Perceived Benefits and Cost-Benefit Perspectives on Service Digitalization: A Preliminary Study among Fine Dining Restaurants in Bukit Jalil and Bukit Bintang, Kuala Lumpur

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ABSTRACT

Digitalization continues to shape various industries, including the food and beverage sector, it is crucial for fine-dining establishments to understand and leverage its potential benefits. The process of transforming customer service into a digital experience that creates a paperless environment is known as service digitalization. Previous studies on service digitalization in Malaysia have concentrated on quick-service restaurants and online food delivery systems, with limited attention given to the unique context of fine dining restaurants. Moreover, the prior studies have mainly concentrated on customers' perspectives, giving limited attention to the standpoint of restauranteurs. Hence, this study aims to fill the significant gap in the literature by specifically investigating the perceived benefits and perceived costs of service digitalization among fine dining restaurants, as well as identifying types of service digitalization that should be prioritized among fine dining restaurants. This study has adopted a qualitative research approach in exploring the above-mentioned research objectives and a one-to-one interview was held with eight restaurant owners or managers from fine dining restaurants located in Bukit Jalil and Bukit Bintang, Kuala Lumpur. The qualitative result was analyzed based on the thematic analysis to identify the meaningful patterns in themes. The result indicated that usefulness, ease of use, operational efficiency, and enjoyment as the perceived benefits of service digitalization among fine dining restaurants in Bukit Jalil and Bukit Bintang, Kuala Lumpur. Furthermore, the perceived costs highlighted in the study were price, dependence, technical risk, social disconnection, and adaptability. In conclusion, this study contributes to the body of knowledge by providing a comprehensive understanding of the cost-benefit perceptions of restauranteurs toward service digitalization in fine dining restaurants. The cost-benefit analyses contribute knowledge in assessing the benefits and drawbacks in a data-driven manner, allowing the restauranteurs and food service sector to make better-informed decisions and able to allocate resources effectively. Additionally, this study provides valuable insights into the financial implications of adopting digital technologies in the food service sector.

Keywords: Service Digitalization, Fine-dining Restaurants, Cost-benefit Perspectives, Perceived Benefits

INTRODUCTION

Today, the Internet is worldwide and has reached almost every corner of the globe (Perwej et al., 2019). As we live in an increasingly connected society that revolves around the Internet and digital technological advancements, it signals the Fourth Industrial Revolution (4IR), which is known as Industry 4.0 and the "era of the Internet" (Dadhaneeya et al., 2023). Meanwhile, the World Economic Forum declared the 4IR as the merging of "cyber-physical systems" (Schwab, 2016; Raheem et al., 2019). Since then, digital transformation has rapidly spread in all types of organizations, including businesses, enterprises, governments, and nonprofit institutions (Chin et al., 2023; Gebauer et al., 2021; Kapadia & Madhav, 2020).

By integrating all the digitized data and digital applications within an organization, digital transformation has changed the traditional model into a new digital one (Trzaska et al., 2021). The use of digital technologies such

as big data, artificial intelligence (AI), social networks, and the Internet of Things (IoT) has transformed the way organizations operate and interact with consumers, particularly the way operations are managed, as well as the way humans generate value (Bresciani et al., 2021; Chin et al., 2023; Mihu et al., 2023). This shift has given rise to the digital economy which is an outcome of the 4IR due to the widespread adoption of digital technology (Rong, 2022). The economic and social activities that involve the use of digital technology have affected almost every industry in the world and have transformed the modes of production, management, and administration of those industries (MyGovernment, 2021).

Digital transformation has currently affected most of the industrial sectors including manufacturing, healthcare, entertainment, education, and food. These industries, especially service providers and manufacturers are constantly driving changes and advancements in digital technologies to maintain their competitive advantages (Bogdandy et al., 2020). According to research, the hospitality sector, a part of the larger tourism industry that comprises the restaurant industry, has been represented as one of the sectors that are most affected by digital technology and has the broadest adoption (Alt, 2021; Cheng et al., 2023). The emergence of COVID-19 as a global pandemic in 2019 has accelerated the need to adopt digitalization and the 4IR technologies in all types of the restaurant industry, as restaurants are facing considerable losses in sales due to lockdowns and other standard operating procedures (SOP) (Chin et al., 2023; Nakat & Bou-Mitri, 2021). Lately, restaurants are adopting digital devices such as point-of-sale (PoS) devices, online ordering systems, and e-commerce platforms to provide services and communicate with customers (Soto-Acosta, 2020).

Generally, the hospitality industry is a large subsection within the service industry and is classified into four major categories: food and beverage, travel and tourism, hotel, and leisure (EHL Insights, 2023). Specifically, the UK Food Standards Agency describes the food and beverage (F&B) industry as businesses that transform raw agricultural goods into consumer food products. It is a complex network of farmers and industries that link to food production, processing, packaging, and distribution. Hence, the food service industry and food manufacturing industry are two segments that can be classified in the food and beverage industry. As stated by the Economic Research Service of the U.S. Department of Agriculture (USDA) (2023), the food service industry mainly provides services and serves food to people for consumption on-site or food away from home.

There are two categories of food service which are commercial and non-commercial (Kumar et al., 2013). Commercial food service is operated as a business that sells food and beverages for a profit motive. In contrast, non-commercial food service, also known as institutional food service, refers to any organization in the food service industry that does not offer public food service as its primary mission and does not aim for profit (Farmer, 2022). According to the National Restaurant Association (2022), almost 80% of the food service industry is made up of commercial segments which include restaurants (quick-service and full-service), catering and banquets, and retail. While only the remaining 20% is represented by the non-commercial segment that serves food in schools and universities, military, health care, business, and industry.

The service industry has been one of the most important industries in Malaysia while the food and beverage industry is among the leading industries that contribute considerably to Malaysia's economic growth (Hafiz Abd Rashid et al., 2019). According to Statista Research Development (2023), Malaysia's food and beverage industry's revenue is constantly increasing until year 2019 and was forecast to continuously increase between 2023 and 2028 by 22.2 billion U.S. dollars (+44.84%). Specifically, the Malaysia foodservice profit sector generated revenue of RM 80.9 billion in 2022 and is forecasted to record a compound annual growth rate (CAGR) of over 6% during 2022 – 2027 (GlobalData UK Ltd., 2023). As Malaysia shifts to embrace the 4IR, Malaysia's strong service sector is developing at a rapid pace, with an increasing focus on high technology, providing competitive advantages for industries (MIDA, 2023). According to scholars, businesses that have encountered digital transformation can significantly improve customer experience, boost employee engagement and culture, increase productivity and transparency, reduce expenses, as well as raise sales revenue (Kimberling, 2020).

In recent years, global demand for the food service sector, which includes full-service restaurants is expanding. There has a rapid growth in full-service restaurants which have become the Malaysia foodservice market's largest profit sector channel in 2022 (GlobalData UK Ltd., 2023). Fine-dining restaurants can be referred to as full-service restaurants that offer a full dining experience in an upscale atmosphere, with high-end ingredients

and preparations, as well as complete table service by highly trained service staff (Hafiz Abd Rashid et al., 2019; Westcott & Anderson, 2021). In the past, fine dining restaurants were often associated with the length heritage of classic French dining, which emphasized French cuisine and service (Rush, 2006). The dining atmosphere is formal, and both restaurant staff and patrons are required to practice proper dining etiquette and service procedures. Also, reservations need to be made to ensure a seat upon arrival. However, the notion of fine-dining restaurants has modernized, and the trend is towards "great dining that is approachable" since modern diners do not feel at ease in the stuffy and formal atmosphere of traditional fine dining (Perry, 2007; Wilden, 2007 as cited in King & Harr, 2008). About this, digitally transformed services may play a vital role in improving the customers' overall fine dining experience by altering the traditional formal atmosphere of fine dining. At the same time, service digitalization in fine-dining restaurants can generate a unique image for restauranteurs, allowing them to gain competitive advantages (Vo-Thanh et al., 2022).

