In the past we only had the counter, now we still have the counter and the drive, we added the kiosks, and now we have three aggregators which are uber, bolt and glovo, and instead of two or three orders dropping at a time, we have several platforms dropping several orders at the same time and we have to increase the number of people in the kitchen and the number of

products available to be able to respond quickly to all these orders that are arriving second by second. We managed to do hundreds of transactions in an hour (**Excerpt 7**).

Another thing that we have also been having difficulty with is that the team has to be trained in relation to the products. Imagine that you are missing a product from a caramel topping, you have to go there to the system and tell the kiosk that there is no such product. Because if not, then the customer asks and then when he arrives at the counter, he doesn't have it. This can also create some embarrassment in the operation of the restaurant here.

4. And for example, with these different parts where the service comes in, do you feel self-service technology helps in the efficiency of the service?

From the moment we have a kiosk or delivery platforms, it ends up saving us a bit of service time, because let's imagine that I have 3 people there (in the kiosks), if I had to have one employee for each one of them, I would have to spend more money and it wouldn't be so fast, because often what happens is, as I usually say, those three employees never skip work, they're always there. With the food delivery platforms the same thing (**Excerpt 22**).

Now we are also going to introduce a new system, which requires each customer to have their kiosk in their hand. In other words, an application where you place your order via your cell phone, the order falls inside the restaurant, you pay for it through the application, you arrive at the counter and pick it up. Basically, it's like having a kiosk but on your phone. And that's the next step to take, we've already had to prepare the database for this new project and in principle, it's coming soon. We have already started another brand with this, it is being tested, and in our restaurants, it is expected that in the next 2 months it will already have this in operation.

5. Do you feel that more people go to the machines to order than go to the counter?

The relationship between the counter and the kiosks depends on the restaurants. In this restaurant, while the counter profits 40€, the kiosks profit 15€ (**Excerpt 10**). Meaning that, while there are four customers at the counter, there are 1.5 at the kiosk. That is, while there are 4 customers at the counter, there are 1.5 at the kiosk. I'll give you an example of the one in Almada, which will be much bigger, which is a mall store. In Almada it is already half. Then it also has a lot to do with the layout that is created in each restaurant. Almada has two counters and 3 kiosks, but the kiosks are really visible to the customer. This restaurant is not a good example, because it has a lot to do with the position of the kiosks. The main entrance door is the one, the first thing the customer sees is the counter. For example, not at Almada anymore,

it's right in front, and we also have another restaurant in Sacavém where most of the customers are young, which is an issue that pulls more towards the kiosks, and it's already 50%. Caldas da Rainha is a restaurant just like this one, only the main entrance door is different and so the same orders you make at the counter, you make at the kiosks.

6. Even with different restaurants having different indicators when it comes to kiosks, do you think it is always important to have the kiosks? Does it help in the efficiency of the service?

It helps and we are able to serve more customers, in less time.

7. Do you feel that there is any difference, for example, in a personalised order, do you feel any difference when you order at the counter and when you order at the kiosk, in terms of efficiency?

I don't have that measurement. What I can say is that normally the orders that are made at the kiosks have a higher average revenue than those made at the counter. This is because the customer asks for more things there. Even when we're doing suggestive selling, the customer may feel that we're trying to push something on him, and not at the kiosk, and they ask for more things at the kiosk than at the counter. Usually the average revenue is higher, each customer takes more things.

8. If you had to point out some problems you see with kiosks, is there anything you can think of?

It depends. It may not be exactly in the kiosks, but with the policy after each company. The equipment itself, for example, these equipments don't have contactless. In these equipments you can make payments at the counter, with cash, and I am not a fan of that, because there is a double stop. In other words, the customer has to get there and has to make the order, has to make the invoice, then he has to go to another queue and make the payment, then he has to go to another queue to receive it. Basically if there were queues, there would be 3, and I think he should get there, pay and collect. The point of this is that we opened this assumption of the customer doing that, I think them (kiosks) should accept only payments with ATM, contactless or an app. For now, we don't have this development, it's just an ATM card, with no contactless (Excerpt 8).

Then more things that could be better. In terms of languages, we have English and Portuguese. Where our restaurants are located, I don't think there's a problem, but if there was a restaurant in downtown Lisbon then it would make sense to have more languages.

And then we are also always a bit limited to the Backoffice of the kiosk, but that also has to do with the programmes that each kiosk has. I think it could be more developed, if we compare this kiosk with another, we can see the differences. This is because of the interface, the way it's built behind. The software itself.

9. Are there any future projects, other than the app, that are related to self-service?

We have scheduled updates, but the updates will never stop existing. Currently we had an update of our kiosks because of the images, to be more appealing, the colours, we had to change some things. And also the functioning of the kiosks. Now, there are always updates to be made, as we go on testing the kiosk, questions arise or technical difficulties are encountered, and then we always tell the IT that we like this or that. Then they update the kiosks so that we have these options available. Specifically, the client wanted to edit a sandwich, but there were no such options. We had to create software so that the customer could edit the sandwich he wanted.

10. In the app scenario, each customer had to download the application in order to place an order, in a scenario where there was, for example, a tablet on each table, so that the customer could immediately place the order, do you think it would be advantageous along with the kiosks, or that one thing would replace the other?

It could be an option, not for this type of restaurant. Maybe a restaurant with a higher target, where you can control the equipment, maybe in a room where the customers sit and are... in fast food it is a bit complicated to manage the issue of tablets, where they are, that brings other problems. Whether it would be an asset, I think so. It ends up seeing another post. Here the question is, you can't also put... as I explained earlier, I'll put it another way. We're building a house 24 hours a day, if we can get two people in there it might take us 12 hours instead of 24 hours. But if you put 50 people there there will come a time when you won't be able to do the work in a shorter time. I can't put 20 kiosks here, because I don't have the capacity to respond. Then I'll run out of chairs... so we have to manage the number of machines we put in to receive orders. We are now remodelling the restaurant in Colombo, and this discussion has come up a lot, which is, how many kiosks are we going to put, if we put 10, 8, 6... then 20 kiosks, on Benfica match days there will be customers for 20 kiosks, and then will we have the capacity to serve these 20 people? Every 5 minutes 20 orders will come in, who will then prepare all

those orders? The moves that another fast food restaurant in Colombo made was to create two assembly lines. In other words, they have two kitchens. They had one, they made another one the same. Instead of having 4 people making sandwiches, they have 8, instead of having 2 people frying potatoes, they have 4. They created 2 assembly lines to be able to respond to the number of kiosks that increased in the room, so sometimes it's not just about placing devices, you also need to see what's behind them and what can feed the orders that come from the device. Tablets would also be an option. I have seen a few years ago in another restaurant that the table was a tablet.

11. For example, in the application, would it make sense, from your point of view, for the person to place the order at home and have it ready when they arrive, or only to place it at the restaurant?

The app will work by allowing the customer to pick up at home, pick up wherever they want. You can set a pick-up time. With the aggregators it is also possible to do that, to schedule the order.

12. Is there anything else you would like to add?

That's all for now. This is the system we've been using. Our first big step was the issue of the fusion system, which was the fusion between service and delivery. We had the classic service where each employee had a customer, and then we delivered that order, the person in the counter was the one who delivered the order. Then we switched to fusion, where we basically have people who serve and people who deliver. This was the first step to avoid N issues, namely the orders being faster. Now we moved on to kiosks, then applications come, we also have aggregators that also came to revolutionize our entire service here. This is a restaurant that 80% of sales are delivery. That is, almost the customer does not go to the counter (**Excerpt 9**). I don't know where this is going

1. Being 80% delivery, it was hardly worth having the room.

Right. At the Campo Pequeno restaurant, which is in the Campo Pequeno shopping centre, it's a very small shopping centre, most of the orders are for delivery. In fact, I have friends who have restaurants called "dark kitchens", which means they don't have a restaurant, they just have a kitchen. And they get delivery orders, and they only do delivery orders, they don't even take clients anymore. And I think if we had a dark kitchen like this downtown, I think we'd get a lot

of orders. But we're not there yet, we have to get to the centre of Lisbon. Maybe it will be this year.

