Tapping the screen: How Generation Z perceives fast food self-order kiosks

Margarida Guerra

Dissertation written under the supervision of Professor Miguel Fontes Rita

Dissertation submitted in partial fulfilment of requirements for the MSc in Management with Specialization in Strategic Marketing, at the Universidade Católica Portuguesa, December 2024.

Abstract

In this fast-paced world, where technologies dominate every area of our lives, the consumer is as informed and demanding as he has ever been. Therefore, all brands face a growing pressure to deliver relevant and innovative experiences that also address consumer pain points effectively. This challenge is particularly evident in the Quick Service Restaurant (QSR) sector, where, more and more, speed and efficiency are crucial factors to achieve success.

This study investigates whether self-order kiosks are widely used by Generation Z consumers living in Portugal in McDonald's and Burger King. Based in the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT), this research seeks to also analyze the critical factors that motivate this age group to use this self-order technology. The constructs of performance expectancy, effort expectancy, social influence and facilitating conditions are explored as well as the possible moderation effect of age and level of experience.

Findings from a mixed-methods approach revealed that, when it comes to this self-order technology, Generation Z consumers give more importance to the functional benefits and reliability of kiosks, such as their ability to deliver fast service, rather than their peers' influence or ease of use.

The present research paper highlights the need for Quick Service Restaurants to innovate and optimize their service through technology and provides actionable strategies to improve user experience and secure a competitive spot in this fast-growing market.

Author: Margarida Guerra

Title: Tapping the Screen: How Generation Z perceives fast food self-order kiosks

Keywords: self-order kiosks, Generation Z, fast food, technology adoption

Abstrato

Neste mundo acelerado, em que as tecnologias dominam todas as áreas das nossas vidas, o consumidor está mais informado e exigente do que nunca. Por conseguinte, as marcas enfrentam uma pressão crescente para proporcionar experiências relevantes e inovadoras aos consumidores. Este desafio é particularmente evidente no sector dos restaurantes de serviço rápido (QSR), onde, cada vez mais, a rapidez e a eficiência são factores cruciais para alcançar o sucesso.

Este estudo investiga se os quiosques de self order são amplamente utilizados pelos consumidores da Geração Z residentes em Portugal, nas cadeias McDonald's e Burger King. Com base no Technology Acceptance Model (TAM) e na Unified Theory of Acceptance and Use of Technology (UTAUT), a presente investigação procura analisar os factores que motivam esta faixa etária a utilizar a tecnologia de self order. São explorados os fatores da expetativa de desempenho, expetativa de esforço, influência social e condições facilitadoras, bem como o possível efeito moderador da idade e do nível de experiência.

Os resultados revelaram que, no que diz respeito a esta tecnologia, os consumidores da Geração Z dão mais importância aos benefícios funcionais e à fiabilidade dos quiosques, como a sua capacidade de prestar um serviço rápido, do que à influência dos outros ou à facilidade de utilização.

O presente estudo salienta a necessidade de os restaurantes de serviço rápido inovarem e optimizarem o seu serviço através da tecnologia, fornecendo estratégias práticas para melhorar a experiência do utilizador e garantir um lugar competitivo neste mercado em rápido crescimento.

Autor: Margarida Guerra

Titulo: Tocar no ecrã: Como a Geração Z perceciona os quiosques de self order de fast food

Keywords: quiosques self order, Geração Z, fast food, adoção de tecnologia

Acknowledgements

I would like to express my gratitude to my family for their constant encouragement and immense support as well as to my friends for the kindness they always manifest towards me.

Finally, to Professor Miguel Fontes Rita, for his insightful guidance and motivation words that gave me clarity and direction whenever I needed it most.

Thank you all for being part of this great accomplishment in my academic journey.

Table of Contents

Table of Figures

1. Industry Analysis

These days, to deliver excellent experience to the consumer is a real challenge for brands, because, in order to persist and become part of the consumers' lives, this has to be relevant enough for them to pay attention, innovative enough so that it won't be surpassed by competitors in terms of technological advancements, and impactful enough so that it actually solves pain points and is retained in the memory of its customers (Batra, R., & Keller, K. L., 2016). Given the changing characteristics of the global business environment, many companies are facing increased competition, which has forced them to search for means of differentiating themselves in this space. In both domestic and international markets, the concept of service has been gaining momentum in companies such as banks, travel agencies as well as fast food companies. Delivering the service to the consumer with high quality has turned into a key factor of good company performance (Lakhal, 2009). Bearing this in mind, restaurant owners have recognized the importance of investing in both speed and efficiency of customer service, which led to the emergence and growth of the Quick Service Restaurant (QSR) sector.

1.1. The Quick Service Restaurant Industry

Quick Service Restaurants are businesses specifically characterized by providing fast food and effective service to its visiting customers. These restaurants are mainly focused on offering a service that is efficient, quick and convenient, servicing time-poor consumers who prefer fast dining options. The QSR sector is distinguished for its competitive nature and the constant need to adapt to always changing consumer preferences. In addition, besides delivering quickly, the operational focus of QSRs is on making it at a lower cost compared to other types of dining establishments (Martina G. Gallarza-Granizo, María-Eugenia Ruiz-Molina, Christopher Schlosser, 2020).

According to what the Oxford´s Dictionaries argue, fast food consists of "hot food that is served very quickly and can be taken away to be eaten in the street" (Oxford's Learner's Dictionaries, n.d.). Common types of fast food can include hamburgers, hot dogs, French fries, pizza, tacos, burritos, salads, and sandwiches (Britannica, n.d.).

The contemporary fast food industry concept, as it is nowadays, truly began in the early years of the 20th century. One of its first pioneers, White Castle, was founded in 1921 in

Wichita, Kansas. It sold small, square hamburgers known as "sliders" and developed the concept of standardized food preparation, while ensuring consistency across its locations. During this period, drive-in restaurants also gained popularity, calling the increasing number of cars to the American roads. The drive-thru model surfaced in the late 1940s, offering even greater convenience for fast food lovers. However, McDonald's revolutionized the industry in 1948 with its "Speedee Service System", a process that turned tasks into simple and repeatable steps. This innovation not only increased efficiency but also inspired competitors like Burger King, which opened in 1954 (History Facts, n.d.).

Over the 20th century, McDonald's introduced key innovations for the industry, one of those being its national breakfast menu in 1977. Furthermore, in response to the growing health concerns, fast-food chains gradually began to create and offer healthier menu options, especially after the 2004 documentary *Super Size Me*, that drew attention to the impact of fast food on human health. Despite these changes, traditional fast food items like burgers and fries remain central to the fast food experience (Pilcher M. J., 2012).

Being a very dynamic and changing industry, according to Gilbert, R. G. &. Veloutsou, C., satisfaction and loyalty for these establishments varies across different cultures. For instance, while some cultures may prioritize service quality and cleanliness, others might place more emphasis on price promotions or food quality. These cultural nuances affect how satisfaction translates into loyalty. Besides, this transition from satisfaction into loyalty might happen more probably if customers feel appeased with their experience.

Satisfaction is seen as a critical factor that influences visit repetitions and positive word-of-mouth. Knowing this, and that this industry requires low switching costs for customers, it is essential for QSRs to maintain high levels of customer satisfaction to foster loyalty (Martina G. Gallarza-Granizo, María-Eugenia Ruiz-Molina & Christopher Schlosser, 2020). Additionally, the emphasis on convenience has been an important driver of the fast food industry. The development and growth of takeout and delivery services reflects this increasing demand for quick and accessible meal options (Lichtenberg, A.L., 2012).

1.2. Self order kiosks (SOK)

The concept of self-service technologies (SSTs) was first developed by Dabholkar in 1994, and it was defined as technological interfaces that enable customers to produce a service without direct employee involvement. Traditional in-person cashiers are gradually being replaced by SST interfaces in various cases (Fernandes, Pedroso, 2017).

Technology-based self-service encompasses both "on-site" options, such as touchscreens in department stores, information kiosks in hotels, and self-scanning systems in grocery stores and libraries, as well as "off-site" options, including telephone, online banking and internet shopping (Chandler, 1995). Self order kiosks have emerged as a critical technology-based self-service option in the fast food industry. Some suitable examples are kiosks in airports that offer self-service check in and information; hotels that use kiosks for their guests to check in/out and access the hotel; and some restaurants that use it for visitors to customize, make and pay for their orders**.**

Service quality is critical to determine customer satisfaction and revisit intentions within fast food industry restaurants. Any technological innovation, such as the example of the introduction of self order kiosks, should prioritize service quality to have a positive impact on customer satisfaction. The physical environment that exists in the purchase moment is another important factor affecting customer behavior and satisfaction. When integrating self-order kiosks in a restaurant, a reflected design and strategic placement within the physical space is pivotal to improve the customer experience. Moreover, to provide a generally positive dining experience requires a balance between tangible and intangible elements. Self order kiosks serve as a tangible enhancement to this experience by offering customers more control as well as convenience. This aligns with the increasing expectation for fast food restaurants to provide not just quick service, but also a seamless, personalized experience (Rajput, Gahfoor, 2020).

Existing research has shown that some consumers may prefer using technology-based self-service over traditional services due to its ease of use or just because it allows them to avoid interacting with staff (Meuter, Ostrom, Roundtree, & Bitner, 2000). Additionally, as Tom & Lacey argue, consumers are very likely to negatively evaluate a service when there are long waiting times or delays (Taylor, 1994; Tom & Lucey, 1995).

The present study is specifically focused on the use of self order kiosks in fast food restaurants. These kiosks generally present a large touch screen where customers can order,

customize and pay for menu items, with little to no employee interaction (Rastegar et al, 2021). The kiosk enables customers to perform all these tasks freely, without any embarrassment that could be caused by mispronouncing menu items or the concern of being judged for their food choices (Goldfarb, McDevitt, Samila, & Silverman, 2015). One study shows that people avoid purchasing items that are relatively complex, higher in calories or that have difficult-to-pronounce names in front of other customers and staff (Goldfarb et al., 2015). The option to use a self order kiosk eliminates the probability for these inconveniences to happen and customers become encouraged to spend more freely.