Service digitalization with the adoption of Information Communication Technologies (ICTs) is the process of transforming customer service into a digital experience, which has led to a major transformation in the restaurant that had always emphasized the value of the human touch and interactions (Fortin, 2022; Ozdemir et al., 2023). These digitalized capabilities have replaced numerous manual tasks performed by the intensive human labor force (Law et al., 2020; S. Park et al., 2021). Customer service, for instance, will be delivered through digital channels or service innovation tools such as email, social media, online reservation applications, food delivery applications, contactless digital payment, and digital menus that are accessible via QR codes (Esposito et al., 2022).

Nowadays, the use of mobile technology, particularly smartphones, has increased in society, regardless of the age group including children, adolescents, and the elderly. According to Statista 2022, 88.79% of the total population of Malaysia use smartphones and the Department of Statistics Malaysia (DOSM) published a report showcasing 96.85% of the population have internet access (Hoque et al., 2023). Therefore, people can now easily and efficiently search for information and communicate via the Internet using their smartphones. By considering this, the service providers of the restaurants are offering various digital services to enable value co-creation with their customers (S. M. Lee & Lee, 2020). Through service digitalization, restauranteurs can enhance their customers' overall expectations and satisfaction by ensuring that their interactions with customers are consistent, tailored to meet their needs and answer their problems promptly (Fortin, 2022; UNCTAD, 2021). Study also shows that the digitalization of services has a beneficial impact on service quality which in turn builds customer relationship and customer loyalty (Shabani et al., 2022).

In terms of the modes of operation and management, restaurants approach service digitalization to enhance their business's productivity and reduce costs by lowering personnel expenses (Elia et al., 2021; Vo-Thanh et al., 2022). According to Huawei Technologies research published by Business Today (2023), businesses can reduce costs and increase their profit margins by using advanced digital technologies such as data management solutions, with a 60% increase in productivity. Jimmy Lai, president of CPA Australia's Malaysia Division stated that 42% of Malaysian businesses saw positive returns from their digital investments in 2020. Din Tai Fung, an upscale Taiwanese restaurant chain, is an example of a business in Malaysia that has successfully adopted the digital platform and showed a 31% of growth in 2020 (BusinessToday, 2022).

Hence, digital transformation has significantly altered the way customers interact with restaurants and the way food service restaurants operate (Daradkeh et al., 2023). However, the studies on service digitalization in the restaurant context are limited (S. Park et al., 2021). There are also very few studies on the adoption and use of service digitalization in the context of fine-dining restaurants. Since the use of information technology (i.e., self-service technology) has been the popular trend in fast-food chains and online food delivery systems, previous studies on service digitalization in Malaysia have concentrated on quick-service or online food delivery, leaving a research gap on fine-dining restaurants (Mat Nayan & Hassan, 2020; Mui et al., 2021).

Statement of Problems

In the Internet era, digital transformation has significantly influenced various industry sectors, including the hospitality industry which is a subset of the larger tourist economy that includes the restaurant industry (Alt, 2021). Digitally transformed services in the restaurant industry by utilizing advanced technologies such as

artificial intelligence (AI), Internet of Things (IoT), cloud computing, and big data analytics have significantly altered the way customers interact with restaurants and the way food service restaurants operate (Cavusoglu, 2019; Chin et al., 2023; Daradkeh et al., 2023).

However, there are still some knowledge gaps in the existing review research on service digitalization in the restaurant context, despite the literature on digital transformation is increasing (Alt, 2021). Moreover, the fine-dining restaurant as Malaysia's largest profit sector channel in 2022 has shown the popularity of traditional fine-dining experiences among Malaysian consumers (GlobalData UK Ltd., 2023). Nevertheless, research in the field is limited, despite its popularity. There are very few studies on the adoption and use of service digitalization specifically in the context of fine-dining restaurants (S. Park et al., 2021).

Since the use of information technology (i.e., self-service technology) has been the popular trend in fast-food chains and online food delivery systems, previous studies on service digitalization in Malaysia have concentrated on quick-service or online food delivery, leaving a research gap on fine-dining restaurants (Mat Nayan & Hassan, 2020; Mui et al., 2021). Furthermore, the prior research has mainly concentrated on the perspectives of customers, giving limited attention to the standpoint of restaurateurs. As a result, this current study needs more understanding regarding the impact of advanced technology from the perspective of restaurant owners or managers (Zemke et al., 2020). This study fills the literature gaps by specifically aiming to examine the perceived benefits and perceived costs of service digitalization among fine dining restaurants in Bukit Jalil and Bukit Bintang, Kuala Lumpur.

In addition, a previous study is focused on fine-dining restaurants in French, which the findings may differ in other countries (Vo-Thanh et al., 2022). Hence, this study will be carried out in Bukit Jalil and Bukit Bintang, Kuala Lumpur to provide more insights into the perceived benefits and perceived costs of service digitalization in the context of fine-dining restaurants.

Research Objectives

Based on the background of the study, this research will explore the perceived benefits and perceived costs of service digitalization among fine-dining restaurants in Bukit Jalil and Bukit Bintang, Kuala Lumpur. The perceived benefits and perceived costs are helpful for the fine-dining restaurants in assessing the benefits and drawbacks in a data-driven manner, allowing them to make better-informed decisions and able to allocate resources effectively (Beaver, 2023). Moreover, this research also aims to investigate the type of service digitalization that should be prioritized among the fine-dining restaurants. This study will focus on fine-dining restaurants in Bukit Jalil and Bukit Bintang, Kuala Lumpur because Kuala Lumpur as the capital of Malaysia is the largest metropolitan area in Malaysia with 15.9% of contribution to Malaysia's economic growth in 2022 (DOSM, 2023). As a contribution, this study will provide fine dining restauranteurs with valuable insights into the financial implications of adopting digital technologies while assessing the potential returns and long-term benefits to fine-dining restaurants.

In short, the purpose of this research is to bridge the gaps by investigating the perceived benefits and perceived costs of service digitalization in fine-dining restaurants and identify type of service digitalization that should be prioritized using qualitative research methods as stated below:

1. To explore the perceived benefits in extrinsic and intrinsic motivations towards service digitalization among fine-dining restaurants.
2. To explore the perceived costs in monetary and nonmonetary contexts towards service digitalization among fine-dining restaurants.
3. To investigate the type of service digitalization that should be prioritized among fine-dining restaurants.