Restaurant C

1. What is your job?

Director of Operations. So I am the person who manages restaurant operations. This is at the operations level, more specifically the operations, the day to day running of the restaurant. Then I'm also above the person who does recruitment, the marketing supervisor. I manage three restaurants.

2. How long have you been in your current position?

I've been in my current position for a month and a half, but I've been with the company for 23 years. I was shop manager for 12 years, and now I've moved on to operations manager.

3. If you think about restaurant service, in a room, what problems do you usually encounter?

In room service, it depends a little bit on which restaurant they are. Today, room service in this chain is very much geared towards new technologies. What often happens is that not all people are prepared for this type of service, and there are often mistakes, then it depends on the area of the country where the restaurant is, it also depends on how the user uses the technologies, as you know today there is much more use of SOKs than the counter, and the biggest problem is also the rotation of people that we have, and the rotation of people that we have, contact with the customer, and some of the questions that the customer asks, we increasingly have a more diverse range of products, and with this high turnover of products, we do not always give the best customer service, since questions they have to ask, and then with COVID it is even more difficult to manage. When you have a more solid team, it is much easier.

At the moment I have 3, but regarding my position, just to clarify, my position goes from operations (which is the quality part, hiring, marketing, service, market indicators...), it is very much based on quality, service, cleaning of the restaurants, and then also the whole part behind, the financial part of the restaurant and productivity, which is very complicated to manage sometimes. Just the example, in one of the restaurants, it is easy to manage in the sense that when there are sales, all the costs are diluted and bearable, when you have a restaurant with less sales, it is the most difficult to manage. With little movement, any cost that happens has a big impact on the month's balance sheet. But there are compulsory costs that we can't live without,

like for example, if the air conditioning breaks down, I have to have it fixed, so it's a high cost for that restaurant. With the same amount, if it's the restaurant that sells a lot, the cost is diluted and you don't even feel the impact on the business.

4. Is this problem with the technologies that you were referring to present in all 3 restaurants or is there a specific one?

There is one more specific one, so if we take technologies and extend them to delivery, which is uber and glovo, then we have a little bit more of a problem. In our restaurant, the customer uses the kiosks a lot, but he's inside the restaurant. If there is a problem, we can still fix it. If it's through the delivery apps, some accuracy errors still occur, but then we have another associated part, which is, we are depending on third parties, and when the service passes to third parties, we cannot guarantee the speed of the picking, the speed of delivery, we cannot guarantee no deviation of products, partial or complete, no customer delivery delay time and customer interaction. These are the main aspects that we are still struggling with today with technology when the customer uses the apps (**Excerpt 11**). In the restaurant it is always easier because the customer goes to the kiosk and makes the entire order for him, there may be a glitch, there may be issues, but nowadays there are not so many. When kiosks started, if I'm not mistaken it was in 2015, it was even my restaurant, it was the first in the country to use this system, there was still a lot of comparison that took jobs away, and there were customers who didn't want to use kiosks at all, because they would even verbalise "I go to the cashier so that the people at the cashier don't lose their jobs". And then they would make comparisons with the tolls, as we know, the number of toll gates has also reduced a lot, it's all practically automatic, and then they would sometimes make comparisons with supermarkets that also have self-service, so they would make the comparison.

However, technology has another contour that is complicated for us as workers. When there's a problem in the system, we have several production and service screens, so we can see where the order comes in and the whole circuit. The customer places the order at the checkout or kiosk, it goes to the kitchen, then the person places the order and it appears on the monitor and is delivered to the customer. When one of these monitors blocks, we have a very serious problem. We're dependent on technology, and we're dependent on our support company, which is a company that serves the whole country. They are very good professionals, they respond 24 hours a day, the problem is that sometimes you have to restart the whole system and restarting the whole system and being active again can take 10 to 15 minutes, as it took half an hour, and

I had to close the restaurant. So this is the dependency we have nowadays, I can even restart a cashier, but the cashier will probably influence the whole system up to production and service. What they do is always this, is to reboot, and we are dependent on them. I don't know how to restart a system on my side, I can restart the computer and turn it back on, but since it's interconnected with others, it may not solve the problem. Then we have to call support. So we are talking about, if necessary, and as has already happened, interrupting the service, stopping the entire service for 15 minutes in the restaurant, this has a big impact on customer satisfaction and on the business. And this sometimes happens with some regularity, which did not happen a few years ago with less technology. When there weren't these kiosks, Uber or anything like that, nowadays it is much more loaded and we all feel it, we are very dependent on technology nowadays, when an error happens.

5. Because then it affects everything at the same time... for example if..., so technology ends up helping to solve some problems, but then another is like this a little bit, what problems do you think self-service technology, namely kiosks, help in the service?

They help, even in a question of balance between the number of people at the counter and at the kiosks. Divide it up a little bit. Just for you to see the importance of a kiosk, nowadays in the restaurant, of sales in store, possibly the counter is around 20%-30%, and the rest is all in the kiosks (**Excerpt 12**). The more kiosks you have, the more usage you will have, which is good because there are no longer those huge queues at the checkouts, people divide a little bit between the kiosks and the counter, and it is much easier to circulate in the restaurant and it is much easier to order. So the kiosks are double sided, if we put four, there are eight service points. In the past, on average, there were five to six cashiers, nowadays with kiosks we can reduce them to three and kiosks are eight (**Excerpt 13**) We have a very strong sales day, which is Children's Day, and Children's Day used to be when everyone went to the cashiers, which created a lot of pressure at the counter, created a lot of pressure on the staff, people would queue up with their children... it was very confusing, the restaurant would have huge queues. Then, of course, it influenced the rest of the circulation, and the kiosks divided the flow of customers a little bit, there wasn't so much crowding at the counter, it was more divided by the kiosk spaces, and you felt the pressure a lot less. On the employee's side, you also feel much less pressure, because there's no longer the customer standing over the counter, looking in. And then the issue of Numbering the causes less pressure on the employee because he is doing things normally, is interrupted less often, he is able to deliver to the table (**Excerpt 14**), so the pressure drops a little bit. So that's the best thing that was done.

6. I don't know if you also feel that in the machines people end up ordering more things and the average revenue ends up being higher?

Yes, you can feel much more. While at the counter the average revenue is around 5€/6€, at the kiosks it's already 7€/8€ per person. Lately we have another type of dynamic, which are the menus available all day with more affordable prices. And in these cases, the counter is around 9€, the kiosks are around 11€, and delivery is around 13-15 euros because the delivery charges a fee, so they take advantage of the fee and order everything right away (**Excerpt 16**). On the one hand, it's good, because previously we had the clerk at the checkout, and we even set the objective of having to make suggestive sales of x products. And this then becomes tiring for the employee, there are customers who may give a less correct answer, and he may feel that they're being pushed. And nowadays we have many things that didn't exist before, for example, if the customer wants to take if he wants to eat in the restaurant, if the person wants taxpayer, so there are already many questions. At SOK, the person is more at ease and is managing his time, so he doesn't have the pressure from the other side, he makes the order normally, and it's always asking if he wants to add sauce or coffee, if he wants contributor... he's in his world and managing his time. It is also good in terms of special order, because sometimes if there is an error, we will deduce that it was the responsibility of the employee, which sometimes causes some discomfort for the customer. If it appears in the SOK, it's already on the customer's side. If there is an error, it will be different (**Excerpt 24**), and the person is more or less at ease. We always have people to give training at the kiosks. But yes, the average revenue is much higher at the kiosk and at delivery. It also increases at the drive through, which also has a higher average revenue, because people are also passing through and throughout the day it differs. At lunch, it's very much a meal for 1 or 2 people, and at dinner, sometimes it's for three quarters, and the average sale also goes up a little.