These kiosks are proving to be a win-win situation for both quick-service restaurants (QSRs) and their customers. For the restaurants, it enables them to shift in-store orders and queries related to the menu away from cashiers and allows the staff to focus on customer experience. For the customers, kiosks empower them to take control of their own order. They can browse the menu at the pace that best suits them, customize orders as they best wish (QSR Magazine, 2024). Innovation in self-service technologies like kiosks is also essential for fostering brand trust and improving customer loyalty. With effective use of social media marketing to engage customers, fast food brands can strengthen their relationship with consumers. By integrating innovative technological service solutions with social media engagement, brands can enhance customer satisfaction and loyalty, and ultimately drive sales (Hanaysha J., 2022).

According to the Tillster Phygital Index Report, which presents U.S. data, kiosks have a significant impact on the dining experience. Depending on the type of customers that use this technology, these are made to satisfy both "beeliners", who prioritize speed and efficiency, and "explorers," who enjoy browsing and customizing their meals.

On one hand, for "beeliners," the goal is to streamline the ordering process by decreasing, or even erasing lines while speeding up transactions. On the other hand, as "explorers" enjoy discovering new items on the menu, to redeem rewards and personalize their meals can give them full advantage of the kiosk’s browsing capabilities without making them feel rushed (Tillster, 2024). By being able to meet the needs of both groups, with the right capabilities, kiosks can significantly enhance customer satisfaction, encourage frequent use and boost check sizes (National Restaurant Association, 2024). The Tillster report also reveals that kiosks are gaining popularity in the U.S, where 45% of consumers use them weekly and 86% use them at least once a month. A large percentage of people, about 57%, also express a desire

for the acquisition of more kiosks in restaurants, indicating a rising demand for these self-service solutions. They expect kiosks to match or even exceed the cashier experience, offering ease of use, customization, loyalty rewards and support for multiple languages.

Moreover, Marktest's Portuguese TGI 2023 study quantified the number of Portuguese who reported having eaten fast food in a restaurant in the last 12 months at 4,641,000. This number represents 62,3% of mainland residents aged between 15 and 74. This significant consumption of fast food by a large group of Portuguese people from various ages and the kiosk popularity trend seen in the U.S., suggests that a similar situation is occurring in Portugal regarding consumers' expectations of kiosks. Kiosks have become a key component in quick-service restaurants (QSRs), blending the physical and digital aspects of the dining experience (Tillster, 2024). Their rise reflects the growing customer demand for flexibility, allowing them to explore menus at their own pace, customize their orders, and avoid long waiting times. This trend towards personalized, convenient digital interactions is shaping the future of customer service in the fast food industry.

1.3. McDonald's

McDonald's path began in 1954 in San Bernardino, California, where Richard and Maurice McDonald were the owners of a small but successful hamburger diner. They introduced innovative techniques for fast food preparation, optimizing their operations to have more speed and consistency. These innovations, including custom condiment dispensers and a specialized spatula, streamlined the process and developed new standards of efficiency in the food industry. However, despite their achievements, the McDonald brothers were satisfied to manage their single location and kept on resisting the idea of expanding the business.

This was the opposite mindset from that of Ray Kroc, a milkshake machine salesman who saw extreme potential in franchising the brothers' diner concept. He convinced them to allow him to franchise their business, taking the first steps for the foundation of the modern McDonald's franchise model. His approach focused on maintaining strict quality control and uniformity across all franchised food places, with training programs and rigorous inspections. Under Kroc's leadership, McDonald's expanded from a local business to a global giant (BBC, 2020).

In the year of 2020, with the disruption of the COVID-19 pandemic, McDonald's operations were forced to close many dining rooms, causing a significant decrease in revenue. Despite this, the company was able to bounce back and, by the end of the year, returned to pre-pandemic levels (BBC, 2021). Also central to its financial recovery was the MyMcDonald's platform, a digital app that has the feature of mobile ordering, payments, rewards as well as the offer of diverse special deals. The platform opened new paths for McDonald's growth in this increasingly digital world (McKinsey, 2021). For the future ahead, McDonald's has set ambitious goals for expansion, aiming to grow its global footprint to 50,000 restaurants by 2027, with 1,000 new openings each year across both U.S. and international markets. As a support for these objectives, the company is heavily investing in digital, delivery and drive-thru, its core "3 Ds".

One key element of this strategy is the strengthening of its digital presence, with the goal of increasing active loyalty users to 250 million by 2027. McDonald's expects to generate $45 billion in annual sales from its loyalty members. Additionally, from 2025, U.S. franchisees will contribute 1.2% of their digital sales to a new digital marketing fund, further personalizing customer experiences and enhancing McDonald's ecommerce capabilities through its MyMcDonald's Rewards program (QSR Report, 2024).

1.4. Burger King®

Founded in 1954, the Burger King® brand is an outstanding international quick-service restaurant chain, widely recognized for its commitment to food quality and values. It is the only place where customers are able to enjoy the iconic flame-grilled Whopper® sandwich. Burger King has more than 18,700 restaurants across over 100 countries and U.S. territories, with nearly all of these locations independently owned and managed by franchisees. Many of these franchisees are family-owned businesses that have been running for decades, contributing to the brand's enduring global presence (Burger King, n.d.).

Furthermore, the fast food chain is constantly working to revitalize its operations and strengthen its market presence. The chain has recently focused on remodeling and refranchising, mainly after the acquisition of Carrols Restaurant Group. This strategic move aims to remodel 600 locations and transition them to smaller, local franchise operators, creating better performance and community ties.

Central to these efforts is Burger King's new “Sizzle” prototype, designed to create a modern, efficient guest experience. Features include self-service kiosks, double-lane drive-thrus, and optimized kitchen layouts. As part of the $400 million “Reclaim the Flame” initiative, the company seeks to refresh existing locations and encourage franchisees to adopt the Sizzle design, which is expected to become the standard for new builds and remodels. This plan prioritizes digital ordering capabilities and streamlines operations to enhance customer satisfaction and efficiency.

Recently, Burger King announced an additional investment of $300 million to update 85-90 percent of its U.S. locations by 2028. This strategy encompasses remodeling current structures, converting single drive-thrus to double lanes, and introducing advanced kitchen equipment to drive sales and increase customer traffic. Crucially, the initiative is yielding positive financial results for franchisees, with average profitability per restaurant rising nearly 50 percent in 2023, from $140,000 to over $205,000, with the aim of reaching $300,000 per store in the near future (QSR Report, 2024).

1.5. Main differences between the chains

Although, for the purpose of this study, these two fast food restaurants will be defined in a way that allows for comparison, they are, in reality, quite different in several aspects. The most obvious and striking one lies in their menu variety. McDonald’s offers a broad range of items focused on a family-friendly audience with signature offerings like the Big Mac and a diverse breakfast menu. In contrast, Burger King centers its identity around the flame-grilled burgers, particularly the Whopper, and usually promotes larger and premium options along the "Have it Your Way" motto.

When it comes to international strategies, McDonald’s operates consistently across a big number of global locations, maintaining its core menu items while adapting to local tastes as needed. Conversely, Burger King also adapts to local markets, but it is much more flexible when it comes to introducing bold, limited time offers to attract regional preferences.

Their individual Service style also stands out as being different. On one hand, Burger King emphasizes a more personalized and interactive experience, allowing customers to easily customize their orders. On the other hand, McDonald’s focuses mainly on speed and efficiency,

working towards perfecting the fast-food service model as well as well-training staff to be capable of managing high customer volumes.

Last but not least, regarding their branding strategies, Burger King often positions itself as the rebellious alternative, having a humorous advertising strategy and featuring its iconic crown and catchy slogans. Inversely, McDonald's focuses more on nostalgia and family marketing, making its audience associate the chain with childhood memories and happiness. Each of these fast food chains has been successful in carving their brand images in their own niche market´s brains, being able to appeal to consumers of the fast food industry in different ways.

2. Target Analysis

2.1. Generation Z

The concept of generational change, as noted by thinkers like August Comte, in *Cours de Philosophie Positive* (1830–1840), posits that the shared experiences of individuals entering various life stages simultaneously act as a driving force in shaping history. Each generation, while categorized by common characteristics, consists of diverse individuals with distinct opinions, values, and aspirations.

Generation Z, specifically, encompasses those born from 1996 to 2010. As the second-youngest generation, positioned between Millennials and Generation Alpha, Gen Z is extremely shaped by their unique context. Often this generation is labeled as the "digital natives", due to the fact they have been raised in an era where the internet is omnipresent. Generation Z's identity has been molded by several factors, including climate anxiety, unbalanced economic conditions and the impact of the COVID-19 pandemic, which has influenced their outlook on life and prospects of the future (McKinsey, 2024). Invariably, Generation Z is doomed to have a crucial economic impact, with their spending power projected to reach around $12 trillion by 2030. This generation exhibits distinct characteristics that set them apart from previous cohorts. They are notably racially diverse and globally aware, often aligning their identities with various social causes (NIQ, 2024).

As consumers, Generation Z places a high value on authenticity, sustainability and social responsibility, turning these factors into ones that are crucial for companies which desire to engage with them. Their comfort with technology translates into a demand for seamless,

omnichannel experiences, pushing innovation in companies´ product offerings and marketing strategies. These users have high expectations in terms of rapidity of service, therefore, they prioritize mobile payments, app-based services, easy online transactions and value brands that mostly meet these expectations (NIQ, 2024).

The present study will focus on Generation Z because younger consumers, particularly those aged 18 to 24, demonstrate a higher propensity to switch brands across various business sectors, including hospitality. According to a study from Go Technology by NIQ, they are 7 percentage points more likely than average to choose a different restaurant, bar, or pub. This willingness to change can be attributed to their relatively short history with specific venues, making them less attached and more open to experimentation and new experiences in dining and socializing (Go Technology, 2024).