LITERATUE REVIEWS

Fine Dining Restaurants

Fine-dining restaurants are full-service restaurants that offer full dining experience in an upscale atmosphere,

where customers pay a premium for high-end food, as well as complete table service by highly trained service staff (Hafiz Abd Rashid et al., 2019; Westcott & Anderson, 2021). In the past, fine dining restaurants were often associated with the long heritage of classic French dining, which emphasized French cuisine and service (Rush, 2006). This is due to the fact that the origins of fine dining can be traced back to France at the end of the 18th century when the French Revolution forced many chefs out of their jobs in aristocratic families and onto the job market where they started founding their own restaurants (Cheramie et al., 2023). These chefs concentrated on creating private meals with a la carte menus for those who could afford them, while also adding elements of the upper class to their restaurants.

The traditional sense of fine dining atmosphere is formal, expensive, and associated with high-quality cuisine and service, including the need for both restaurant employees and patrons to practice proper dining etiquette and service procedures. However, during the last decades, the notion of fine dining restaurants has been replaced by a modern concept and the trend is towards "great dining that is approachable" since modern diners do not feel at ease in the stuffy and formal atmosphere of traditional fine dining (Perry, 2007; Wilden, 2007 as cited in King & Harr, 2008). The fine-dining restaurants have shifted to a focus on international cuisine, and trendy decorations, while the patrons are dining in a more casual atmosphere, indicating a change in consumers' needs (Harrington et al., 2011; Hsu et al., 2018; Oukil et al., 2012).

Besides that, fine dining restaurants are often thought to be different from normal restaurants in numerous aspects. These aspects can be made up of a distinct combination of tangible and intangible characteristics (Gharpure et al., 2021; Harrington et al., 2011). For instance, the highest level of prices among restaurants with remarkable standards of food and service, the most elegant ambiance, and the best operational procedures or management. The requirement for advance reservations further adds an exclusive uniqueness to fine dining restaurants. Additionally, well-known industry experts pointed out that fine dining restaurants have an ambiance, delicate tableware, and attentive service that makes the dinner a special occasion, such as a wedding or birthday (Harden, 2007; Walker, 2011). Basically, fine-dining restaurants create a truly unforgettable and distinguished culinary journey by combining the symbolic and experiential elements of the restaurant environment (Atwal et al., 2019; Chen et al., 2020; Forlani et al., 2022).

According to Hsu et al. (2018), the primary factors influencing consumers' choices when selecting fine-dining restaurants were found to be food quality, service, dining motivation, food safety, and dining innovation. Food is a basic physiological requirement for all human beings and a high level of food quality characteristics is the principal factor that affects consumers' restaurant selection (Chun & Nyam-Ochir, 2020; Zhong & Moon, 2020). The study by Oh & Kim (2020) suggested that enhancing food quality should begin with thoughtful menu planning incorporating a wide range of the finest ingredients and recipes to capture customers' interest and foster greater consumer intent to dine in the restaurants. Besides that, regarding service quality, scholars Amelia & Garg (2016) indicated that the humanic clues provided by service providers, including their body language, tone of voice, choice of words used, and other aspects related to their performance also can significantly influence customers' choices.

Apart from that, a study by Gharpure et al. (2021) provides an overview of customer perceptions towards the major attributes in fine dining restaurants including food quality attributes, service quality attributes, and ambiance attributes. This study also discusses how these attributes impact customers' satisfaction and post-dining behavioral intentions in fine dining restaurants. The study found that the service quality attributes play the most vital role in achieving high customer satisfaction and subsequently influence their post-dining behavioral intentions.

Similar results were also found in a study by Tsaur & Lo (2020) where the authors analyzed that good service from employees stands out as a primary factor in creating a memorable dining experience at a restaurant. Followed by an exceptional physical ambiance and a perception of good value that served as significant indicators of customer satisfaction. These findings showed that customers are always having high expectations from service, particularly in restaurant settings. This is because the customers anticipate receiving better quality services to be satisfied and increase their next visit intentions (Shahzadi et al., 2018). The results of the study also emphasize the significance of service timeliness as a key service quality attribute that contributes to customer satisfaction. The better-quality services delivered in fine-dining restaurants can build their customers'

positive post-dining behaviors, which generate positive word-of-mouth and help fine-dining restaurants maintain their good reputation and attract more customers (Lim et al., 2022). Therefore, fine dining restauranteurs are suggested to emphasize customer-oriented strategies as the customers are perceived as a restaurant's genuine asset in order to maximize profits and develop a favorable image of the restaurants.

Overview of Service Digitalization

Service digitalization refers to a process of transforming the interpersonal of traditional service into a digital experience that creates an automated and paperless environment (Fortin, 2022; UNCTAD, 2021). This transformation involves the integration of information and communication technologies (ICT) to enhance the service systems by enabling value co-creation between service providers and customers as an opportunity that helps organizations improve business activities (Bohmann et al., 2020).

According to scholars, digital technologies have played a vital role in implementing service digitalization strategies (Pascucci et al., 2023; Soto Setzke et al., 2021). They stated that the widespread adoption of the Internet as a global communication and information-sharing platform has enabled real-time global connectivity, e-commerce, and the exchange of vast amounts of information (Alter, 2020; Reis et al., 2020; Vieira et al., 2023). Every individual, established industry, market, and business can gain access to a wide range of online services through email, social media, e-commerce platforms, and search engines.

Besides that, the ongoing digital revolution involves integrating and converging Social, Mobile, Analytics, and Cloud (SMAC) technologies also creating a more holistic and interconnected system and service (Atos, 2022). It aims to provide personalized and data-driven experiences that will undoubtedly change the way digital services are delivered and consumed. Consequently, that leads to the emergence of service digitalization appears as a set of trends or specific changes that are moving toward the delivery of services using digital technologies (Alter, 2020).

Service Digitalization in Restaurants

In the rapidly evolving landscape of the modern economy, many service sectors are improving their service digitalization strategies by searching for advanced technological methods to serve their customers better and improve their internal management processes (Fossen & Sorgner, 2021; Moker et al., 2020; Niemand et al., 2021). The food service businesses that have always emphasized the value of the human touch and interactions have led to a major transformation through service digitalization (Ozdemir et al., 2023). These digitalized capabilities have replaced numerous manual tasks performed by the intensive human labour force (Law et al., 2020; S. Park et al., 2021).

A study by Deksne et al. (2021) provides an overview of the latest developments in an automated restaurant service system based on the digital ordering system and the automatic data transfer to the kitchen application. The technologies for the restaurant service process automation include Internet of Things (IoT) devices, wireless local area network (WLAN), radio frequency identification (RFID), and quick response (QR) codes. Additionally, the scholars evaluate the benefits and challenges of using the automated restaurant service system, while discussing how the potential advantages of the systems could improve the restaurant operations.

The results of the study found that employing an automated order serving system in a moderately busy restaurant could lead to a 52.76% reduction in total waiting time, while in a less crowded restaurant, the reduction could still be substantial at 40.16%. From the standpoint of a restaurant, it can significantly boost productivity and increase the table turnover rate by serving more customers, meanwhile minimizing human error, reducing the workforce of waiters, and thus reducing costs (K. R. Alam et al., 2021). However, the scholars clarify that the time it takes for a customer to place an order in the digital systems can vary widely and highly depends on individual customers. Hence, the scholars suggest that each restaurant should consider the typical customer profile and their digital proficiency levels when implementing such a system.