7. Of the 3 restaurants, is there one that is more tech-savvy than the others or are people very used to it nowadays?

Practically all of them have more or less an average, it seems. We only have one that invoices a lot in terms of delivery, because then it also depends a lot on the area where you are, it also depends on the culture of the people around you, it depends on the age group, the level of education... We feel this a lot, for example, speaking of the three, there are two that because they are on the motorway don't have delivery, they only have a room, a drive and the kiosks. But even so, people always tend to go to the kiosks, they only go to the counter when the kiosks

are full. I feel that a lot, there's not so much that thing of wanting to go to the till to keep their jobs anymore. You can already feel this a lot in general. In the other restaurant, they use SOK and delivery a lot, because in the area around there, people use delivery a lot, so that they don't have to stand in traffic jams. In the summer, people go to the beaches a lot and sometimes they go there all day long, from 10 o'clock in the morning until midnight, so they don't want to have to go through that inconvenience of being in the middle of the traffic because it's very intense, so they opt for delivery. Delivery is around 30%-40%. And in the restaurant in the shopping centre, delivery is around 55%-60%. There are also SOKs there, and it's the same thing, people go to the SOKs first, then they go to the cashiers. The problem with delivery is that it has an associated tax, and the more you sell from delivery, you can even have a very high turnover, but in a direct way, a restaurant cannot live only from delivery, because delivery... this is like VAT, VAT is 23% and delivery is 15% of turnover. If we make 1000€, I have to pay the operator 150€. Sometimes when we talk about the restaurant exceeding the delivery sales record, it is very good in terms of business because it is sustainable, and I honestly think that we won't live without delivery anymore, you can choose other operators, but when you break these records, you can't forget that 15% goes to the operator. More and more we have to look for operators. The problem with operators is the control after their employees. As they are all practically people who work without a connection to the company, we take an application and they manage from that, they receive the request, they are not controlled by the employer. That's one of the big issues, we've talked about it several times. We always control our service provider, who delivers products to us and does our maintenance, but then the operator, because it's such a large scale, they don't have that concern, and we feel a lack of supervision from the operator. Because in the restaurant, the affluence of technology is so great, and this part already has a great weight, but if it is missing, it is a supervision on their side, they need to control and manage the customer expectation better. This is what? The customer makes an order, and the customer is not expecting a delay of more than 40 minutes or 1 hour, and it has already happened, because this technology, they have on their side the possibility of making the pick-up at the shop, as they can go to another restaurant, and then we cannot control this. I control when they start the journey, only, however, they can go to other places. What happens, then the customer is waiting for a long time and we can't control where he goes next. So he has this problem still to be solved. Then we also can't get him to go directly to the customer. So this part of the technology is also a little bit... but this is also more the behaviour of the associated company.

8. Given that you have the counter, the kiosks, the drive, what are the challenges that have been felt most so that the service continues to flow efficiently?

The first thing is to have people. That's always the point I always touch on, is having people. Because it's increasingly complicated to get people to stay for a long period of time in restaurants, and that affects everything. It affects knowledge, because if you have a high turnover, people take longer to learn, so they take longer to be efficient and productivity drops a lot.

In the rest, it is the part associated with technology, this part that can sometimes have some problems here, and then nowadays it is what we call, in the restaurant, having a dynamic shift, in the old days everything was very static, we made a plan and put x people in the kitchen, x at the counter, x for the drive, x for delivery. And then it depends on the service, we managed to have the vision to know where the problems are at the moment. If it's a production problem in the kitchen, if you can produce what's coming up in due time. If you can't produce right away, the counter, the drive and the rest won't go, so I have to make a well prepared plan and then it depends on what? It's always people, training. And then what do we have to do? Take people, put a production problem in front, a service problem, but nowadays we also feel a lack of raw material, at the level of people. It's very complicated, and without people nothing happens. And if we have people, everything flows, and the shift manager has to do this type of service, of attitude, which is to take people and see, for example, there is a problem in the kitchen, products are not arriving, let's find out what's going on, if it's the person who is not producing the right amount... the people in the kitchen are few because it also depends on what we call the Pmix. The Pmix is also the products that are coming out, whether it's more ice cream, more hamburgers, more potatoes, and then there is a very important triangle that has to be observed, which is what we call the golden triangle, which is products, potatoes and drink. If these 3 strands are producing well, the service is easy to do.

Then we have another issue here too, which is, the restaurants, few of them, apart from the recent ones, which is the infrastructure. e infrastructure is not adapted to this level of sales. For example, the average age of the restaurants I work in is 15-20 years, and at the time it was just the cashier and the drive. what happens is that, previously, the restaurant had just the counter and the drive. We had to adapt it to SOKs, delivery and the drive, that had more affluence than before, and all confined within the same space, so the walls did not widen. What did widen in some of them was the room, but in terms of useful area of the restaurant it did not increase, and

there we have a problem, we are putting everything inside a space that 20 years ago did not even have the range of products of today (**Excerpt 15**). So, to combat this, we had to increase the number of unloads, the number of products, for example, when I started there were 3 types of bread, today there are 7. And the complexity of the kitchen, in terms of learning and training, everything takes longer. Because nowadays there's much more rigour in the procedures, with a wider range of products, which has a great influence. And this has an impact on the service, because having trained people, having a sufficient number of people, this happens with some regularity, as well as new technologies. People have got used to teleworking, to getting jobs where they can be at home, or at the café, or on the beach with a computer and can work from there. So this is then going to have an impact on the restaurant. And service has this big impact, and space is one of them, the physical space to work, to circulate, and in view of the increase in sales as well. In the last 20 years, the increase in sales has been big, and with such a big increase in sales as we are experiencing nowadays, associated with the number of people, sometimes not enough, it has a big impact on the service, and you can feel it. Sometimes we say that the more people the better, but there's a limit because we can't circulate so many people in such a small space and the service has this impact. no matter how much we want to do better, there are restaurants that no longer have the capacity, "this works with 40 people", but it doesn't work because there's no space. So If I have to make a big order the person behind me instead of waiting for me can pass by and keep the drive flowing. And then we have a problem that we don't have space.

9. In terms of these challenges of efficiency in service, is there a restaurant that stood out more for having more problems?

the problems occur in practically the same way in all of them. there isn't any restaurant that has felt a greater impact. with a high or low volume of sales, the problems end up existing in the same way, whether at a technological, operational or infrastructure level. we have, in terms of technology, our servers are regularly changed. in order for them to be operational, they have a life span, but at a certain point they can no longer accumulate so much information. and the company does a good job in this respect, changing the servers, which is an associated cost, but it's because we are up to date with evolution and nowadays the information files are much more loaded and therefore, they are always being renewed. they warn us that a certain piece of equipment is expiring and then they upgrade or change the equipment completely and, in this respect, there isn't one that has more problems than the other. Of course we always have to be up to date with new technologies and upgrade our equipment. every x years we change all the

equipment, new counters come in new servers, so in this aspect we are very well served. everything that is the servers or the routers have to be in good working order and there we can guarantee that we can work normally without major problems at this level

In terms of technology, we have the mobile application. this application already gives rise to some complications. when there are problems with this application, it is because we are not able to have visibility of the use of the application by the customer. for example, if a customer makes a purchase and wants to know if they have points, we have no way of knowing. When the customer uses the benefit of the app we have no way of knowing. Because of data privacy, we could see. The customer sometimes asks questions and we can't answer.