3. Problem Statement and Research Questions

The fast food industry in Portugal is going through significant transformations as higher performing brands such as McDonald's and Burger King are adopting innovative and disruptive technologies. Good examples of this are self order kiosks that are being integrated as part of the diner trip to boost customer experience and improve efficiency of operations. These are made to provide consumers with greater convenience, reduce waiting times, and enable a more personalized dining experience. However, the success of the adoption of self order kiosks possibly varies depending on different consumer segments. That raises questions regarding the specific factors that influence their adoption and overall experience, particularly among the younger generation.

This young age group, or as most call it, Generation Z, can be characterized by their tech-savvy nature and preference for prime digital interactions, representing, consequently, a crucial demographic for fast food retailers. As already mentioned, their familiarity with technology suggests a high potential for the acceptance of self-service solutions. Understanding the different facets of their acceptance behavior towards self order kiosks is essential. Insights on their adoption patterns can help retailers tailor their marketing strategies and enhance customer satisfaction, which more easily drives sales as well as customer loyalty.

Despite the ongoing and growing research on self-service technologies as well as on their integration along diverse industries, there is a clear gap in the understanding of how these technologies are accepted among younger consumer segments living in Portugal. Existing literature leaves a gap regarding the technological adoption patterns of Portuguese consumers by mainly focusing on bigger markets such as the U.S. or wider European contexts. Furthermore, while this research has already measured the convenience, efficiency and satisfaction brought by these technological advancements, insights on the key drivers of kiosk usage and the factors shaping customer experiences within this demographic are missing. This fact turns into a broader gap when considering Generation Z's current massive digital literacy.

This study seeks to address this flaw by investigating the factors influencing the use and reception of self order kiosks by Generation Z consumers living in Portugal, in the fast food chains that are most firmly established in this market: McDonald's and Burger King. For comparison purposes, the core products of both chains will be defined as burgers, fries, and soft drinks. By addressing the gaps in existing research, this study aims to provide actionable insights for fast food retailers to better cater to the preferences of Generation Z consumers.

Having in account all the information gathered until this point, the objective of the present research is to find what drives Generation Z consumers to adopt self order kiosks rather than traditional in-person cashiers in fast food restaurants in the Portuguese market. More specifically, the following research questions will be key to examine variables such as ease of use, perceived usefulness, among others, which will provide valuable insights regarding the intention to adopt self order kiosks.

1. Are self order kiosks widely used by Generation Z consumers living in Portugal, in fast food chains like McDonald's and Burger King?

2. What are the primary factors that drive the intention of Generation Z consumers living in Portugal to adopt this technology?

3. What role, if any, do demographic and contextual factors, such as gender and experience, play in shaping Generation Z´s adoption of this technology?

The present study intends to develop an understanding of whether perceived convenience is a major driver of this segment's intention to adopt or if these consumers are more likely to do it if they perceive them as easy to use. The above presented research questions will also help in creating a deeper understanding of what directly drives their intention to adopt, be it speed,

customization options or interface design, for example. The findings will contribute towards a deeper understanding of Generation Z consumer behavior in the context of emerging technologies as well as offer practical recommendations to enhance the customer experience in the fast food sector.

4. Framework Development

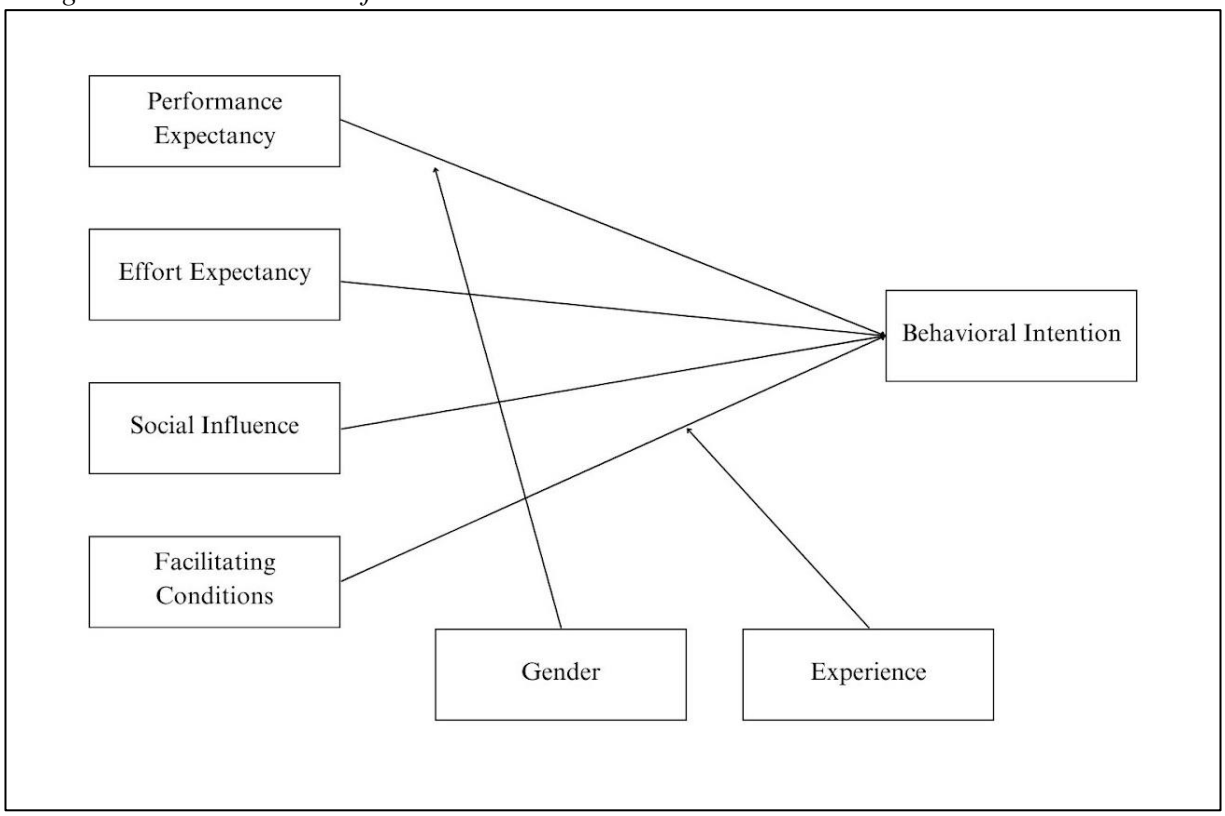
The existing literature on Technology Adoption explores it through various frameworks. Some studies have focused on the process itself and dived into the adoption sequence of steps (for example, Majchrzak et al., 2000) and others on examining the way the different influential factors impact the decision to adopt. These latter, that is the relationship-based approach studies, revolved around several frameworks such as the TAM and the UTAUT.

The Technology Acceptance Model (TAM) is a widely accepted model for understanding intentions to adopt new technologies. It accounts for perceived ease of use and usefulness as critical factors for system adoption and usage (Bankole et al., 2011). Since the TAM excludes some economic, demographic and external constructs that are usually essential for the adoption of certain technologies (Venkatesh & Davis, 2000), in general, it can be less effective when compared to other approaches. For instance, the TAM has a narrower focus by not accounting for important factors, such as the influence of other individuals. As an extension of the TAM model and developed by Venkatesh et al. in 2003, the Unified Theory of Acceptance and Use of Technology (UTAUT) identifies four main factors that influence technology adoption: performance expectancy, effort expectancy, social influence and facilitating conditions.

The main variable to be studied will be the *Behavioral Intention* to use self order kiosks, which will define the degree to which individuals have formulated conscious plans to perform or not perform a specified future behavior, in this case, the use of self order kiosks. That is, this intention is pointed out to measure consumers' likelihood to use the kiosks and to what extent the four chosen factors have an impact on that likelihood.

Thus, by incorporating these four constructs above explained, the major objective of this study will be achieved. The UTAUT approach not only corrects the gap of the TAM but also better explores how social dynamics impact technology adoption among consumers.

Image 1: The Framework of Behavioral Intention



4.1. Performance Expectancy

According to the UTAUT, users' intentions to adopt new technologies are impacted by the degree to which an individual expects that using it will help him/her attain any gains in the performance of specific tasks, that is, if these technologies are indeed perceived as useful. In the context of fast food, that would correspond to the perception of how self order kiosks can offer an overall better dining experience by adding convenience, reducing waiting times or providing options to customize. Studies have shown that consumers are more likely to adopt self order kiosks if they perceive that these technological systems are making their dining experiences better (El-said et al., 2020). Generation Z consumers, with their attraction for convenience and personalization, are probably responsive to technologies that enable the meeting of these needs (Turner, 2015). They tend to follow options that offer them a quick and efficient service, which make them more receptive to self order kiosks present in fast food restaurants. Additionally, research suggests that performance expectancy is more salient for male individuals than for females. That is, men are more influenced by their perception of the benefits of a technology when they form their intentions to use it (Venkatesh et all., 2003).

H1: Performance expectancy positively influences the intention of Generation Z consumers living in Portugal to adopt self order kiosks.

H1.1: The influence of performance expectancy on intention will be moderated by gender such that the effect will be stronger for men.

4.2. Effort Expectancy

This construct refers to the extent to which a technology is perceived as easy to use (Venkatesh et al., 2003). This concept is very closely aligned with the perceived ease of use regarded on the TAM (Davis, 1989), which states that systems that do not require complex efforts to learn and operate with are more likely to be adopted. As some previous studies show, when consumers perceive a technology as easy to use, they likely adopt it more easily (Venkatesh et al., 2003). In the case of Generation Z, who is already accustomed to work with intuitive interfaces, perceived ease of use might be crucial for their adoption of self order kiosks. In fact, this generation, being digital native, exhibits big expectations for intuitive designs and efficiency of user interfaces, which in turn influence their decisions on whether to use self order kiosks or not (Turner, 2015). This is also supported by research that argues that young consumers, particularly the ones that grew up alongside mobile and digital platforms, have lower tolerance to complex and confusing interfaces (Prensky, 2001; Turner, 2015).