Besides that, several studies into service digitalization have been conducted based on the acceptance and adoption of service robots and self-service technology in restaurant establishments. It has been presented that trust, particularly in situations of uncertainty, may be a crucial antecedent element for technology acceptance

(B.U. et al., 2021; Dhagarra et al., 2020; Kelly & Palaniappan, 2023). According to Seo & Lee (2021), trust plays a significant role in enhancing both the perceived usefulness and perceived ease of use of a service robot in a restaurant context. Moreover, an increase in trust toward robot service reduces the perceived risk and enhances overall satisfaction by reducing consumers' concerns about potential technological malfunctions.

Since the outbreak of covid-19 pandemic, companies across a wide range of industries, including the food service industry have accelerated the adoption of digital technologies to cope with the challenges posed by the crisis. With the lockdowns and other preventive standard operating procedures (SOP), many of these businesses are facing intense pressure to make their services and products available through digital channels and have been pushed to adopt new internal working procedures (Chin et al., 2023; Harba et al., 2021; Nakat & Bou-Mitri, 2021). The restaurants have made major investments in digital technologies, such as PoS devices, online ordering systems, and e-commerce platforms in order to sustain their business. In addition, they have developed new pickup and delivery methods and implemented low-contact customer interactions to enhance the minimization of virus transmission (Alt, 2021). As a result, the digitalization of service is constantly developing as an important business model that enables businesses to survive in a highly competitive business environment, gain competitive advantages, and deliver added value to their customers (Prasad et al., 2022).

Overall, multiple research studies have demonstrated the impact of adopting a modern service approach over traditional ones. They indicate how concentrating on delivering high-quality and personalized service, as well as enhancing staff quality and refining their service skills by service digitalization, can give the restaurant a distinct competitive advantage over others in the industry (Gharpure et al., 2021). Fine dining restaurants always place a significant emphasis on intimate interpersonal interactions between customers and front-line employees. The presence of customers within the restaurant or service environment has a significant impact on the design of services provided, particularly the interaction between customers, employees, and the environment (Line, 2021). In order to gain a competitive advantage and establish a restaurant's reputation, it is imperative that customer service exceeds customers' expectations. Therefore, studies indicate that fine dining restaurants should strike a balance between embracing digital technology and preserving the personalized, attentive service that sets them apart in the hospitality industry (Amelia & Garg, 2016b).

In summary, digital technologies can ease and speed up providing sophisticated and cutting-edge services (Shen et al., 2021). Within the restaurant industry, there is a growing interest among restauranteurs in utilizing digital tools to enhance both the dining experience for customers and the operational efficiency of the restaurant (Klouvidaki et al., 2023). The adoption of digital services has the potential to significantly enhance the overall restaurant experience for customers and contribute to the development of an innovative and distinctive brand image for restaurant owners, thereby aiding them in gaining a competitive edge to a certain degree (Daradkeh et al., 2023; Vo-Thanh et al., 2022).

Service digitalization implies a unique transformation toward the delivery of services in a more automated manner through the integration of digital technologies. In the modern dining landscape, the adoption of customer service digitalization in the restaurant business has grown rapidly worldwide (Deksne et al., 2021). Studies by Vo-Thanh et al. (2022) and EHL Insights (2023) have pointed out the key services deemed essential for digitalization, as viewed through the perspective of both customers restauranteurs. These services include online reservation systems, restaurant mobile applications, digital menus, integrated restaurant ordering system, and contactless digital payment. While these various forms of service digitalization share a common goal of enhancing efficiency, speeding up processes, and saving resources, they exhibit different capabilities depending on the chosen business model and the specific purposes to be achieved (Lindgren et al., 2019; Saarikko et al., 2020).

In this study, the perceived benefits and perceived costs of service digitalization among the owners or managers of fine-dining restaurants in Bukit Jalil and Bukit Bintang, Kuala Lumpur will be examined. Meanwhile, the types of service digitalization that should be prioritized among fine-dining restaurants in Bukit Jalil and Bukit Bintang, Kuala Lumpur will also be investigated.

Cost-Benefits Perspective

Prospective adopters of digitalized services often weigh costs and benefits when determining values and the

degree of service digitalization. They act not only as technology adopters but also as real consumers (Y. Li & Shang, 2020; Y. Wang et al., 2019). Sjödin et al. (2020) indicated that a value maximization-centered paradigm is frequently used when evaluating consumer behavior. A prospect theory was first introduced by Tversky and Kahneman in 1979 to better understand how people make decisions (Tversky & Kahneman, 1992). According to this theory, investors evaluate gains and losses differently, giving perceived gains a higher priority than perceived losses. While people will choose the course of action that will produce the greatest gains and rewards. The cost-benefit perspective is embodied in the concept of value, which can be described as the trade-off between the benefits received and the associated costs. The perceived benefits and perceived costs that reflect in the cost-benefit perspective are helpful for businesses in assessing the benefits and drawbacks in a data-driven manner, allowing them to make better-informed decisions and able to allocate resources effectively (Beaver, 2023).

Perceived Benefits Perspective

Perceived benefits are referred to as an individual's perception of positive outcomes resulting from a specific behavior or decision (Champion, 2020; Leung, 2013). The study stated that these subjective assessments are influenced by a combination of personal beliefs, expectations, preferences, and personal values (Gamage et al., 2021). In the context of technology acceptance, the term "perceived benefit" is commonly employed to describe the motivations behind an individual for engaging in a behavior and adopting an intervention (Abdekhoda et al., 2019). Previous studies have identified two main types of motivation that are associated with the perceived benefits, which are extrinsic motivation and intrinsic motivation (Ryan & Deci, 2020; Zaman et al., 2021).

According to Bergström & García Martínezn (2016) and Legault (2020), extrinsic motivation is a type of motivation in which individuals engage in a particular activity or behaviour primarily because of external valued outcomes such as rewards and benefits of performing a certain task (e.g., improving job performance and productivity). On the other hand, intrinsic motivation refers to the inherent or internal desire and drive that individuals experience when engaging in an activity or behavior for the sheer enjoyment, satisfaction, or interest it brings rather than for external rewards or incentives. This kind of motivation usually arises from an individual's personal interest in the task itself, the sense of competence it provides, the curiosity it sparks, or the pleasure derived from the activity, making the activity its own reward. In short, extrinsic motivation and intrinsic motivation can influence perceived benefits because they shape an individual's perspective and assessment of the advantages or rewards associated with a particular behavior or action.

Recent studies have emphasized the benefits of service digitalization and its applicability in a service setting. As per the research findings, the adoption of service digitalization has opened significant growth opportunities for businesses by improving their value proposition and enhancing their technological capabilities (Kolagar et al., 2022). Extrinsic motivation was the predominant factor propelling the adoption of technology within organizations, with the goal of improving underlying task performance (Tamilmani et al., 2019). Incorporating digital technologies into service digitalization empowers restaurant businesses in operations management, enabling them to facilitate service delivery and potentially improve customer satisfaction, meet customer needs, enhance operational efficiency, and acquire competitive advantages (Momeni et al., 2023; Reinartz et al., 2019; Sklyar, 2021). Moreover, according to scholars, the artificial intelligence (AI) devices used in service digitalization such as chatbots and robotic process automation, can provide businesses with a competitive advantage since they are perceived as valuable resources that are difficult for competitors to replicate (Mariani et al., 2022). They end up being an exploitable resource that only the business that adopts digitalized service can benefit from the advantages.