When there are payments through other technology that we have, The person makes the order through the mobile to be delivered to the table or for collection at the counter or collection at the park or drive. the person arrives and says that they have a purchase with the number 520, the person has the order and just gives the check, as it has already been paid for, and then collects it at the restaurant. Just the other day, there was a customer who made a mobile order, was redirected to a page, which then made an update and went back. After that, it appeared a page showing it was complete, followed by another error. We were unable to know if the customer paid or not. This is a complication because then the customer says, "I paid and went to page x and the error came back, I already made the purchase 2 times, can you know if I paid 2 or 3 times?" there's no way to know (**Excerpt 23**).

Then when there is a problem with invoicing issues or the client's debit as well as discounted 3 times, and it has already happened that the client shows that he made 3 purchases, I have to talk to the financial department for them to access the website of the operator responsible for the platform, and there I can see if he really discounted 3 times or not. If it is a situation where we don't have that knowledge, possibly I am able to return to the client the transactions that were duplicated and in 4-5 days the client receives the money again, so there is a loss here because he will be reacted and I already gave him back, it's a matter that we can't control nor have access.

Then we also have another thing, which is the timetable. from today to tomorrow, if necessary, I change the timetable of the establishment and I also have to change it in the application and sometimes this may not happen quickly and the client may feel a little disappointed: "here it says that the park closes at 2 a.m., and you don't work after 1 a.m.". so here we have to be very well tuned, when we want to do the process of changing the timetable it has to be the other way

around, first I inform the company that I'm going to change the timetable and then I ask to change it in the application. It is much easier than the other way around. but this issue of payment has raised many questions, either by the benefits of the application or when there is a request paid directly from the application and has an error on the page, and we don't know how to solve it close to the client.

Another issue associated to THIS is the training of the teams, all shift managers, and also the cashiers, but at least the shift manager has to know how to use the application. it has happened a lot that this is a team that doesn't even have the application, which represents a barrier, and if they don't have it, they don't know how to use it. Nowadays it doesn't happen so much because we give training and ask managers to have the application, and if they don't want to have it we have ours and can give training on that aspect, but nowadays it's a little bit improved and doesn't have as many questions as before. but sometimes these mistakes still happen. just yesterday, it happened that the customer placed an order on the application and then there was an error and I didn't know if the customer had paid or not. sometimes it can take an hour or half an hour to rectify and sometimes up to 3 working days, and then it creates this whole sequence, of the customer having to come and talk to us, us going to the financial department, and the customer sometimes doesn't have the patience to wait that long.

10. Regarding payments for the machines, are there any problems?

No problems with NOS payment machines. it has contactless, which makes it much easier. duplicate payments sometimes happen, but it's more on the banks' part. it doesn't happen so often anymore, 5 years ago this type of situation used to happen, but the machines have contactless, at the counter they have contactless, and all this is much easier.

And another contour here, also to complement, is that we have less and less cash on hand. which is also good for handling, for people's safety, for the flow of money to be transported, so there is an increasing digital part and we also have greater security in restaurants. Nowadays, with this system of kiosks and service, everything is integrated. In the past, it was probably easier for an operator to make a diversion or pass on products, but nowadays it's not, because the person registers and only what will come out. In the old days, someone had a greenhouse with products, which had a shelf life, and we could have more or less and the person could even deviate, nowadays everything is done at the moment, which has eliminated errors, eliminated barriers, and it's more accurate (**Excerpt 17**) in terms of cashier failures, monetary deviation, it no longer happens so much, because the use of kiosks has increased a lot. Previously we had

around 15%-20%, but now we have over 50% of digital payments, with contactless, ATMs. I think they have also brought this benefit.

11. Do you feel that there is any difference in the efficiency of the service when the customer goes to the counter or when the customer goes to the kiosk?

That depends on the customer, there are customers who want the counter because of that employment situation and want a more personalised, more human service. Nowadays you don't feel it so much. In the past, there were times when it was transited and we felt a little more, but now it's a residual, you don't feel so much that you want to talk to someone. but during lunch, for example, the kiosks are used much more than the checkouts. and then sometimes people don't want to take up time at the checkout, in the sense that they don't know what they want, and then they're asking someone else what they're going to drink, and so that they don't have to take up the time of those behind them, if they have that pressure from those behind them, they end up going to the kiosks.

another issue is that sometimes the customer wants to edit the order, take out THIS and put in that, and then gets confused, so they prefer to be at the kiosk rather than going to the cashier. it also reduces a little bit those faults with the special orders, what the customer doesn't want, what they want to take out, sometimes they even ask small questions that I even need to ask for support. some questions may be what sauces they take, and then there's also the issue of people with allergies. these people still normally go to the cashier a lot, and they do use the cashier a lot to ask, even though our kiosk has a nutritional table and a part where they can see what the ingredients are in the composition, people still want to ask the employee.

12. To what extent do you think in the future this is going to be more about people having applications and ordering those applications and ending up with no contact with the employee completely?

We feel it more and more, we analyse the percentages of use of technologies and we feel it more and more. the drive will always be the drive, for convenience, although the drive already has the mobile service in which the person just says the order number and collects. but yes, more and more we are feeling a greater adherence to these technologies than at the counter. the counter reduced around 20%-30% of sales, 60-80% is all in kiosks. I don't see a reversing trend here.

Also, all tables have a number and the person can enter the restaurant, sit at a table, scan the QR code, put the number of the table where he is sitting and we deliver the order to the table. The customer does not need to go to the kiosk or to the cashier, the order arrives in our circuit and we serve it. More and more people are choosing to do this (**Excerpt 25**). This also depends on the area of the country. In an area with lots of tourists, it doesn't happen so much, because they prefer to order at the counter, to avoid mistakes. In other areas of the country, maybe they also prefer to go to the cashier because of the social contact, so that they can have a chat, which sometimes happens. Now, when it's big urban centres, it's always more the technological.

13. On the level of future projects on self-serve technology, anything you have thought of? for now... we're always evolving, whenever something innovative comes up, we're always aware of it and sometimes we're even a little ahead in that sense. several tests have already been done and several projects have already been thought of, even those outside the box. for example, delivery, which was a project that took a long time to come to the street. there are those who, in certain specific areas, deliver with a drone, these are small tests that have been done by other companies, but there is still a lot to do in this sense. however, we are always aware of new technologies, always aware of customer needs, customers also have a platform where they give some suggestions and we are always aware of that. therefore, what there may be for the future nobody knows yet, we will follow the trend.

14. I don't know if there are any suggestions you have regarding self-service technology. No, just what we have already talked about, which is that we, NOS restaurants, manage to have people with knowledge of the applications, manage to give a response at the moment to those doubts related to payment and also the dependence on technology because, nobody wants to be in a restaurant where a screen locks up and we have no response at the moment. so THIS is a big barrier that we feel and that there wasn't so much of in the past. there is still a big job to be done in this sense, which is to ensure that there is a backup system. we can sometimes have a failure, for example if the power fails in a hospital they have a generator, and we need to have a system like that, which is, if this system fails, there is a backup system that keeps working. it would have to be something where if there is a general problem, in the kitchen or at the counter, it doesn't force us to close the restaurant and we can work while the company solves the problem separately. that would be what we all want, and sometimes I talk to my colleagues and employees, and when there is a problem there should be, it's not exactly a general alarm, but it's almost. THIS is why, because we are working there and we are very dependent on this and

all it takes is for there to be some kind of problem and it goes to the whole circuit, and if there was a way in which we in the restaurant could work around this problem without it directly affecting the client and the normal functioning of the restaurant, it would be ideal.

Restaurant D

1. What is your current position?

At the moment I am the head of operations, i.e. internally as shop manager

2. What are your main tasks?

They are extensive, from the complete management of the restaurant, which is in my charge, at the moment one of the most challenging restaurants in the country. So, the main responsibilities are orders, people, recruitment, product orders, equipment, customers, food safety. A lot of food safety, meaning we serve people, so we have to have good food safety of products selected correctly and at the right temperatures. Stock management and general restaurant business, i.e. approving invoices, talking to suppliers, buying products. Campaigns, i.e. national campaigns that are created and we have to implement them in a restaurant, follow up on them, all in these areas.