Additionally, Venkatesh & Bala extends this idea by arguing that when a system is reliable and user-friendly, users become more likely to perceive their experience with it as enjoyable and less stressful. This increases the possibility of greater self-efficacy in using the system as users may feel they are in control. Furthermore, the authors add that characteristics like the design are crucial when dealing with more complex technologies, usually more difficult to understand and handle. These arguments support the possibility that the improvement of usability of self order kiosks might significantly impact its acceptance and effectiveness among consumers.

H2: Effort expectancy positively influences the intention of Generation Z consumers living in Portugal to adopt self order kiosks.

4.3. Social Influence

One of the most powerful motivators of technology adoption are the others that live around us and their own behaviors towards it. In fact, Hsu and Lu, in 2003, identified that the expectations of others play a very strong role in influencing positively an individual's decision to play online games. Many studies also verified that the intention to use services related with the usage of the internet are affected by these expectations (Hung et al., 2004; Luarn et al., 2004). This is true especially among younger consumers (Cialdini, 2001) used to sharing their personal lives and discoveries all over the internet. Social Influence develops the concept of how an individual gives importance to what others (such as peers and family members) believe regarding their use of a particular technology (Venkatesh et al., 2003).

Generation Z is strongly influenced by social networks as well as by their peers. Lack of social validation or knowledge regarding others' use and experience of self order kiosks could lead them to reject this technology. Venkatesh et al. (2003), acknowledged the importance of social influence in the adoption of technology throughout his studies. He defined it as the degree to which individuals feel that important others believe one should use a specific technology. His work pointed out that social influence strongly influences intentions to adopt it. The desire to align with the behaviors and expectations of one's peer group can also directly impact the adoption and internalization of shared norms within a group. In addition, Venkatesh argues the impact of social influence is context-dependent, being usually stronger in mandatory environments as well as when that technology is new. This set of existing research conclusions reinforces the idea that social influence from peers is crucial when examining self-service technologies, as it is the case of self order kiosks.

H3: Social influence positively impacts the intention of Generation Z consumers living in Portugal to adopt self order kiosks.

4.4. Facilitating Conditions

The construct of Facilitating Conditions refers to the resources that are available to individuals to help them in using a certain technology. This can encompass support such as clear instructions, staff solely focused on helping with it or easy access to the technology (Venkatesh et al., 2003). In this specific case, for self order kiosks, this could be the existence of staff assistance as well as guidance messages while using the screen. According to Venkatesh et al., the presence of conditions that facilitate the use of technology can significantly impact whether individuals use it or not. Moreover, literature also argues that experience has a significant role on the effect facilitating conditions has on an individual's behavioral intention to use a technology. This means individuals with less experience may rely more on technology support systems than those who are more experienced, when forming their intentions to adopt a technology (Venkatesh et al., 2003).

H4: Facilitating conditions positively influence the intention of Generation Z consumers living in Portugal to adopt self order kiosks.

H4.1: The influence of Facilitating Conditions on intention will be moderated by Experience such that the effect will be stronger the greater the experience.

Following the development of the study's hypothesis, the delineation of the methodology will be employed. This next section will comprehensively outline the research design, data collection methods, and data analysis techniques that were utilized to investigate the problem in which this present study is grounded in.

5. Research Methodology

This study will employ qualitative as well as quantitative research to examine the factors influencing the adoption of self order kiosks by Generation Z Portuguese consumers in McDonald's and Burger King restaurants across Portugal.

5.1. Sample Selection and Data Collection

The totality of the primary data was made of information collected from in-depth interviews and online surveys, these latter distributed via social media platforms, university WhatsApp groups and other channels frequently visited by Generation Z individuals.

Firstly, in-depth interviews were employed with selected Generation Z consumers to get general insights regarding their behaviors, experiences and perceptions of self-order kiosks as well as their preference and frequency of McDonald’s and Burger King. These were done to both users and non-users of self order kiosks to get a better understanding of the possible drivers and barriers of its use. It was developed with a set of open-ended questions so that respondents were able to better express their thoughts and experiences.

Secondly, an online survey, which was self-administered, was designed to well capture the respondents’ perceptions of the self-order kiosks’ technology. The previous goal of 200 respondents was set to ensure that statistically significant results were achieved. As the target audience for the present study is Portuguese Generation Z consumers, the audience to be studied was set to be between 14 and 28 years old and have experienced self order kiosks at McDonald's or Burger King. Through the survey, the necessary key factors were quantified with the help of a theoretical framework and of a set of close-ended questions. Finally, in order to screen for the requirements of the target group set to be studied, additional demographic questions (such as age, gender, frequency of fast food restaurants, among others) were also adressed in the online survey.

In short, the employment of both qualitative and quantitative methods, making up a mixed and complementary approach, was able to provide a more complete understanding of the adoption of self order kiosks by Generation Z consumers in the fast food sector in Portugal.

5.2. Qualitative Research

For the Qualitative stage of the research, a total of 9 Generation Z Portuguese individuals were interviewed (see appendix A), including both users and non-users of self order kiosks at fast food restaurants, more precisely McDonald's and Burger King. Among them, 7 were users and 3 were non-users. Almost all of them were frequent visitors of McDonald's, preferring this chain over Burger King. However, 1 out of the 8 interviewees was a strong fan of Burger King over McDonald's. Regarding the number of visits to the fast food restaurant, the majority of them visited either McDonald's or Burger King at least once a month.

All of them, in general, expressed comfortability dealing with technology, mainly with smartphones and the apps available. Therefore, the positive experience with kiosks stated by its regular users seems to be facilitated by this ease with which they use new technologies and digital gadgets. Therefore, they find self order kiosks in fast food restaurants generally user-friendly and intuitive to use, which leads them to choose this way of ordering instead of the traditional ordering methods.

First, considering the users that were interviewed, they highlighted several motivating factors, with convenience and speed standing as the most significant benefits. The efficiency that kiosks provide in avoiding queues, mostly during peak hours, is strongly valued since it fits very nicely into their occupied and fast lives. The fact that, to order with kiosks, is quick, offers the possibility to customize their choice, and is, at the same time, intuitive turns their perception of the dining experience into a better one. These individuals consider this self order format as an empowerment for users to explore the menu more ambitiously as well as a facilitator in the sense that they feel less pressured to choose the items that they wish to buy. This way, they are able to do their ordering at their own pace and feel they are the only ones controlling the process. Some interviewees also said that they really appreciate the privacy that these kiosks offer, mainly because, in the case of a more complex or long order, there is no need to interact with the staff.

While offering several benefits, interviewees also encountered some issues that are inconvenient for them when opting for self order kiosks. Technical malfunctions, such as some of the machines being out of order, with no paper for the receipts or the touch feature of the machine not working properly, were the main examples given by the respondents. These situations cause frustration and prompts them to return to the counter service, occasionally,

when they happen. Another mentioned issue, or rather, a concern individuals say they have, is related to the way their payment and personal information is handled after using kiosks. They express reservations on the fact that these are public screens and raise questions on whether their personal data is protected.

Moreover, the lack of guidance and social proof were additional factors that did not create immediate confidence regarding self order kiosks. Individuals reported that when they were first-time users, they felt uncertain about the technology´s interface and would have been grateful if they had had some initial support in navigating the system, especially on making changes in the items ordered, for example. The absence of proof from peers around them created some doubts and distrust on kiosks' reliability.

Lastly, a share of the participants interviewed were non-users of the kiosks and also gave some interesting insights regarding their reluctancy. They pointed out a preference for human interaction and argued that face-to-face communication with staff is a big facilitator of clearer food order process, especially when they wanted orders to be taken care of with special or different requests. Concerns related to privacy of their data were also a mentioned question: most non-users favored paying with cash at the counter, feeling like it is the more secure option to pay. Some felt apprehensive of kiosks' trustworthiness due to friends or acquaintances' reports of malfunction situations, which reinforces their natural preference for traditional food service.

Non-users also find self order as impersonal and associates it with lack of warmth and sympathy that most of the staff provide when at the counter. Some also argue that kiosks lead to job displacement and can lead to the reduction of job opportunities. Finally, the complexity of the kiosks' digital interface was dissuasive for some, who were fans of simpler and straightforward ordering processes, which were provided by the traditional one, in their opinion.

Regarding the hypothesis proposed for the study, the above presented insights are able to provide support for them. Interviewees mentioned several times how kiosks are convenient, speedy and have an intuitive interface, in their opinion. With this, performance expectancy and effort expectancy emerged as crucial factors for the adoption of these technological kiosks, giving strength to the first and the second hypothesis. Additionally, non-users mentioned that the main reasons for their hesitation in using the kiosks were related to lack of validation or recommendation from their peers. With these insights and the fact that participants also mentioned feeling frustration when there were technical malfunctions with these machines,

hypotheses three and four are also supported. Furthermore, concerns with data privacy were highlighted by both users and non-users which provide strong evidence for hypothesis five. Overall, the qualitative stage of this study was able to confirm the relevance of the proposed hypothesis as well as a solid foundation for further stages.

Summing up, with a sample of people questioned, it is possible to carefully predict that Portuguese Generation Z consumers seem to be very strongly drawn to self order kiosks. This is mainly due to the speed they provide, convenience and the great alignment with their daily lifestyle. Despite this, technical issues, individual data security and social validation play the role of barriers to adoption. Meanwhile, the people that do not adopt this technology are mainly appreciators of human interactions, have technology reliability and data privacy concerns. Therefore, to address these preliminary insights is to create the base for the next phase of this research. A structured quantitative process will be developed. It allows for a deeper analysis on whether these ideas we've arrived at still apply when we take a broader and significant population into account.

5.3. Quantitative Research

After publishing and sharing the survey with Generation Z individuals living in Portugal, all the gathered data was analyzed. This data was the base for the study (see appendix B) and aimed at testing the drivers of the behavioral intention of Generation Z along self order kiosks within the fast food sector in Portugal. In this case, behavioral intention reflects the desire of individuals to use self order kiosks in the future. Therefore, the main objective of the survey was to enable for the research of the five identified technology adoption constructs: performance expectancy, effort expectancy, social influence, facilitating conditions and privacy concerns. As one can see in Table 1, these items were measured according to a five-point Likert Scale which is a reliable and widely used scale to measure consumers attitudes and preferences. To perform the analysis of the data, the Likert scale items were converted into numeric values from 1 to 5: 1 representing the lowest level of agreement and 5 the highest level of agreement from the respondents.