Apart from that, previous studies have highlighted intrinsic motivation as the key predictor of service digitalization adoption and performance expectations in service-oriented industries (Bastari et al., 2020; Gursoy et al., 2019). Research revealed that employees tend to be more actively involved and committed in a digitalized work environment in contrast to a traditional manual working environment. This is because they perceived digitalized services as enjoyable to interact with and more likely to be productive, satisfied, and motivated in their roles (Goswami & Upadhyay, 2019; Sulistianingtiyas & Djastuti, 2022). Meanwhile, studies indicated that the use of digitalized services in the restaurants' service environment increases the customers' enjoyment and satisfaction as they receive an exceptional experience from both positive employees and the dining environment (Choi et al., 2020). For instance, a study by Borghi et al. (2023) found that customers who specifically mention

their interactions with service technologies in online reviews tend to be more likely to provide a favourable rating, which in turn affects a restaurant's reputation and competitiveness. Overall, since individuals' perception of a product or service encompasses both cognitive and emotional aspects, extrinsic motivations and intrinsic motivations are proposed as the constituent elements of perceived benefits for the adoption of service digitalization. (K. Lu & Wang, 2020; Vo-Thanh et al., 2022).

Perceived Costs Perspective

Perceived costs were frequently assessed alongside perceived benefits to determine the worth of a specific course of action, decision, or behavior. It refers to the individual's subjective assessment of the costs, sacrifices, or negative consequences associated with the specific behavior (Yasmin & Grundmann, 2019). While other scholars stated perceived cost as something that is given up by individuals for the benefits received or to obtain a product or service (Zuo & Yang, 2012). Generally, the perceived costs attached to the adoption of technology were found to have a negative impact on overall satisfaction, acceptance, and intention to use (Abrahão et al., 2016; E. Park, 2019).

Previous studies showed that perceived costs can be classified into two broad categories, which are monetary costs and non-monetary costs (Broekhuizen & Jager, 2004; Zuo & Yang, 2012). Monetary costs (e.g., price) involve the financial implications associated with the financial investment or spending necessary to acquire a specific good, service, or asset (Hall, 2017). In the realm of economics and business, it represents the actual sum of money that an individual, business, or entity needs to spend in order to obtain something valuable (Bloise & Polemarchakis, 2006). On the other hand, nonmonetary costs refer to the intangible sacrifices incurred beyond financial investments. These costs encompass aspects such as time and effort, technological effort (physical and mental), and explicit costs (inconvenience, lifestyle change, low performance) (Jiang & Kim, 2015; Pieters, 1989).

According to scholars, there are several previous studies that have primarily evaluated perceived value in terms of quality and monetary costs, overlooking the multifaceted nature of how value is perceived (H. Y. Wang & Wang, 2010). Traditionally, consumers typically make their decisions on a comparison between the monetary costs incurred such as price, and the benefits received like product quality. If the benefit outweighs the monetary costs, this results in a 'consumer surplus', which often leads to a purchase intention. Nonetheless, this perspective, emphasizing a trade-off solely between quality and price, oversimplifies the concept of value (Bagozzi & Yi, 1988). In today's business landscape, visible costs may not be the sole or primary determinant for consumers when making their final choices. Other intangible nonmonetary costs like convenience, time, security, and effort are likely to be more pivotal in their decision-making process (Abigail, 2020). For instance, according to the studies conducted by H. Y. Wang & Wang (2010) and Xie et al. (2021), they were discovered that the nonmonetary costs, specifically the effort required to use technology, had a negative impact on how consumers perceived the value of digitalized service. If the service digitalization offers a complicated application system, it will decrease the technology adopters' perceived value, which in turn discourages their usage intention.

Building upon the context above, this study aims to explore the perceptions of restaurant owners or managers regarding the gain (referred to as perceived benefits) and sacrifice (referred to as perceived costs) associated with the adoption and utilization of service digitalization within their fine dining restaurants. The exploration will extend to encompass the intrinsic, extrinsic, monetary, and nonmonetary dimensions of the perceived value of service digitalization.

Types of Different Service Digitalization in Restaurants

Service digitalization implies a unique transformation toward the delivery of services in a more automated manner through the integration of digital technologies. In the modern dining landscape, the adoption of customer service digitalization in the restaurant business has grown rapidly worldwide (Deksne et al., 2021). Studies by Vo-Thanh et al. (2022) and EHL Insights (2023) have pointed out the key services deemed essential for digitalization, as viewed through the perspective of both customers restauranteurs. These services include online reservation systems, restaurant mobile applications, digital menus, integrated restaurant ordering system, and contactless digital payment. While these various forms of service digitalization share a common goal of

enhancing efficiency, speeding up processes, and saving resources, they exhibit different capabilities depending on the chosen business model and the specific purposes to be achieved (Lindgren et al., 2019; Saarikko et al., 2020).

Online Table Reservation Systems

An online table reservation system can be referred to as a software solution, designed to facilitate the process of managing restaurant reservations and optimizing table allocations. It allows table reservations to be made by customers through websites, smartphones, and other digital platforms (Devkatte, 2021). Basically, the use of an online table reservation system is driven by the need to focus on customer satisfaction and provide accelerated services (Naveen Kumar et al., 2020). Online table reservation systems have been widely used by restaurants in recent years, especially during the COVID-19 pandemic, where restaurants use them to help reduce contact between customers and staff as well as avoid waiting time (Bagaskara et al., 2021). Besides that, a study by Rayport & Bernad (2021) found that millions of businesses, including restaurants worldwide, have benefited from their online presence and websites, using online table reservation systems to boost revenue and stay competitive in the market. Generally, the study showed that the adoption of online table reservation systems in restaurants has simplified the reservation process for both restaurant staff and customers, while also ensuring efficient and error-free execution (Dhiman, 2021). However, it still poses drawbacks such as dependency on internet connectivity and server systems, as well as potential issues like cancellations and fraudulent bookings which will affect the physical and mental effort of the restaurant staff (Sanjaya et al., 2020).

Restaurant Mobile Applications

A restaurant mobile application is an application that is specialized designed for a specific restaurant concept or a chain of restaurants. They are available to be downloaded from the application store such as Apple App Store and Android Google Play, which can usually run on mobile devices such as smartphones, iPads, and tablets (Luhur & Widjaja, 2014). According to research, restaurant mobile applications are a combination of marketing strategy and technology that use the Internet as a platform for promoting and selling services and goods (Jeneefa, 2019). It allows customers to search for restaurant information, promotions, order food, share their feedback, and other features including social networking from the user-generated content (Ogosi Auqui et al., 2021). It also allows the restaurants to track orders and relevant information about their business, in order to improve customer service (A. Arora, 2021). As per a study by (Palau-Saumell et al., 2019), the user acceptance of restaurant mobile applications is influenced by factors such as perceived credibility, hedonic motivation, cost-saving, social influence, and expectations of ease.