3. If you think a little about the service in the classroom, what are the main challenges you encounter?

In our type of restaurant, the big challenge we have is where we seat people and how we find them. For our part, it was selected in a very easy way, we put up some tents that have a number with a GPS. There are sensors in the restaurants that allow us to know the location of the client. If this didn't exist, it probably wouldn't be so easy, as I currently have around 220 places. It's a fairly large restaurant, with an outside terrace, a winter garden and a lounge.

For example, thinking a bit about the self-service technology that people use to order, do you think that helps the efficiency of the service?

It helps in the efficiency of the service without doubt. And here we have a winning point in favour, that the customer can choose and is seeing what he is choosing. Whereas if I go to a normal, typical cashier and ask for a product, I don't see the product. Right now, with these technologies, the person can see the product he is ordering. And if he makes a special order, he can see if that product does or does not contain that ingredient.

4. I noticed you also have drive, so you have the delivery, the drive, the room. What are the main challenges managing all these platforms?

The main difficulties are that the channels can fill up at the same time or at different times. What happens here is a big part of management of knowing where we are going to put people, where it is going to be stronger, and when we are going to spend our resources. In other words, if I have a plan, I have to do it in advance, I have to have a background on what I plan to sell, "I need x number of people to sell this" and within these x number of people, where will I place them all. The great advantage that we have is that our employees know how to do everything, that is, they are versatile. By being versatile, we managed to play a little with them "now you help in the drive because the drive is full, now you go to the living room because the room is busier" or even in the delivery part, which sometimes moves a lot, we have to put more employees there (**Excerpt 18**).

5. When it comes to technology, for example, how do you think it helps control restaurant operations?

It helps control the restaurant's operations at the point at which I manage to strangle the orders that come into the restaurant, i.e., at the moment and in the past, what I knew of the restaurant when I entered, I had 4 registration points, and those were quickly passed on. At the moment, I have 8 SOKs in the room where the customer automatically places the order and automatically registers and pays. I have 3 more checkouts at the counter, so I'm already up to 11 checkouts, I have 2 more drive-up checkouts, so I'm already up to 13 checkouts. Then we go to the technological side of things. In our application, hundreds of people can now place an order. How does this help us in the operation? It's just that if I know that all the counters and SOKs inside the restaurant are full and there are, let's imagine, 10 people placing an order through the delivery app and our app, I might be able to have a reaction time to prepare or even to limit the order to only 10 people. Because if I open my mobile window to 1000 people, I won't be able to serve 1000 people. And I think that in this part, technology helps us, where we can perhaps define gaps there in which maybe "ok, I can give response to 20 mobile orders". From the 20 orders forward, the service has to get a little limited or there has to be a message saying, "your order may take 15-20 minutes", and technology can help us with this (**Excerpt 19**)

6. And do you also feel that it helps in controlling costs, for example with staff?

No. There is a misconception about what technology has brought. I was talking earlier about putting four SOKs in the room, and four become eight because they are double-sided. What

happens? The typical restaurant and the typical service that we were used to was, I was attended by a person at the checkout and that person at the checkout would bring the order to me. What would happen? The people in the back would be waiting much longer. What happened, we made more tills available, more people could order at the same time, but my kitchen had to be reinforced. And what I used to do with 2/3 people, I now have to do with 7 or 8. In other words, the people we used to see at the counter, we no longer see, but they are in the kitchen. There is still a misconception that technology is taking away jobs. I mean, I even felt that I had to reinforce the kitchen rather than the counter, although I implemented more cashiers, that's what I was saying, I went from having 4 cashiers to having 12 physical cashiers in the restaurant plus all the digital ones that exist.

7. According to your experience, do you think there is any difference in the efficiency of the service when there is a request made through the technology or at the employee?

We don't notice any difference. This is because, I am of this opinion and I work this way, for me, whether it's a client, a CEO or a client who comes here once a day or once a year, the client has to be served in the same way. Here there is no... I mean, what does technology bring me? I don't know who the client is on the other side, so I won't know if, even if I want to give a differentiated service because it's my CEO and I want to please him, it will never happen because I don't know who is behind the request. Technology comes to do this, which is, I know what the request is, my standard is this, and it is with this standard that I will deliver. Whether a person is considered very important or not very important to the organisation, they are all on the same level, it is all very important.

8. Over the days, do you think there is a greater turnout at the tills or the machines, or the app?

To the application. What we have throughout time, and with the evolution of the times, is that people find the digital part strange at first, because people think that we are stealing jobs, so there is a bit of retraction in the use of, but as we are near a school and I have the pleasure of being near a school and having some young people who bring this part of technology because they want to be very independent and want to order for themselves, there is a high use of this type of technological service.

9. Do you have any suggestions regarding self-service technology, any problems that have happened that you thought "if we had this it would have come in handy" or anything like that?

The only solution that I see can help this part that I was talking about before, the bottlenecking of requests. In other words, we should be aware that technology is very good, but we should also be aware that it can completely strangle the whole service, and I can reach a point of chaos, if right now 1,000 people place an order for the restaurant, I won't be able to fulfill it in 1 or 2 hours, or even if I have people in the restaurant, they probably won't... In other words, I won't be able to have a fast service, fast food, so I won't be able to have that response, no matter how many people I have working. Because 1000 orders is what I do for a day, so it's a very big margin.

Another thing that I see that may become a disadvantage is the fact that we are very dependent on technology and if one day this happens, that is, there is a general IT problem, how can we overcome this? The resources are here, the people are here, but how do I overcome this? We have our services, but it still scares me that this might happen, how are we going to manage this?

10. I don't know if you can recall any problems you have faced in the service that were relevant or any suggestions for improvement for efficiency?

I don't see any... I think that the fact that we have a lot of tools that help us in this, to make a good projection of what might happen in the restaurant, and with the sales history we have, we can make projections of what I expect to sell, and maybe what can sometimes make me a bit stuck in a rut is if the projection doesn't go well, if the projection is not totally real, what might happen in the service. It is one thing for me to expect to receive 100 clients at lunchtime, and suddenly another thing is for 200 or 300 to come in, which doubles or triples my work, and depending on these projections and the projection I have, I will not be able to give the same type of service, and here I think there may be some work behind the technology, which is to predict what may happen, what my eating habits are for example

Restaurant E

1. What is your current position?

In 2017 I joined the company, I did my academic course in economics and management, then in 2017 I applied for a management trainee course that was open to vacancy, and I was called. They asked me to do tests and an interview, and by chance the tests went very well, and I didn't get the position they were asking for, but the higher position, which means I immediately

became assistant manager of the restaurant. After about two years, it didn't come to that, I was invited to be assistant manager at another restaurant. After another 2 years, I was invited to be the supervisor of the restaurant where I am now.

In terms of functions, what I have to do is more a job of coordinating and monitoring compliance with the KPIs that the restaurant has to meet, therefore, there are targets, objectives that the company sets, there are objectives that we set as food safety audit evaluations, operational objectives, whether in terms of time, of more operational metrics, and therefore my role is not only to monitor the results that the company has achieved, but also to assume objectives and small goals, small Goals, so that the team can achieve them, besides of course the good internal relationship that is necessary for this to happen. So, in very general terms, the tasks that we do are very much coordination, monitoring, and a lot of data analysis. And, of course, we also check on the ground the opportunities that arise and what we can give as indications, in essence providing consultancy, so that these operations can flow in the best possible way.