Table 1: Model Constructs and Measures

Intention Construct	Measurement Item	Likert Scale
Performance Expectancy	Q.10_1 Using self order kiosks when ordering fast food enhances my overall dining experience.	Strongly disagree (5) - Strongly agree (1)
	Q.10_2 Self order kiosks save me time when ordering.	Strongly disagree (5) - Strongly agree (1)
	Q.10_3 I feel that self order kiosks enable for a higher level of customizations than ordering at the counter.	Strongly disagree (5) - Strongly agree (1)
	Q.10_4 I feel more in control of my ordering process when I use self order kiosks.	Strongly disagree (5) - Strongly agree (1)
	Q.10_5 To use self order kiosks makes my food request more accurate than I would get with traditional counter ordering.	Strongly disagree (5) - Strongly agree (1)
Effort Expectancy	Q.12_1 I find it easy to understand how to use self order kiosks.	Strongly disagree (5) - Strongly agree (1)
	Q.12_2 I am able to quickly and effortlessly complete an order using self order kiosks.	Strongly disagree (5) - Strongly agree (1)
	Q.12_3 These kiosks are intuitive, even for first time users.	Strongly disagree (5) - Strongly agree (1)
	Q.12_4 I find them reliable, in the sense that I know I will always find at least one kiosk with no technical problems or system issues.	Strongly disagree (5) - Strongly agree (1)
Social Influence	Q.14_1 Positive opinions/experiences I get from people I know	Strongly disagree (5) - Strongly agree (1)
	Q.14_2 Knowing that they are widely used by others	Strongly disagree (5) - Strongly agree (1)
	Q.14_3 Seeing my friends or family using them	Strongly disagree (5) - Strongly agree (1)
	Q.14_4 Recommendation from someone I trust	Strongly disagree (5) - Strongly agree (1)
	Q.14_5 Social media influencers	Strongly disagree (5) - Strongly agree (1)

Facilitating Conditions	Q.16_1 Staff assistance is always ready to help when I need instructions.	Strongly disagree (5) - Strongly agree (1)
	Q.16_2 I usually do not need any help since they are easy to use.	Strongly disagree (5) - Strongly agree (1)
	Q.16_3 Clear instructions are available at the kiosks, while ordering.	Strongly disagree (5) - Strongly agree (1)
	Q.16_4 Guidance messages on the screen are helpful.	Strongly disagree (5) - Strongly agree (1)

The online survey was shared among several social media platforms, and it generated 268 responses, of which 110 were found incomplete or were deleted since respondents did not live in Portugal or did not visit fast food restaurants at all, ending in 158 usable responses. While the in-depth interviews included both users and non-users, the focus of the survey was narrowed to users of self order kiosks. From these 158 participants only 6 of them were non-users of self order kiosks, which is a very small subset to study and confirmed that self order kiosks are widely used by Generation Z consumers living in Portugal. These responses were disregarded but kept in case of being needed later.

Therefore, for the study of the drivers of intention, a final number of 152 responses were accounted for. From these 152 responses, the majority were female individuals, about 69%, and the remaining ones were males (31%). Regarding their age, there was a bigger number of older Generation Z participants with ages between 21-28 years (60%) while the rest was in the range 14-21 years old. That is, the sample is composed by an older cohort. Additionally, when it comes to the frequency of visits of fast food restaurants, the respondents mainly visit these establishments “2 to 3 times a week” (32%) and “Once a month” (24%), preferring to consume this type of food in a more balanced way. There is a very strong preference for McDonald's over Burger King, with 84% of individuals choosing this chain as their preferred choice. Finally, when asked about their frequency of use of self order kiosks, 70% of participants use kiosks every time they go to fast food restaurants.

Table 2: Sample Demographics

Variable		Frequency
Age	14-21 years old	40%
	21-28 years old	60%
Gender	Male	31%
	Female	69%
Frequency of Visit	Every Day	1%
	4 to 5 times a week	5%
	2 to 3 times a week	11%
	Once a week	14%
	2 to 3 times a month	32%
	Once a month	24%
	Less Frequently	13%
Chain Preference	Burger King	16%
	McDonald's	84%
Frequency in Use	Every Time I visit	70%
	Frequently	29%
	Rarely	1%

The analysis of the present study was performed entirely with the statistics platform SPSS, which enabled for the conduction of several statistical tests. In the above shown Table 1, it is described how each adoption construct is measured using different items. The objective is to analyze what is the impact that each construct has on consumers' behavioral intention regarding self order kiosks. So, for simplicity, a new composite variable for each construct was created. These variables correspond to the average of the different items that compose it. However, to create these new variables, it was necessary to first access their individual reliability by computing the Cronbach's Alpha. According to Ponterotto and Ruckdeschel

(2007), a coefficient alpha above 0.65 is satisfactory, for a sample size between 100 and 300 and in the case of having less than 7 items per scale. As it is displayed in Table 3, only the items that measure Facilitating Conditions obtained an Alpha below the mentioned threshold (0,561).

Table 3: Cronbach´s Alpha

Predictor	**Number of items**	**Cronbach´s Alpha**	**Variables**
Performance Expectancy	5	0,771	Q.10_1, Q.10_2, Q.10_3, Q.10_4, Q.10_5
Effort Expectancy	4	0,778	Q.12_1, Q.12_2, Q.12_3, Q.12_4
Social Influence	5	0,884	Q.14_1, Q.14_2, Q.14_3, Q.14_4, Q.14_5
Facilitating Conditions	4	0,561	Q.16_1, Q.16_2, Q.16_3, Q.16_4

To understand if indeed the Facilitating Conditions variable measures a single, homogeneous construct, Factor Analysis should be performed (Thompson, 2004), and some researchers consider factor loadings above 0.5 to be strong (Kline, 2015). After performing Exploratory Factor analysis on the Facilitating Conditions variable, it was confirmed that the items composing it grouped into one factor, however, Q.16_1 had a factor loading below 0,5. The removal of this item and the recomputation of the Cronbach's Alpha yielded a higher value, which indicated that the item did not reflect the underlying construct effectively. This can happen because the item might not measure the construct so well as the other items or because it may be ambiguously explained or interpreted differently by respondents. Therefore, Q.16_1 was excluded, and the construct was represented using Q.16_2, Q.16_3, and Q.16_4, which loaded strongly and consistently.

Table 4: Loadings from exploratory Factor Analysis

Intention Construct	Variable	Factor Loading	New Variable
Facilitating Conditions	Q.16_1	0,467	
	Q.16_2	0,569	FacilitatingConditions
	Q.16_3	0,803	
	Q.16_4	0,779	

After having all the constructs together, in order to measure the level of experience of participants with kiosks, a composite score was computed. This variable was constructed by combining two dimensions: frequency of use of kiosks and their comfortability using them. Frequency of use was coded into a dummy variable reflecting respondents' behavior, where participants were grouped into two categories: *"Every time"* (coded as 1 for high frequency) and *"Frequently/Rarely"* (coded as 0 for low frequency). The dimension of Comfortability was accessed by recurring to a Likert scale of the participants' answers, ranging from 1 (*very uncomfortable*) to 5 (*very comfortable*), to the question "How comfortable are you with using self order kiosks at fast food restaurants?". With the aim of creating a unified measure that reflected experience, these two variables were combined through multiplication (Experience = Frequency*Comfortability). This composite variable is a result of a weighted score process so that both behavioral and perceptual aspects can be reflected in the final variable.

5.4. Findings

After concluding about the reliability and consistency of the survey data and gathering of all the variables, in order to test for the above presented hypothesis, a regression model was developed. The model contains all the pointed variables that are evidenced to have an impact on consumer´s intention to use self order kiosks and its interaction terms.

$$\textbf{Behavioral Intention} = \beta_0 + \beta_1(PE) + \beta_2(EE) + \beta_3(SI) + \beta_4(FC) + \beta_5 Gender + \beta_6 Experience + \beta_7 PE*Gender + \beta_8 FC*Experience + \varepsilon$$

Table 5: Regression Model

R2	Variable	B	Std Error	p-value
R2=0,502	Performance Expectancy	0,483	0,127	<0,001
	Effort Expectancy	-0,056	0,088	0,526
	Social Influence	0,033	0,043	0,453
	Facilitating Conditions	0,275	0,143	0,058
	Gender	0,814	0,563	0,151
	Experience	0,141	0,148	0,342
	PE*Gender	-0,156	0,137	0,257
	FC*Experience	-0,015	0,034	0,654

In the first model, although the R2 has a strong value, there is not much statistical significance. One can notice that only Performance Expectancy and Facilitating Conditions significantly explain the intention of individuals. Therefore, in the search for a better and more robust model, the Stepwise Regression was performed. This process adds the variables one by one and tests different models so that the final one is the better-fitting and most significant.

Table 6: Refined Model

Model	R2	Variable	B	Std Error	p-value
1	R2=0,364	Performance Expectancy	0,512	0,063	<0,001
2	R2=0,441	Performance Expectancy	0,464	0,06	<0,001
		FC*Experience	0,021	0,005	<0,001
3	R2=0,470	Performance Expectancy	0,39	0,066	<0,001
		FC*Experience	0,017	0,005	0,001
		Facilitating Conditions	0,212	0,086	0,014

After conducting this regression, the Stepwise process only kept Performance Expectancy, Facilitating Conditions and the interaction term of Facilitating Conditions with Experience.

$$\textbf{Intention} = \beta_0 + \beta_1(PE) + \beta_2(FC) + \beta_3 FC*Experience + \varepsilon$$

The final model achieved an R2 of 0,470 which is a satisfactory value. All the three remaining variables explain significantly the dependent variable. For Performance Expectancy, the beta value of 0,39 suggests that for every one-unit increase in performance expectancy, the intention to use kiosks increases by 0,39 units. In theory, this means that since the relationship is positive, higher perception of the performance of kiosks leads to a higher intention of individuals to engage with this technology. As for Facilitating Conditions, the similar happens and this independent variable is significant in explaining intention behavior. The beta yields a value of 0,212 which means that for every one-unit increase in facilitating conditions, the intention to use kiosks increases by 0,212 units. That is, the more consumers have access to support and tools that help them engage with self order kiosks, the more they will intend to use them. Regarding the interaction term FC*Experience which job was to measure if experience has a part in the positive effect of Facilitating Conditions on Intention. In the end, a small positive interaction effect is accessed. The beta value of 0,017 suggests that the effect of Facilitating Conditions on intention slightly increases as Experience increases, and vice versa, but the effect is quite small. This means that, theoretically, the higher the level of experience of the consumers with kiosk usage, the stronger will be the impact of the support resources available there on intention behavior.