Digital/ Electronic Menus

A digital menu, also known as an electronic menu, is a digitized version of a restaurant menu. Unlike traditional paper menus, digital menus are displayed on a screen and can be accessed through websites, quick response (QR) codes, and mobile applications. Typically, digital menus include pictures, detailed descriptions, and pricing information of the items available at the restaurant (Gunawardena & Sarathchandra, 2020). The functionality of digital menus varies depending on the execution of restaurants. Some restaurants restrict customers from browsing and making selections independently, which requires assistance from the serving staff to place orders. In contrast, some allow customers to customize and submit their orders without direct assistance from the serving staff. Generally, the adoption of digital menus in restaurants offers advantages such as ease of use, reduction of human error, time-saving, and flexibility (Ingle et al., 2022). It helps to bridge the communication gap between the service staff and customers, ensuring the accurate order is made and minimizing the likelihood of confusion with orders from other tables (Singhal & Konguvel, 2022). According to Sari et al. (2022), most restaurants use digital menus specifically due to the perceived usefulness obtained, including increased productivity and efficiency of the restaurant's operation.

Integrated Restaurant Ordering Systems

An integrated restaurant ordering system refers to a combination of distinct subsystems into one larger system, to streamline the process of accepting and managing orders in a restaurant (Mohd Zaini et al., 2023). It basically

includes a built-in point of sales (POS) system, order management system, and kitchen management system to handle food production and restaurant operations efficiently (Panneerselvam, 2022). Digital menus, often a part of this system, provide customers with a user-friendly digital device to browse available food items and customize their orders, as well as to view the menu's prices. Once customers submit their orders, the orders will then be transmitted to the kitchen wirelessly through Wi-Fi or Bluetooth (Jawarkar et al., 2022). The integration of these systems significantly improves the overall dining experience of customers, minimizing their waiting times, while for restaurants, it improves the kitchen's staff coordination which increases their efficiency and productivity. Additionally, the integration of restaurant ordering systems with POS systems helps ensure that orders, inventory, and sales data are synchronized, facilitating seamless management of the restaurant's operations. Overall, the adoption of an integrated restaurant ordering system in restaurants can enhance restaurant efficiency by saving time, reducing human errors, and providing high-quality customer service.

Digital/Electronic Payment

Digital payment, also known as electronic payment, refers to the process of making financial transactions electronically, using digital platforms and technology. Various digital payment methods have been introduced in recent years including mobile payment via applications, e-wallets, contactless cards, and QR code scanning. According to a survey on digital payments published by Statista Research Department, the number of users in digital payment in Malaysia has reached 15.6 million in 2021 and is anticipated to increase to 25.5 million by 2025. Studies found that trust, perceived usefulness, perceived ease of use, and perceived experience significantly influence the individual's attitude toward the adoption of digital payments (Beura et al., 2023; Najib & Fahma, 2020). These payment methods enable service providers to enhance their offerings, continually improving their service quality and increasing customer satisfaction. In contrast, another scholar found that the high perceived enjoyment will lead to higher decisions to use digital payment methods (Salam & Taufik, 2020). Overall, restaurants adopt digital payments due to their convenience, cost efficiency, standardization, and secure communications (Blagopolychna, 2021).

RESEARCH METHODOLOGY

The methodological approach adopted in this study was designed to ensure a thorough and reliable exploration of the research objectives. The combination of purposive sampling, semi-structured interviews, and thematic analysis provided robust insights into the cost-benefit perspectives of service digitalization in fine dining restaurants. This methodology serves as a foundation for understanding the complexities of digital transformation in the food service industry.

Research Design

This study adopted a qualitative research design to provide a comprehensive understanding of the perceived benefits and costs of service digitalization in fine dining restaurants. Qualitative research is particularly effective in capturing the complexities of human experiences and social phenomena, making it suitable for exploring nuanced perspectives in the context of service digitalization. Through this approach, the study sought to investigate the motivations, challenges, and strategies associated with the adoption of digital technologies from the perspective of restaurant owners and managers.

Study Context and Scope

The study was conducted in Bukit Jalil and Bukit Bintang, Kuala Lumpur, areas renowned for their vibrant fine-dining scene. These locations were selected due to their concentration of upscale restaurants and their significant contribution to the food service industry in Malaysia. The study focused on eight fine-dining establishments, ensuring a diverse representation of viewpoints from various restaurateurs actively involved in digital transformation initiatives.

SAMPLING METHODOLOGY

A purposive sampling technique was employed to select participants who possessed the requisite knowledge and

experience in managing digital transformation within fine dining establishments. The sample comprised eight restaurant owners or managers who had firsthand experience with service digitalization processes. This approach ensured the collection of rich, detailed insights aligned with the study's objectives.

Data Collection

Primary data was collected through in-depth, semi-structured interviews. A formal invitation was sent to potential participants, followed by the scheduling of interviews at their convenience. The semi-structured format allowed for a guided exploration of predefined themes while providing flexibility to delve deeper into emerging topics during the conversations. Interviews were conducted in person at the respective restaurants, enabling the researcher to observe the digital tools in action and contextualize the responses.

Data Analysis

Thematic analysis was employed to analyse the qualitative data. This method involved a systematic process of coding the interview transcripts to identify recurring patterns and themes. The analysis followed a six-step iterative process:

1. Familiarization with the data through repeated reading of the transcripts.
2. Generation of initial codes by highlighting meaningful data segments.
3. Collation of codes into potential themes.
4. Review and refinement of themes to ensure coherence and relevance.
5. Definition and naming of themes to encapsulate their essence.
6. Report writing to present the findings with illustrative examples.

RESULTS AND DISCUSSION

This section presents the findings based on thematic analysis, categorized into three main areas: (1) perceived benefits of service digitalization among fine-dining restaurants, (2) perceived costs associated with service digitalization, and (3) the types of digitalization services that should be prioritized in fine-dining restaurants.

Perceived Benefits of Service Digitalization

The adoption of digital technologies in fine-dining restaurants has significantly transformed business operations by enhancing efficiency, customer service, and overall management. This section highlights the perceived benefits of service digitalization from both **extrinsic and intrinsic motivations**. Extrinsic motivation includes **usefulness, ease of use, and operational efficiency**, while the intrinsic motivation focuses on **enjoyment**. The comprehensive results for the perceived benefits of service digitalization are shown in Table 1.

Benefit Category	Themes	Illustrative Quotations
Usefulness	Reservation management, Inventory control, Customer engagement, Brand awareness	"The customer can search for our restaurant online... we can join campaigns to enhance our reputation and visibility."
Ease of Use	User-friendly, Convenience, Automation	"Once customers submit the reservation, TableApps sends us an email notification, reducing manual work."
Operational Efficiency	Labor cost reduction, streamlined workflow, Resource optimization	"With digital services, I no longer need to hire extra staff for reservations."
Enjoyment	Innovative image, pleasant technology experience	"I enjoy digitalization because it simplifies tasks and reduces stress."

Table 1: Perceived Benefits of Service Digitalization

Usefulness of Service Digitalization

One of the primary benefits of service digitalization in fine-dining restaurants is its usefulness in enhancing operational functions and customer service. Informants highlighted that digitalization facilitates reservation management, optimizes inventory control, and streamlines service operations. The adoption of digital platforms such as TableApp allows fine-dining restaurants to maintain an online presence, thereby increasing brand awareness and attracting more customers.

For instance, an informant stated,

> *"The customer can search for our restaurant online. We just type Table Now, and we can join the campaign to enhance the reputation and popularity of our restaurant. So, if customers can directly search for the best fine dining, we will be at the top, offering more opportunities".*

This aligns with previous research, which emphasizes that digitalization in the restaurant industry improves work performance and customer engagement (MUFARIH et al., 2020). Digital platforms assist in customer relationship management by allowing restaurants to track customer preferences and maintain personalized interactions, ultimately increasing customer retention.