2. Do you find, when you think of an ideal service, if you find any gaps, any breaking points?

For me, the key point in this analysis, is that the restaurant is constantly innovating, recently we launched an app for mobile orders. What happens here? We have a tool for a target audience that cannot use it. I will try to explain, this tool is used exclusively for orders to be made through an app on the mobile phone or tablet, and we know that children or younger people are often using these technologies. However, due to the lack of financial capacity in terms of debit cards, ATMs, etc., the use of the tool turns out not to be a reality. People can order, but in the end, they will always have to pay at the store, so it doesn't get much easier. As long as there is no possibility to use MB way or a card that parents can charge so that the children can redeem the money that is there to make the payment, the payment will always be an operational barrier (**Excerpt 27**). This for me is the main problem between what is technology and applied to its target audience, vs non-applicability due to this situation.

3. So, the solution could then pass through these two issues, the mb way and a chargeable card. What about, for example, the in-room service?

In room service, as you know, we have table service, which are those tents. At the kiosk, which we call SOK, self-order kiosk, they place their order, enter their plate number, sit down at the table and we use a gps system, Bluetooth, whatever, that tells us more or less the area where

the person is sitting, so that we can find the person and deliver the order. However, this technology has 2 modalities, there are 1 where there are only the plates and others where there are plates plus this issue of gps. There are restaurants that, as it is more expensive to buy with the technology than just to buy the tents, these restaurants that do not have the associated technology may have an obvious difficulty, if the room is not very big, they will not have the same level of precision in finding the customer that the others have. So, in this dual mode, those who do not have the associated technology may have difficulties, yes, at the service level.

4. Are there any problems that you think self-service technology can help solve, or that it already helps solve?

Regarding the issue with the tents, why? The kiosk also suffered a layout change 5/6 months ago, which makes it much more user friendly for the customer to place an order, which didn't happen before. Before, imagine you arrived at a restaurant and you only wanted to eat chicken or beef, you had to go to all the products available and choose what you wanted to eat. Now, if you go there with the idea "today I only want to eat chicken", there is an option where you choose chicken and only chicken hamburgers appear. The layout of the kiosk is much more user friendly. This is at the SOK level. At the uber eats level, the problem that existed was the large number of requests, why, because it was up to the restaurant to pause or not the tablet. In other words, when you had an excessive volume of requests, if you understood that you were not managing to have a response capacity within the kitchen and within the service, you could manually pause the tablet, dispatch the requests that were pending, and then reopen when the conditions were met. What happens now is that we have already included a system, which after X requests, that is an arithmetic average, it is an algorithm that makes the volume of requests, when it is notoriously high, and according to the metrics that we have, it can verify that the restaurant has no response capacity, there is an automatic pause on the part of Uber, of the requests to be accepted by the shop, which makes the customer experience better, this is a reality. You don't feel much that it exists in practice, because in practical terms I haven't directly noticed this happening yet. For example, Children's Day was a very busy day and we manually put the tablet on pause, but it didn't put itself on, which this technology could allow. I haven't been able to explore why that didn't happen. We had to manually put the thing on pause ourselves. So I think there's room here to optimise this tool here.

5. At the level, for example, of control of operations, do you think that technology, not only self-service, but the technology used by the restaurant, can help control and improve efficiency, and in what way?

No doubt about it. There's very little here... I mean, there's always room for improvement, but there's little room for improvement because the restaurant's technology has a very interesting feature, which is that, even if I think the technology is sufficiently advanced, we're not afraid to innovate and take risks, and that's what happens all the time. Just so you have an idea, we have tables, we have monitors that tell us in average terms and according to similar sales of other days, it tells us at that time, how much meat and how much protein we should have in the greenhouse. Then, at the drive level, we also have metrics that tell us service times, how many cars we have on the track, what the problem is and where we are taking a long time, whether it is in payment, whether it is in receiving, whether it is in taking an order, so we have more than enough tools to allow us to manage our resources very efficiently, whether at the level of personnel, we also have a tool that tells us the level of staff and depending on the sales we are having at the time, the tool tells us how many people we should have and where we should allocate them. So there are complete tools, both in terms of personnel, of staff, as well as in terms of products, as well as in terms of ambiance, level of products that are needed for the shift (**Excerpt 20**). A point of view of continuous improvement, if we can put it like that, would be that all the people we have in the restaurant, from the management point of view, in this case the shift managers, are homogenous in their knowledge of the reading of the tools. We have a lot of training for this to happen, however, and we know that many people we have in our restaurants do not come from management areas, they come from other areas, or they started as employees, and we do not have homogeneity in the reading of shift efficiency. But this is transversal to any business, not all people are the same and one person will always be different from another, but efficiency at the level of resource management, of staff, of products, of losses that may be associated with products that, if they are made in excess and not sold, go to waste. At the level of technological tools, they are developed and I believe that we do not stop, and even at the level of the future, we can also have in our restaurants automation of orders, in the drive for example, if we go to the drive we will get that through voice recognition applications, and this is allowed here in legal terms, we may be able, if the person comes for 2/3 times, to immediately demonstrate or suggest the order that the person previously made, which will greatly anticipate the time it takes to take the order, so we do not stop and we are always innovating and investing in new technologies.

6. And for example, in terms of cost control, does technology also help a little in this respect?

Yes, it helps. We have an internal and optimised system here that tells us precisely how much all the product we are ordering costs, and at the order level it also tells us what we need according to what we have. We do inventory every day, weekly and once a month, which is the complete inventory. There is an internal link here, via an algorithm, which knows what our stock is, everything we have in the restaurant, the sales that are planned, and with that it makes an ordering suggestion, depending on what we sell on average per product, which is what we call the Pmix, which is the product that we sell in the restaurant, which varies from restaurant to restaurant. This average means that the system suggests an order proposal which helps us have a balanced cost control (**Excerpt 21**).

7. From what you can observe, in the service room, on a day-to-day basis, do you think people tend to use the kiosks or go to the counter more?

More and more. There are two issues, one is getting used to it and the other has to do with the generation. In fact, if you go to one of our restaurants, you have 2/3 checkouts available and you have 8 kiosk faces to register. So you have 8 for 2 or 8 for 3 cashiers, and at the same time, if the restaurant is full, you will have twice as many people registering an order at the kiosk as at the cashier. So, from the point of view of optimizing resources, we are forcing people to register their orders at the kiosk. Of course we always have people available at the checkout because there are people who prefer to be attended to at the checkout, but we are forcing people to register their orders at the kiosk. Because we can optimise the resources we have much more if they are available. If they are doing checkout, serving the customer, if the customer is doing self-service and taking orders, we don't need to use a person who may be precisely allocated to another type of function, which will make us more efficient.

8. This new update of the kiosks, I suppose has already been improving some flaws that there might have been before, but is there anything else that you think the kiosks could have and don't have, anything that could improve?

No. If we go to the limit, it was something that was complex for us to manage, but it was comfortable for the customer if he had it, which would be a source of receiving money. I think this would be complex for the restaurant, but for the customer, of course, if there was no card available, it would be more practical. Because it happens in certain cases, especially with children who don't have the cards, what happens is that the person prefers to order at the kiosk,

but because they don't have this means of payment, they go to the cashier just to pay. So there's an opportunity there. Here we have to balance the opportunity against the operational barrier. For us it would probably be a barrier, for the customer it would be one more technology available and at his disposal, which would make the service more attractive and more optional. In this aspect I think so, for the client it could improve, for us not so much.