In the end, among the six hypotheses, three were accepted, and three were rejected. So, according to the results, H1.1, H2 and H3 were rejected since there is no statistical evidence to support them. For instance, it was not found any evidence that supported the moderating role of gender in the relationship between performance expectancy and intention to adopt (H1.1), neither regarding the strength of this effect. This fact suggests that there is no difference in the way Generation Z men and women value the perceived benefits of kiosks. One can conclude that apparently gender holds universal relevance across genders, however, this does not mean that fast food establishments should disregard completely their differences when developing marketing strategies for self order kiosks. Moreover, contrary to what was expected and to the age-wide literature, Effort Expectancy was also found as not having a significant influence on

intention (H2). Possibly this outcome is due to the high level of technological proficiency among the great majority of Generation Z consumers, who deal with the digital daily and are accustomed to intuitive interfaces. Therefore, this demographic may already perceive kiosks as accessible and intuitive which might be the reason why ease of use may not be a deciding factor on whether to use them or not. Finally, the statistical analysis also found that Social Influence does not impact intention to adopt significantly either. This conclusion indicates that Generation Z are not influenced by their peers when it comes to choosing whether they order fast food at the self order kiosk or at the counter. They make this decision independently and give greater importance to convenience rather than external opinions or societal norms. This interestingly aligns with Generation Z´s characterization as being a self-reliant and convenience-driven group in its technological decisions.

Among the accepted hypotheses, the most significant and impactful predictor of adoption was found to be Performance Expectancy, which demonstrated a robust positive effect (H4). The way Generation Z consumers perceive efficiency and utility of self order kiosks is crucial in shaping their willingness to use them. For fast food establishments, it shows the importance of emphasizing kiosks' functional benefits in marketing campaigns when targeting this audience specifically. Moreover, Facilitating Conditions, which encompassed the availability of resources and technical support, were also found to have a positive and significant influence on adoption. Though its effect was not as pronounced as that of Performance Expectancy, it highlights the necessity of ensuring easy access to kiosks, an intuitive interface and an excellent system of support. For his part, the tested interaction effect between Facilitating Conditions and Experience also yielded a positive result. This indicated that the influence of the existing resource conditions becomes stronger as consumers are more familiar with self order kiosks. Hence, more experienced consumers might place greater value in the quality of the available support and infrastructure system. For instance, Generation Z, being digital natives, have high expectations regarding technology and demand that it offers no effort. Therefore, it makes sense that experienced users in this group hold fast food establishments accountable if they do not provide consistent support. This possibility suggests that as familiarity grows, maintaining user satisfaction with the help of robust facilitating conditions will be critical for long-term engagement.

5.5. Drivers and Preferences

To better understand and explore the conclusions given by the regression model, a Friedman test was performed for the ranking question “What factors would encourage you to use them more often? *(Rank from the one that would encourage more to the one that would encourage less)”,* to understand which factors encourage respondents to use self order kiosks (Table X). Discounts and rewards ranked the highest (1.81), followed by greater customization options (2.21) and publicity on social media was the least impactful (4.53). This aligns with the finding that performance expectancy is the strongest predictor of adoption intention. Discounts and customization options directly contribute to the perception of kiosks as enhancing the dining experience, reinforcing the importance of functional benefits highlighted in the accepted hypothesis. Additionally, the lower ranking of publicity on social media suggests that social influence, which was rejected as a significant predictor, is not a primary driver for adoption, supporting the hypothesis conclusions.

Table 7: Friedman test

Factor	**Rank**
Discounts/Rewards for using them	1,81
Greater customization options	2,21
More payment options	2,9
Positive Feedback from others	3,55
Publicity on Social Media	4,53

Then, to study the questions: “Which of these features do you find most valuable in self order kiosks? *(you can select up to 2 options)”* and *“*What are the support options you think are/would be crucial to have at self order kiosks? *(Please select all that apply)”* where respondents were able to select more than one option, two non-parametric tests were performed. The percentages obtained reflect how often each option was chosen out of all responses. "Quick Ordering" (36,3%) and "Avoiding Lines" (26,8%) were the most valued features, followed by "Customization Options" (24%). The least valued aspect was "No Human Interaction" (11,1%), which points out that this demographic prefers efficiency over isolation from staff. The low

importance of this feature supports the lack of a significant impact of effort expectancy on intention, as ease of use does not appear to be a major concern for this tech-savvy generation. Instead, they are looking for tangible benefits that improve efficiency. When looking at the support options, the features pointed out as the most crucial ones are "Easy to locate back/undo button" (22%) and "Clear instructions on the screen" (20,6%) and lower preferences for "Phone or online support" (5,3%). This choice for an “undo button” and “clear instructions” shows that even experienced users value a correcting option, which reflects their high expectations on the reliability of kiosks.

Table 8: Valuable features

	N	**Percent**
Quick Ordering	118	36,3%
Customization options	78	24,0%
Avoiding Lines	87	26,8%
No Human Interaction	36	11,1%

Table 9: Support options

	N	**Percent**
Help button on the kiosk itself	93	17,6%
On-site staff assistance	61	11,6%
Clear instructions on the screen	109	20,6%
Multilingual options	93	17,6%
Phone or online support	28	5,3%
Feedback option	28	5,3%
Easy to locate back/undo button	116	22,0%

6. Management Implications

At this stage, based on the findings already comprehensively observed and analyzed, it is possible to give several recommendations that can be put in practice in the fast food restaurants sector. For instance, fast food chains such as McDonald's and Burger King can take advantage of these insights and adopt new strategies with the aim of improving the adoption and satisfaction of consumers among Generation Z. Given that Performance Expectancy emerged as the most significant driver of behavioral intention, it is critical that these chains emphasize the functional benefits that self order kiosks have to offer, in their marketing and communication strategies.

As convenience is so important for Generation Z, these chains need to constantly meet their expectations in this matter. Therefore, kiosks need to offer faster transaction times which could mean the introduction of new features like a “favorites” option where customers would be able to reorder their most frequently bought items with one single tap. In a similar logic, it could also be possible to implement a new kind of integration with mobile apps where the users could pre-create an order on their phones and send it to the kiosks where they just needed to pay in the end, speeding the whole process. Additionally, as Generation Z values customized experiences, this can represent an opportunity for fast food chains to use that fact as an advantage. For instance, kiosks have a lot of potential for it, and they could use machine learning algorithms to be able to suggest menu items based on past orders and dietary preferences.

Knowing that social influence and social media were not shown to be strong motivators for kiosk adoption among Generation Z, all marketing effort focused on getting more kiosk users should be centered on highlighting its functional benefits rather than peer-driven narratives. Therefore, fast food businesses should redirect their budgets from social campaigns to promotions in-store and functionality-focused advertising. Additionally, effort expectancy was also found not significant but technological reliability is crucial for long-term engagement among this generation of consumers. Therefore, fast food chains should ensure that kiosks are always operational, namely during peak hours. Investments in maintenance of the technology should not be disregarded, and some investment should be done. For example, there could be sensors that alert staff of technical issues or low supplies (e.g., lack of receipt paper), which would help to minimize disruptions. And as the interaction between Facilitating Conditions and

Experience even strengthens this need for a good support system, another example could be to designate specific staff members as "Kiosk Coaches" that would be always available to assist and answer customers' questions. This would reduce difficulty for first-time users. It could also be implemented along with limited-time discounts or free items (for example: "First Time on Kiosk? Get a Free Drink!") to encourage usage.

By considering the impact of each driver on Generation Z's consumer adoption behavior, fast food chains can develop strategies to foster the use of this technology. By incorporating the above-mentioned examples, McDonald's, Burger King, as well as other similar chains might be able to foster stronger kiosk engagement, build trust with the users, and optimize the digital experience, which in turn can drive adoption and satisfaction among Generation Z consumers.

7. Limitations and Future Research

Despite offering several contributions to the fast food sector in Portugal and its technological development, the present study is also subject to a number of limitations that need to be accounted for. For instance, starting off with the sample used as base, one can observe that most respondents are women. The imbalance that exists regarding the gender of respondents may limit the generalizability of the final findings, as the behaviors of male consumers may not be fully well represented. This highlights a need for a more diverse sample in future research. In addition, the research relied on self-reporting, that is, on the ideas that Generation Z consumers have about themselves. This might have created an over- or under-report effect regarding their own attitudes due to social desirability or perceived expectations, which can introduce response bias in the conclusions of the study.

It was decided that the study would be confined to Portugal, which brings generalization limits but also offers opportunities for its extension to other markets. Additionally, comparative studies across other countries would be able to provide a more consistent and complete understanding of these dynamics, since they probably are much affected by the cultural environment where the study is performed.

To only focus on two specific fast food chains, McDonald's and Burger King, makes total sense when accounting for Portugal alone, since they are the most prominent chains in this

country. However, it narrows the scope of the study if one wants to account for a different country or other regions. So, to extend the research to bigger areas and to include more brands could possibly yield broader and other significant insights.

Finally, the findings led to the suggestion that experience has a moderating effect on facilitating conditions and, consequently on the intention to use kiosks. However, this interaction effect is relatively small. Future research should explore additional moderating variables, as the different levels of engagement with the technology or income levels, to better understand the complexity of these relationships.