Ease of Use in Digitalized Services

Another crucial benefit of digitalized services is their ease of use, which is essential for both restaurant staff and customers. Informants pointed out that using reservation platforms simplifies the booking process for customers, making it more convenient. One informant described:

> *"Once we adopt service digitalization like TableApps, it is easy for customers to make an online table reservation and pay for a deposit of RM 25.00 per pax".*

The convenience extends to restaurant operations, where digital systems facilitate the automatic recording and retrieval of customer information. This minimizes manual effort and reduces errors, enhancing the restaurant's efficiency. For instance:

> *"We just need to click on any option of the information that we want to know about the customers, and directly all the data appears in the system".*

According to Davis et al. (1989) and Venkatesh (1999), ease of use significantly influences the adoption of technology, as users prefer systems that require minimal effort. Additionally, automation in digitalized systems ensures seamless communication between different restaurant sections. Informants highlighted how automated order processing and reservation notifications reduce workload and allow staff to focus on customer service:

> *"Once customers submit the reservation, the TableApps system sends us a notice via email, reducing manual tasks".*

Operational Efficiency Through Digitalization

Service digitalization significantly enhances operational efficiency by reducing labour costs and optimizing resource utilization. Informants expressed that adopting digital services eliminates the need for manual reservation handling, thereby reducing staff workload. One informant shared:

> *"If I need to manage reservations manually, I have to hire at least one cashier, a receptionist, and a captain to arrange table settings based on reservations. With digital services, this need is eliminated".*

Additionally, automated inventory tracking helps prevent overstocking or understocking, ensuring smooth kitchen operations. Informants highlighted how digitalized systems contribute to waste reduction and cost

savings:

> *"By having customers select timeslots and menus during their reservation, we can align our inventory with anticipated demand and streamline our workflow".*

This corroborates prior studies indicating that digitalized management tools enhance operational control and decision-making (Takenaka, 2020; Tyagi & Bolia, 2022).

Enjoyment as an Intrinsic Motivation

Beyond functional advantages, digitalization also brings intrinsic benefits such as enjoyment, particularly for restaurant owners and managers. The adoption of modern digital tools contributes to the restaurant's innovative image, fostering a sense of pride and satisfaction. Informants emphasized that using digital services makes them feel up-to-date with industry trends:

> *"We use it because the whole world is moving towards digital. If we still use manual processes, it feels outdated".*

Furthermore, digital services enhance the user experience by making processes simpler and more enjoyable. One informant expressed:

> *"I enjoy digitalization because the online reservation system and POS system make every task smooth and efficient".*

This aligns with previous studies that suggest intrinsic motivation plays a vital role in technology adoption, as users feel more engaged when systems align with their values and goals (Fishbach & Woolley, 2022; Rheinberg, 2020)

Perceived Costs of Service Digitalization

The implementation of service digitalization in fine-dining restaurants presents both opportunities and challenges. While digitalization enhances efficiency and customer experience, restaurant owners must also weigh the perceived costs associated with its adoption. The perceived costs of service digitalization can be classified into monetary and non-monetary costs. This section discusses the financial burden of investment, maintenance, and service charges, as well as technical risks, dependence, social disconnection, and adaptability challenges that fine-dining restaurateurs experience. In a nutshell, the perceived costs of service digitalization from this study are shown in Table 2 below:

Theme	Code	Illustrative Quotation
Price	Investment Costs	"The cost was quite expensive, including the POS system, around RM 60,000."
	Maintenance Costs	"Unanticipated costs related to upkeep, as some devices become outdated."
	Service Charges	"Even if we don't use technical support, we still need to pay the service fee."
Technical Risk	Unstable Circumstances	"Power outages and system crashes disrupt restaurant operations."
	Technological Dependence	"If the internet fails, the entire system stops working."

Social Disconnection	Loss of Human Touch	"Customers feel that service is impersonal due to automated interactions."
	Employee-Customer Interaction Decline	"Digital menus reduce conversations between staff and customers."
Adaptability	Resistance to Change	"Some senior staff struggle with using new digital tools."
	Training & Learning Curve	"It takes time for employees to adapt to digitalized systems."

Table 2: Perceived Costs of Service Digitalization

Price

One of the main concerns of restaurant owners in adopting digitalization is the financial investment required. The perceived price-related costs include initial investment, maintenance, and service charges. Many restaurant owners acknowledge the substantial initial costs of implementing digital technologies, such as Point-of-Sale (POS) systems, online reservation platforms, and digital ordering tools. One informant noted:

> *"...because previously when we adopted this service digitalization, the cost was quite expensive, including the POS system, we needed to invest around RM 60,000."*

This finding aligns with previous studies indicating that the upfront investment in digital technologies can be a significant financial strain on small and medium-sized enterprises (SMEs) in the restaurant industry (Suciu et al., 2020). Beyond initial investments, restaurants also face recurring costs associated with maintaining digital systems. As technology evolves, software updates, hardware replacements, and unexpected repairs add to the financial burden. One restaurant manager explained:

> *"...unanticipated costs related to the upkeep of service digitalization. Because some of the devices might be old and depreciated already."*

This observation is supported by Cho et al. (2021), who highlighted that technology maintenance is an ongoing challenge, especially for businesses with limited budgets. Another monetary cost is the service fees for digital technology providers. Restaurants often rely on external vendors for software solutions and technical support. One participant shared:

> *"...we need to call out the service centre of the POS system, even though that month we didn't use or call out regarding any problems, we still need to pay."*

Similar findings have been noted by Gu et al. (2023), who argue that service providers often impose mandatory subscription fees, increasing the overall cost burden for restaurants.

Technical Risk

Technical issues such as software malfunctions, internet disruptions, and system failures pose a significant risk for digitalized fine-dining restaurants. These problems can lead to operational inefficiencies and customer dissatisfaction. System crashes and power outages can disrupt restaurant operations, causing frustration for both staff and customers. One participant recounted:

> *"...Suddenly the POS system crashes, all the data is gone. We have to go to every table and write down the order again manually."*

Technical instability is a critical issue in digitalized services, as highlighted by Atasoy & Eren (2023), who found that unexpected system failures can negatively impact customer trust in a business. Many fine-dining restaurant owners also express concerns about the growing dependence on digital systems. They worry that if technology fails, their business operations will be significantly disrupted. One owner explained:

> "...One day the internet or Wi-Fi corrupted, and the system totally cannot function, and then for some of the IP addresses, it was like jumping digits already."

Research by Lievens et al. (2019) also supports this, noting that over-reliance on technology may expose businesses to operational vulnerabilities in the event of technical failures.

Social Disconnection

While digitalization enhances efficiency, it can also diminish human interaction, which is a critical aspect of fine-dining experiences. Fine-dining restaurants emphasize personalized customer service, and automation may reduce the warmth of human engagement. Some restaurant owners worry that digital interactions, such as self-ordering kiosks and chatbots, may reduce customer satisfaction. One manager commented:

> "...With digitalization, we don't need to answer as many calls or personally take orders, but customers sometimes feel that the service is too impersonal."

Prior research has shown that customers value personalized service, and excessive reliance on technology can weaken customer relationships (Gursoy et al., 2019). Fine-dining restaurants rely on high-touch service, where waitstaff play a crucial role in creating memorable experiences. Some managers believe digitalization may reduce the interaction between staff and guests. A respondent noted:

> "...We used to have more conversations with customers about their preferences. Now, they place orders through digital menus, and we barely talk to them."