9. Do you have any suggestions for improvement, anything that could be improved in the service?

We already have a lot of technology associated here, both we allow the customer to place the order at the kiosk, and we also have the mobile phone available, which allows the customer to enter into 3 different modes, because we have 3 modes on the mobile phone: one is for the customer to place the order at home, park at our restaurant in a designated place and we deliver the order, we call this mode the car-side (?), the person places the order at home, or even at the car park in the designated place, and we deliver it to the car. We have the modality where the person places the order at home and picks it up inside the restaurant for takeaway, and we also have the modality where the person places the order inside the restaurant and is seated, we have numbers on each table that are specific for mobile service. Imagine you have 100 tables, the tables are numbered from 1-100, the person can place a mobile order while seated, enter the table number and we know where the table is and deliver it. So, within this mobile modality, we have these 3 strands. We have the digital kiosk, we have the table service tents, we still had the tablets for the children in the dining room, which due to covid and the pandemic, no longer exist and are still not reactivated in some cases. So, what seems to me to be solved, and for me it is the point of maximum improvement is what I have already mentioned, is that we have a possibility of having a payment option associated with the mobile application that children or young people still cannot access. We have here, just to finish, a very large fringe of people who use the mobile application, and this technology is very designed for them, however the form of payment is not optimised, there is a mismatch between the form of payment and the intensive use by this fringe of consumers, which is the key point here, for me, in operational terms, and I think this is the point of improvement.

10. One last question regarding the standardisation of processes, the optimisation of the service ends up making the processes always the same, if it is already optimised there is not much to change, and if technology also helps in this standardisation of processes.

Yes, that's it. Basically, this is what Taylorism was, and that standardisation is present in our kitchens and in our service. We have the so-called stations, and each person has a designated function and works almost like an accordion that stretches and shrinks as the orders are taken. We have one person placing bread, we have one person placing the condiments, and we have another person at the end placing the meat and packaging. What does this allow? It allows for much more homogenous work, teamwork, which is essential, and means the product is always made at the same time, with the same targets, and in the same way. Now, if you want to say something negative that can be seen in this question of standardisation, it is like in all jobs, it is the question of specialisation. This is to say that when we use specialisation, what happens is that it is very easy that if certain people have been there longer than others, they become aces in their positions, meaning that there is a great specialisation on the part of that person. The problem with specialization, if there is not a balanced dose, is that it can generate discomfort, to the extent that the person always does the same thing every day, and this can end up affecting. Anything that is specialisation and allows the person to be there for a long time and specialise, to the point of being called a specialist in that area or in that function. However, this in the mental and psychological point of view can create wear and tear if the person does the same task every day. We try to rotate jobs so that people feel motivated and don't always do the same thing, and we also guarantee that in case of holidays or if someone is absent, everyone is able to do the same thing. Another advantage of specialisation is that if everyone is specialised, and the more people do that job, the more specialised they are, the fewer mistakes there are. When errors are reduced, in the end the clients will be happier because the person always starts in the same way, or spices or finishes the job, there will be no lack of work. Now, if we introduce a new person, on the one hand we have the advantage of improving their motivation and training, but on the other hand the associated risk means that there may be a failure, which is what specialisation tries to avoid as much as possible.

Restaurant F

1. Management Level

Operations Manager

2. Function

Restaurant Manager.

3. How long you have been in your current position

I have been a restaurant manager since 2021

4. Can you talk a little about your tasks?

Recruit, lead and develop people in order to achieve excellent levels of Quality and Service. Ensure that established sales targets are met, through planning and control of available resources, human and material, in order to maintain profitability and quality of the business, according to the standards and guidelines set by the Franchise.

5. What are the main problems/bottle necks you encounter in the service?

Increasing complexity of customer needs. At present, the standard orders, without alterations to ingredients, are increasingly smaller, which makes it difficult to register them in the POS system. During the pandemic period, the difficulty of active listening, impaired by the use of masks, generated various moments of discomfort in the relationship with the customer.

6. Could Self-service technology help/help solve some of these problems? How?

The Self Order Kiosk technology helps to mitigate most of the problems generated by the lack of understanding, since the customer selects the products, the possibility of error is much lower. It is also important to mention that through this system the customer has the exact perception of the product he chooses, since each item is accompanied by its respective image. Another advantage will be the quick analysis of all the ingredients that make up the product, always having an allergen sheet available for consultation.

7. Can you describe what you consider as service efficiency

Fast service, no accuracy errors, hot products, and high quality.

8. According to your experience, is it possible to have a more efficient service when using Self-Service technology or when there is direct interaction with the employee?

Self-service technology has undoubtedly helped in moments of higher volume, as the employee is relocated for a faster confection and delivery of products to the customer, without the need to be present at the checkout. With this technology, the volume of orders is much higher, as each customer becomes the "initiator" of his order in the restaurant, depending only on himself in the speed of registration and in the choices he makes.

9. Do you consider that the service is more efficient when customers choose to interact with an employee or with Self-service technology? Why do you think so?

The service is more efficient when customers opt for self-service technology, since the employee or employees that would be allocated to customer service are now focused solely on preparing your order and delivering it to the table if you so request.

10. From what you can see, over the days, do you feel that there is a greater affluence of Self-Service technology for ordering?

Undoubtedly the affluence is much higher than 4/5 years ago, with a tendency to increase. Also due to the force of society, which is more and more directed towards technology, also avoiding interaction with the employee. Today's client is completely different from the client of the past, who complained about the lack of "humanity" that this system brought.

11. What do you consider to be the main problems with self-service technology in the restaurant?

The only handicap of this technology is its age range, but this problem is common to all technologies, since there will always be a division in the different generations, although it can be reduced with technological functions aimed at the various age groups present in our restaurant

12. Do you have any suggestions for improvement, regarding Self-service technology, that could improve the service in the restaurant?

It is natural that there are always opportunities for improvement in any technology, even so, at the moment I think it is the right one for the restaurant's needs. The technology associated to this system is in permanent mutation, a lot also by the experience that the user passes to the teams. Maybe in a not too distant future, it will be possible to pay in cash at the check-in point, since at the moment there is no such option.

13. Future projects on Self-service technology

As I mentioned before, this technology is in permanent mutation, so it is still not convenient to expose all the nuances that we may add in the future.

14. Would you like to add anything else on this subject?

These Self-Service systems helped to eliminate operational inefficiencies, as well as adding more elements to the different moments of the day. At first there was a misconception that this system would eliminate human labour vacancies, this couldn't be further from the reality. Due to this system, the need for human labour has increased, as the starting points of orders have doubled and, in many cases, tripled, which increases the need for more elements to be produced in our kitchens. This type of system is the present and will certainly be part of the future of all technological societies.

Annex F – Online Reviews

Restaurant A	1	Horrible service
	2	Deplorable, 50 minutes to deliver my order
	3	Staff without manners when talking with clients, I would never come back again to spend my money there.
	4	SLOW. 10 people working 1 to attend. A person in front of me to be attended to.
	5	Terrible service, very rude employee and with little "will" to clarify doubts in the order. The order at the end came with errors!
	6	Too much disorganization, poor quality, very poor service
	7	Bad and slow service
	8	Disorganization
	9	Very slow and confusing service, orders go out without a specific order
	10	Poor service, confusion with the order
	11	This particular restaurant disappointed me because the staff were arguing with each other with several customers in the restaurant while serving them. Unfortunate.
	12	Service getting worse. Slow. You can't call it fast food.
Restaurant B	13	Keep it a place where we can go with our family and be treated well.
	14	the service is very good and fast, and the food is always spectacular
	15	The best establishment I have visited so far!
	16	Good service and very helpful
	17	I loved the quick service, despite the fact that it was the end of the month and there were huge lines, they were fast and there were no errors in the order
	18	Impeccable, cleanliness, friendliness and good service
	19	the employees are mostly in a bad mood and with zero sympathy and spend a lot of time on the cell phone, cleaning is something that caught my attention, the tables are not very clean, which makes me worried because in addition to being a food area, it has the pandemic which in turn requires more caution on all sides.
	20	Bad service, rude employees. a shame for the amounts we paid, super slow and disorganized service