8. References

Batra, R., & Keller, K. L. (2016). Integrating Marketing Communications: New Findings, New Lessons, and New Ideas. *Journal of Marketing*, *80*(6), 122–145.

Lakhal, L. (2009). Impact of quality on competitive advantage and organizational performance. *Journal of Operational Research Society* 60, 637–645.

Martina G. Gallarza-Granizo, María-Eugenia Ruiz-Molina, Christopher Schlosser. (2020). Customer value in Quick-Service Restaurants: A cross-cultural study, *International Journal of Hospitality Management,* 85.

Lichtenberg, A.L. (2012). A Historical Review of Five of the Top Fast Food Restaurant Chains to Determine the Secrets of Their Success. *Claremont College.*

Fernandes, T., Pedroso, R. (2017). The effect of self-checkout quality on customer satisfaction and repatronage in a retail context. *An International Journal* 11, 69–92.

Rajput, A., Gahfoor, R.Z. (2020). Satisfaction and revisit intentions at fast food restaurants. *Future Business Journal* 6, 13.

Klein D. (April, 2024). *Kiosks take center stage in the phygital revolution*. QSR Magazine. https://www.qsrmagazine.com/story/kiosks-take-center-stage-in-the-phygital-revolution/

Tillster. (2024) *2024 Phygital Index Report.* https://www.tillster.com/blog/phygital-index-report-q2-2024

National Restaurant Association. (2024). *Restaurant Technology Landscape 2024*. https://restaurant.org/research-and-media/research/research-reports/2024-technology-landscape-report/

Jalal Rajeh Hanaysha. (2022). Impact of social media marketing features on consumer's purchase decision in the fast-food industry: Brand trust as a mediator. *International Journal of Information Management Data Insights*, 2(2).

McKinsey. (2021). *Keeping McDonald´s "relevant": An interview with CEO Chris Kempczinski.* https://www.mckinsey.com/industries/retail/our-insights/keeping-mcdonalds-relevant-an-interview-with-ceo-chris-kempczinski

McLamore, J. W. (2020). *The Burger King: A whopper of a story on life and leadership*. Mango Media Inc.

Oxford's Learner's Dictionaries. (n.d.). *In Oxford´s Learner´s Dictionaries.* https://www.oxfordlearnersdictionaries.com/definition/english/fast-food?q=fast+food

Britannica (n.d.). *Fast Food.* https://www.britannica.com/topic/fast-food

The Yale Globalist. (2019). *Globalization of American Fast Food Chains: the Pinnacle of Effective Management and Adaptability.* The Yale Globalist. https://globalist.yale.edu/in-the-magazine/globalization-of-american-fast-food-chains-the-pinnacle-of-effective-management-and-adaptability/

History Facts. (n.d.). *A bite-sized history of fast food*. https://historyfacts.com/science-industry/article/a-bite-sized-history-of-fast-food/

Pilcher M. J. (2012). The Oxford Handbook of Food History. OUP USA

QSR Magazine. (2024). *The 2024 QSR 50*. https://www.qsrmagazine.com/story/the-2024-qsr-50-fast-foods-leading-annual-report/

Harford T. (2020). *How McDonald's revolutionised business.* BBC News. https://www.bbc.co.uk/news/business-51208592

Burger King. (n.d.). *About Us*. https://www.bk.com/about-bk

McKinsey. (August, 2024). *What is Gen Z?*. https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-is-gen-z

NIQ. (June, 2024). *Spend Z: A Report on Gen Z Spending Power*. NIQ. https://nielseniq.com/global/en/landing-page/spend-z/

Go Technology. (September 2024). *Brand loyalty in hospitality Report.* NIQ. https://nielseniq.com/wp-content/uploads/sites/4/2024/09/Zonal-GO-Technology-Report-Brand-loyalty-in-hospitality-September-2024.pdf

Dabholkar, P.A., Bagozzi, R.P. (2020). An attitudinal model of technology-based self-service: Moderating effects of consumer traits and situational factors. *Journal of the Academy of Marketing Science*. 30, 184–201.

Kumar V., Gupta S. (2016). Conceptualizing the Evolution and Future of Advertising. *Journal of Advertising*. https://www.jstor.org/stable/26157221

Meuter, Matthew L., Amy L. Ostrom, Robert I. Roundtree, and Mary Jo Bitner. (2000). "Self-Service Technologies: Understanding Consumer Satisfaction with Technology-Based Service Encounters". *Journal of Marketing,* 64 (3), 50-64

Taylor, Shirley. (1994). "Waiting for Service: The Relationship Between Delays and Evaluations of Service?' *Journal of Marketing* 58 (2), 56-69.

Tom, Gail and Scott Lucey. 1995. "Waiting Time Delays and Consumer Satisfaction in Supermarkets." *Journal of Services Marketing*, 9(5), 20-29.

BBC News. (2021). *McDonald's sales are back above pre-Covid levels.* https://www.bbc.com/news/business-56913814

Gilbert, R. G. &. Veloutsou, C. (2006). A cross-industry comparison of customer satisfaction. *Journal of Services Marketing*, 20(5), 298–308.

MarkTest. (April, 2024). *Target Group Index Study 2023*. https://www.marktest.com/wap/a/n/id~2aba.aspx#:~:text=Grupo%20Marktest.%2030%20abril.%20O%20estudo%20TGI%20da

Goldfarb, McDevitt, Samila, & Silverman. (2015). The Effect of Social Interaction on Economic Transactions: Evidence from Changes in Two Retail Formats. *Management Science*, 61(12)

Rastegar, Nazi & Flaherty, Joan & Liang, Lena & Choi, Hwan-suk. (2021). The adoption of self-service kiosks in quick-service restaurants. *European Journal of Tourism Research,* 27.

Szajna, B. (1996). Empirical Evaluation of the Revised Technology Acceptance Model. *Management Science*, *42*(1), 85–92.

Shukla, A., Mishra, A.& Dwivedi, Y.K. (2023) Expectation Confirmation Theory: A review. *Information System Theory*. https://open.ncl.ac.uk / ISBN: 9781739604400

Oliver, R.L. (1980). A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions. *Journal of Marketing Research*, 17 (4), 460.

Oliver, R.L. (1993). Cognitive, Affective, and Attribute Bases of the Satisfaction Response. *Journal of Consumer Research*, 20 (3), 418.

Oliver, R.L. (2014). Satisfaction: A Behavioral Perspective on the Consumer. *Routledge*.

Venkatesh, Viswanath and Morris, Michael G. and Davis, Gordon B. and Davis, Fred D. (September 2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, 27(3), 425-478. https://ssrn.com/abstract=337513

Robert B. Cialdini (February, 2001). *Scientific American*, 284(2), 76-81. https://www.jstor.org/stable/26059056

Xu, H., Gupta, S. (2009). The effects of privacy concerns and personal innovativeness on potential and experienced customers' adoption of location-based services. *Electron Markets* 19, 137–149. https://doi.org/10.1007/s12525-009-0012-4

Constantinos-Vasilios Priporas, Nikolaos Stylos, Anestis K. Fotiadis. (2017). Generation Z consumers' expectations of interactions in smart retailing: A future agenda. *Computers in Human Behavior*, 77, 374-381. https://doi.org/10.1016/j.chb.2017.01.058

Turner, A. (2015). Generation Z: Technology and Social Interest. *The Journal of Individual Psychology 71*(2), 103-113. https://dx.doi.org/10.1353/jip.2015.0021.

Prensky, M. (2001), "Digital Natives, Digital Immigrants Part 2: Do They Really Think Differently?", *On the Horizon,* 9(6), 1-6. https://doi.org/10.1108/10748120110424843

Kane, G. C., et al. (2018): Kane, G. C., Palmer, D., Phillips, A. N., & Kiron, D. (2018). "Aligning the Organization for its Digital Future." *MIT Sloan Management Review*, 60(1), 1-7.

Majchrzak, A., Rice, R.E., Malhotra, A., King, N., Ba, S., 2000. Technology adaption: the case of a computer-supported inter-organizational virtual team 1. *MIS Quarterly*. 24 (4), 569–600.

Bankole, F.O., Bankole, O.O., Brown, I., 2011. *Mobile banking adoption in Nigeria.* Electron. Journal Information Systems Developing Countries 47 (2), 1–23.

Venkatesh, V., Davis, F.D., 2000. A theoretical extension of the technology acceptance model: four longitudinal field studies. *Management Science*. 46 (2), 186–204.

Bhattacherjee, A., 2000. Acceptance of e-commerce services: the case of electronic brokerages. *IEEE Transactions on Systems Man and Cybernetics,* 30 (4), 411– 420.

Im, I., Hong, S., Kang, M.S., 2011. An international comparison of technology adoption: testing the UTAUT model. *Information Management* 48 (1), 1–8.

Venkatesh, V., Morris, M. G., Davis, F. D., & Davis, G. B. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425-478. https://doi.org/10.2307/30036540

El-Said, O.A., Al Tall, T. (2020). Studying the Factors Influencing Customers' Intention to Use Self-service Kiosks in Fast Food Restaurants. *Information and Communication Technologies in Tourism*. https://doi.org/10.1007/978-3-030-36737-4_17

Chin-Lung Hsu, Hsi-Peng Lu. (2004). *Why do people play on-line games? An extended TAM with social influences and flow experience. Information & Management*, 41(7), 853-868. https://doi.org/10.1016/j.im.2003.08.014.

Chin-Lung Hsu, Judy Chuan-Chuan Lin. (2008). Acceptance of blog usage: The roles of technology acceptance, social influence and knowledge sharing motivation. *Information & Management*, 45(1), 65-74. https://doi.org/10.1016/j.im.2007.11.001.

Shin-Yuan Hung, Chia-Ming Chang. (2005). User acceptance of WAP services: test of competing theories. *Computer Standards & Interfaces*, 27(4), 359-370. https://doi.org/10.1016/j.csi.2004.10.004.

Pin Luarn, Hsin-Hui Lin. (2005). Toward an understanding of the behavioral intention to use mobile banking. *Computers in Human Behavior*, 21(6), 873-891. https://doi.org/10.1016/j.chb.2004.03.003.