	21	Terrible attendance. With very unhelpful managers, employees are obviously not going to be better. It seems that everyone owes them and no one pays them. They don't know how to suggest menus, they don't know how to talk and much less how to interact with customers, by far the worst restaurant I've been to. I'm sorry because I won't be going to this establishment again. It is not by chance that it was on the fly.
	22	Arrogant staff, we ask for help, give in the brochures and do not explain
	23	Poor service at the counter, they don't know how to tell people what menus there are. They just have them look up, then I came to find that there was a lot more than what was on top when I searched the self-service. I could have eaten better and cheaper than what I was shown. Lost 4 customers that day
	24	Service a little disorganized with many exchanges of orders
	25	Honestly, the service leaves a lot to be desired, a lot of waiting time and no organization, it has to improve at least in this aspect
	26	Service and cleanliness, very bad. The problem is easy to solve, hire more people, because the person who helped me at the cashier still had to go clean the table so I could eat, take out the garbage, and go back to the cashier to serve other people.
	27	Very bad...Terrible service, interminable wait to be served, lack of organization of the employees, lack of organization in the orders...
	28	Although the food is good, the staff has little education and training in the way they address customers, it takes a lot of patience and it's rare for an order that doesn't lack things or that the food doesn't come in compliance.
	29	Orders take a long time, either in store or for take away. A disorganization, and no justification or apology is given. An experience not to be repeated definitely.
Restaurant C	30	The order had to be finished at the counter as the vending machines could not complete the order
	31	I hated the service, with an empty store. At the end of the order and the waiting time, they didn't bring everything.
	32	I had problems with sauces missing, orders changed, products apparently unavailable after having already ordered and paid, excessive delay, among others.
	33	Ordering machines do not work properly, when asked for help it was not provided.
	34	There is always something missing in the order, the drive always takes a long time even though the store is empty, inside the service is terrible and the employees don't have the slightest respect for the customer.
	35	The quality is very good, but sometimes I don't get the right orders...
	36	In addition to the excessive delay in the drive, the food arrives almost cold. And our requests made are wrong.
	37	Super clean and efficient. The assistants are helpful and the food was ready in super quick time. The self-help kiosks are great and payment very easy.
	38	Very fast, organized service, hot and tasty food
Restaurant D	39	Did not like. Lots of employees a little lost behind the counter. Whoever answered didn't know if there were some things I asked for, and some weren't even what would be unacceptable for a house like this and on a Saturday.

	40	Both the take-away and Uber service are disastrous. Out of 10, they hit one.
	41	THE TAKE WAY SERVICE IS PATHETIC. 3 times I had a problem asking Uber Eats for delivery. The first leaked all the liquid. It was understood as a problem in transport, but after analysing the cup, we saw that it was poorly closed. The second one of the menus was missing from the order, and they didn't even care. The third and last, the order was all poorly made, with the hamburgers poorly assembled. Spilled liquid and cold potatoes. This is a problem of incompetent management. receive dozens of orders and instead of hiring more staff, they overload employees and deliver anyway. I realized that the problem was not the Uber delivery, but the bad management of the establishment.
	42	The staff don't know how to explain the menus...
	43	Lately it's been taking a long time to deliver the food that ends up coming cold to the table
	44	ATM machines not working
	45	Service getting longer and longer.
	46	Much to be desired in the conference of the food to be delivered to the customer, already packed, a hamburger is always exchanged or missing, I always refer to the order because it is always big to be careful and once again, they failed, and always want in the drive wants to the counter, even when I go early and there are not so many people. I'm already thinking about leaving.
	47	Full and service leaves a little to be desired. I asked the store to take it away, I asked if everything was there, they forgot the desserts. I had to reminisce. Not trusting, I confirmed the order before leaving, one of the hamburgers was thw wrong one... Finally, a lot of people serving but were very distracted...
	48	Staff are not friendly, especially the manager. I had difficulties with ordering from the machines and there was no one to help
	49	Until recently, I had no problems with this restaurant, but lately there is no order that comes out completely correct, something is always missing.
Restaurant E	50	Terrible service, long and long queues both outside and inside, they changed my order. I do not recommend
	51	Staff very worried, it seems that we are not in a fast food. Good job.
	52	The service was impeccable, the order came out super fast and a quiet place to have your meal
	53	Everything is super clean and the service is fast and attentive. They are well cared for in terms of seating and are well signposted. I think these pandemic times have their advantages.
	54	The service was quick and simple. The food was presented to me exactly as in the picture.
	55	Great service with delivery to the table.
	56	I liked the quick service, for being empty and for the friendliness of the employee who attended us. There is drive-truth
	57	Nice space, wooded, friendly staff.
	58	Super-fast service!
	59	The team is fantastic

	60	Food cooked quickly. Excellent service and good conditions.
	61	No VISA or Mastercard... how am I supposed to use pay for the meal when visiting on holiday from abroad? Not to mention the FREE WiFi is free because it doesn't work...
	62	Very slow service....and little sympathy
	63	Lots of dislike for customers. They want to force the use of self-service machines. The employee must not have liked to hear that she did not want to use the machine and used the intercom to communicate internally that she would have to order at the machines. I went to another restaurant and they lost customers.
	64	At the time of greatest flow of customers (20:00 on Sunday night) a lot of confusion. Long waiting time...
	65	With the new customer service, it got a lot worse because the service takes longer and is even at the counter, we have to wait twice. I don't know if the restaurant has ever tested this service or just decided to implement it and that's it. It would be better to do a customer survey to find out if they are happy with this service. I've been to restaurants that still had the traditional method and this new one and the difference in waiting times is quite large between one and the other.
	66	They are always wrong. Always against the customer. Big queue. Badly constructed hamburgers.
	67	The waiting time has gotten much worse since they changed the type of service because now, with the customer making the entire order, everything took a lot longer. But the problem is not unique to this restaurant but to all those who have this type of service, as the service took much longer. I've already gone to one that still has both types of service and I always choose the old one, which is much faster. The service was worse due to the delay.
	68	Service below what you would expect for a restaurant like this. Wait times well above normal for this restaurant chain. I've watched it several times or had orders changed.
	69	Very late in service, not fulfilling orders
	70	I was displeased with the last visit. In addition to not explaining the promotions, they were rude and impolite with the service
	71	They urgently need to hire more employees... the few staff they have makes an effort to provide good service, but it's not enough... the waiting time is almost infinite
	72	They don't hit a takeaway order!
	73	Nice location. Neat establishment. Quick service. As a side note, I still don't like the new machines, I prefer the old fashioned cashier.
Restaurant F	74	Perfect service and friendliness. It's just a shame the queue management is poorly constructed
	75	Bad service lack of attention to orders I received everything changed
	76	Very good service and the right food. I just miss the machine's menu in more languages and this is a bit complicated for non-Portuguese people to pay by card.
	77	Friendliness and good service, however, sometimes they "forget" something in the order

78	I didn't like the service
79	Unfortunately, the service has been losing quality and the service has also left something to be desired...
80	Because it is always very crowded at lunch, it is not possible to order a non-standard hamburger, since in the kitchen they are only mechanized for normal orders. This leads to a lot of waiting time and a lack of respect for ordering.
81	A very nice place to have a meal
82	Already was better. The current service leaves a lot to be desired.
83	It's rare for a takeaway order to be correct.
84	Today there were two orders from the self-order kiosk with the same number 7. I was given the wrong one.
85	Slow and disorganized service, in 10 times I visited 6 I had the wrong or missing order.
86	very slow service
87	I found the service too complicated to understand. There are a lot of people in the service and it causes a lot of confusion
88	We cannot pay with a meal card.
89	Terrible a terrible wait very disorganized
90	New system works fine. Order food, park on the right and someone will deliver it to the car and then you can leave
91	Buy in the app and get to the place and have the meal ready. And just sit and eat. Great
92	One of the best experiences in terms of time spent waiting and quality of the meal
93	Friendliness and good service, however, sometimes they "forget" something in the order, but there seems to have been improvements.
94	Good service and quick execution of the order process.
95	Pleasant space and efficient service