Ponterotto JG, Ruckdeschel DE. (2007) An overview of coefficient alpha and a reliability matrix for estimating adequacy of internal consistency coefficients with psychological research measures. *Percept Mot Skills,* 105(3).

Shirley Taylor and Peter A. (1995). Understanding Information Technology Usage: A Test of Competing Models. *Information Systems Research*, 6(2), 144-176. https://www.jstor.org/stable/23011007

Ronald L. Thompson, Christopher A. Higgins and Jane M. Howell. (1991). Personal Computing: Toward a Conceptual Model of Utilization. *MIS Quarterly*, 15(1), 125-143. https://www.jstor.org/stable/24944

Thompson, B. (2004). Exploratory and confirmatory factor analysis: Understanding concepts and applications. *American Psychological Association*. https://doi.org/10.1037/10694-000

Kline, R. B. (2016). Principles and practice of structural equation modeling (4th ed.). Guilford Press.

9. Appendix

A. In-depth Interviews

Introduction (Users)

Hello, thank you for taking the time to participate in this interview.

My name is Margarida Guerra. I am a student of the Master in Management with Specialization in Strategic Marketing. For the purpose of my Master Thesis, led by the theme New Product Innovation, I am accessing what are the factors that drive consumers to use self order kiosks in fast food restaurants in Portugal, mainly McDonald's and Burger King.

Your answers will all be kept confidential, and your personal information will not be shared with anyone.

Demographic Questions

- What is your name and how old are you?
- Do you usually visit McDonald's or Burger King? How often?

If yes: Can you describe your most recent experience? What did you like/dislike about it?

If no: What has stopped you from trying them?

- How would you say you are comfortable using technology in general?

Experience with self order kiosk

A self order kiosk is a digital ordering system that allows customers to place their orders and pay for them without the assistance of a cashier or staff member. These kiosks are typically touchscreen-enabled and are commonly found in fast food restaurants, cafes, and some retail environments *(Show pictures and explain)*.

- Do you usually use self order kiosks when going to fast food restaurants?

If yes: How was your first experience with it?

If no: So, can you describe your experience in fast food restaurants when ordering? How do you usually do it?

- What do you like most about self order kiosks?
- How does using a self order kiosk compare to ordering at a counter?
- Do you feel it enhances your dining experience? How?
- Have you encountered problems when using this technology? Explain, please.
- How easy do you find it to use self order kiosks? Are there any features you like particularly?

Barriers and Concerns

- Do you have any concerns when using it?
- How do your friends or peers influence your decision to use or not use a self order kiosk?

Thank you for sharing your thoughts with me. Your input is extremely valuable, and it will help shape the next part of my study.

<u>Introduction (Non-Users)</u>

Demographic Questions

- What is your name and how old are you?
- Do you usually visit McDonald's or Burger King? How often?

If yes: Can you describe your most recent experience? What did you like/dislike about it?

If no: What has stopped you from visiting them?

- How would you say you are comfortable using technology in general?

Experience with self order kiosk

A self order kiosk is a digital ordering system that allows customers to place their orders and pay for them without the assistance of a cashier or staff member. These kiosks are typically touchscreen-enabled and are commonly found in fast food restaurants, cafes, and some retail environments *(Show pictures and explain).*

- Do you usually use self order kiosks when going to fast food restaurants?

If yes: How was your first experience with it?

If no: So, can you describe your experience in fast food restaurants when ordering? How do you usually do it?

- Why do you prefer to order at the counter instead of using the self order kiosks?
- What are the concerns that you have regarding this technology?
- In your opinion what do self order kiosks have that is negative?
- What features should they have that would make them more appealing to you? Is there something that would encourage you to use/try them?

Barriers and Concerns

- Do you have any concerns when using it?
- Do you think your friends have any influence on your choice not to use them?

Thank you for sharing your thoughts with me. Your input is extremely valuable, and it will help shape the next part of my study.

B. Online Survey

Welcome!

Thank you so much for participating in this survey. My name is Margarida and I am performing a study on self order kiosks at fast food restaurants like McDonald's and Burger King in Portugal.

Your responses will be anonymous and will help me understand a lot on developing this study for my Master Thesis.

The survey will take approximately 5 minutes to complete.

Let 's get started!

Section 1: Demographics

Q.1. Do you currently live in Portugal?

- Yes
- No (*end of survey*)

Q.2. How old are you?

- Less than 14 (end of survey)
- 14-21 years old
- 21-28 years old
- More than 28 (*end of survey*)

Q.3. What is your gender?

- Male
- Female
- Prefer not to say

Q.4. Do you visit fast food restaurants?

- Yes
- No *(end of survey)*

Q.5. How frequently do you go there to eat?

- Every day
- 4 to 5 times a week
- 2 to 3 times a week
- 1 time a week
- 2 to 3 times a month
- 1 time a month
- Less frequently
- Never

Q.6. What fast food chain do you prefer?

- McDonald's
- Burger King

Section 2: Self order kiosks

A self order kiosk is a digital ordering system that allows customers to place their orders and pay for them without the assistance of a cashier or staff member. These kiosks are typically touchscreen-enabled and are commonly found in fast food restaurants, cafes, and some retail environments.

Q.7. When you go to fast food restaurants, do you use self order kiosks?

- Yes (*continue*)
- No (*end of survey*)

Q.8. How frequently?

- Every time I visit
- Frequently
- Rarely

Q.9. How comfortable are you with using self order kiosks at fast food restaurants?

(Rating Scale: 1= Not comfortable at all; 10 = Extremely comfortable)

Section 3: Performance Expectancy (H1)

Q.10. To what extent do you agree with the following statements regarding self order kiosks? *(Rating scale: from Strongly disagree to Strongly Agree)*

Q.10_1 Using self order kiosks when ordering fast food enhances my overall dining experience.

Q.10_2 Self order kiosks save me time when ordering.

Q.10_3 I feel that self order kiosks enable for a higher level of customizations than ordering at the counter.

Q.10_4 I feel more in control of my ordering process when I use self order kiosks.

Q.10_5 To use self order kiosks makes my food request more accurate than I would get with traditional counter ordering.

Q.11. Which of these features do you find most valuable in self order kiosks? *(you can select up to 2 options)*

- o Quick ordering
- o Customization options
- o Avoiding lines
- o No human interaction
- o Other (please specify):_____

Section 4: Effort expectancy (H2)

Q.12. What is your level of agreement with the following ideas? *(Rate according to your level of agreement: Strongly Disagree - Strongly Agree)*

Q.12_1 I find it easy to understand how to use self order kiosks.

Q.12_2 I am able to quickly and effortlessly complete an order using self order kiosks.

Q.12_3 These kiosks are intuitive, even for first time users.

Q.12_4 I find them reliable, in the sense that I know I will always find at least one kiosk with no technical problems or system issues.

Q.13. How would you say your first experience with a self order kiosk was?

- Very Confusing
- Somewhat confusing
- Neutral
- Somewhat easy
- Very easy

Section 4: Social Influence (H3)

Q.14. To what extent do the following influence your decision to use self order kiosks? *(Rate from Not influential at all to Very Influential)*

Q.14_1 Positive opinions/experiences I get from people I know

Q.14_2 Knowing that they are widely used by others

Q.14_3 Seeing my friends or family using them

Q.14_4 Recommendation from someone I trust

Q.14_5 Social media influencers

Q.15. What factors would encourage you to use them more often? *(Rank from the one that would encourage more to the one that would encourage less)*

- Publicity on social media
- Positive feedback from others
- Discounts/rewards for using them
- Greater customizations options
- More payment options

Section 5: Facilitating Conditions (H4)

Q.16. Please, indicate what is your agreement with the following resources and support at self order kiosks *(Rate from Strongly Disagree to Strongly Agree)*.

Q.16_1 Staff assistance is always ready to help when I need instructions.

Q.16_2 I usually do not need any help since they are easy to use.

Q.16_3 Clear instructions are available at the kiosks, while ordering.

Q.16_4 Guidance messages on the screen are helpful.

Q.17. What are the support options you think are/would be crucial to have at self order kiosks? *(Please select all that apply)*

- Help button on the kiosk itself.
- Phone or online support
- On-site staff assistance
- Clear instructions on the screen
- Multilingual options
- Feedback option
- Easy to locate back/undo button

Section 7: Intention to Adopt (Behavioral Intention)

Q.20. Rate according to your agreement with the following sentences (*Strongly disagree to Strongly Agree).*

Q.20_1 I intend to use self order kiosks in the next 6 months.

Q.20_2 If given the option, I would prefer using self order kiosks over ordering at the counter.

Q.20_3 I am likely to use self order kiosks the next time I visit a fast food restaurant.

Q.21. What improvements would make you use a self order kiosk more frequently, in the future? *(Open-ended: Please write which improvement ideas come to your mind).*

Thank you so much for your participation!

C. Sales of fast food restaurants in the U.S.

Rank	Company	2023 U.S Systemwide Sales (M)	2023 Total Company Units
1	McDonald´s	53 135	685
2	Starbucks	28 700	9 645
3	Chick-Fil-A	21 586	2 552
4	Taco Bell	15 000	7 405
5	Wendy´s	12 285	6 030
6	Dunkin'	11 918	9 580
7	Burger King	10 957	6 778
8	Subway	9 925	20 133
9	Chipotle	9 872	3 437
10	Domino's	9 026	6 854

*QSR Report

D. Sales of fast food restaurants from the Burger Segment in the U.S.

Rank	Company	2023 U.S Systemwide Sales (M)	2023 Total Company Units
1	McDonald´s	53 135	685
2	Wendy´s	12 285	403
3	Burger King	10 957	138
4	Sonic Drive-in	5 534	326
5	Dairy Queen	4 968	2
6	Jack in the box	4 355	142
7	Whataburger	3 769	826
8	Culver´s	3 000	7
9	Five Guys	2 626	594
10	Hardee´s	1 981	195

*QSR Report

E. McDonald´s & Burger King history timeline