Studies have found that while digitalization improves efficiency, it may compromise customer loyalty by reducing the emotional connection between guests and staff (Gu et al., 2023).

Adaptability

Adopting service digitalization requires businesses to adjust their operational strategies. Some restaurant owners struggle with adapting to new technologies and training employees to use digital tools effectively. Restaurant managers reported that employees, especially senior staff, often resist using digital systems because they are unfamiliar with them. One respondent stated:

> "...We have staff who have been working here for years. They are not comfortable with using new digital tools."

Prior research suggests that resistance to change is a common barrier to digital adoption in traditional service industries (Henry & Lamb, 2020). Training employees to effectively use digital systems requires time and effort. Some restaurants struggle with staff who are not tech-savvy, leading to inefficiencies. Research by Mendez et al. (2020) has shown that proper training is essential for overcoming resistance and ensuring a smooth digital transition.

One participant explained:

> "...The first few months after implementing digital services were tough because our staff needed time to get used to the system."

In conclusion, the study findings on both the perceived benefits and cost benefits of service digitalization among fine-dining restaurants can be summarized as in the diagram shown in Figure 1.
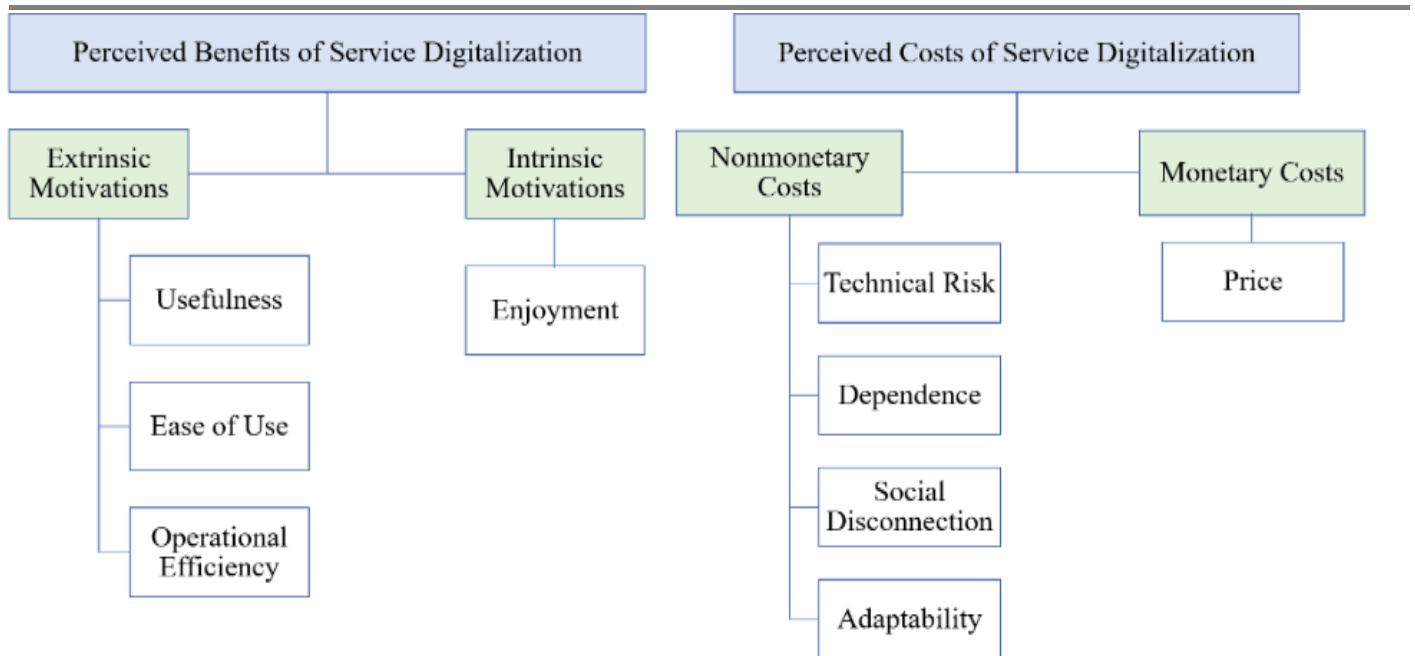
Figure 1: Summary of Findings for Perceived Benefits & Perceived Cost of Service Digitalization

Prioritized Types of Service Digitalization

The increasing role of digital technologies in the fine dining sector has transformed traditional service models by integrating technological innovations that enhance operational efficiency and customer satisfaction. This section explores the key types of service digitalization that fine-dining restaurants should prioritize based on qualitative insights from fine-dining restaurateurs in Bukit Jalil and Bukit Bintang, Kuala Lumpur. Three priority digitalization solutions have emerged: **Point of Sale (POS) systems**, **Online Table Reservation Systems**, and **Chatbots**.

Priority Service Digitalization 1: Point of Sale (POS) Systems

A **Point of Sale (POS) system** is identified as the most crucial digital tool for fine-dining restaurants. Restaurateurs emphasized that the POS system serves as the central hub for restaurant operations, integrating order management, inventory tracking, payment processing, and customer relationship management. Several informants indicated that **POS systems reduce manual errors, streamline transaction processes, and enhance kitchen communication**.

A participant described the significance of the POS system as follows:

"...I think the POS system should be prioritized because this system controls all the data from the front of the house to the kitchen. It ensures that everything runs smoothly."

Another informant stated:

"...For sure, the POS system acts as our organs and hearts—it controls all the things. Without it, operations can easily become disorganized."

These statements align with prior research, which highlights the POS system as a **cornerstone of restaurant efficiency** (Panneerselvam, 2022). Mendoza (2019) further suggests that POS systems provide **real-time insights** into financial transactions and inventory levels, enabling strategic decision-making. Given their critical role in operational management, POS systems should be a top priority for fine-dining restaurants.

Priority Service Digitalization 2: Online Table Reservation Systems

The second digitalization priority is **Online Table Reservation Systems**, which play a significant role in

optimizing restaurant operations and improving customer experiences. Informants emphasized that reservation systems allow restaurants to **manage seating arrangements efficiently, reduce wait times, and personalize guest experiences**.

One informant noted:

"...Prioritizing digitalization in reservations should be our restaurant's focus because it directly impacts the first impression and overall dining experience."

Another participant highlighted:

"...For me, I think online reservations need to be prioritized in my fine dining restaurant. It provides ease for both customers and staff."

Prior research suggests that **online table reservations reduce administrative burdens and increase operational efficiency** (Rayport & Bernad, 2021). Additionally, they enhance customer engagement by offering real-time booking confirmations and personalized recommendations (Gupta et al., 2019). Data-driven insights from these systems help restaurateurs predict peak dining periods and manage resources efficiently (Baron et al., 2020). Consequently, fine-dining restaurants should integrate robust online reservation systems to improve customer service and maximize revenue potential.

Priority Service Digitalization 3: Chatbots for Customer Engagement

The third priority for service digitalization is the use of **chatbots**, which have gained traction as a valuable tool for enhancing customer interactions. Chatbots, powered by artificial intelligence (AI), provide instant responses to customer inquiries, reducing wait times and improving service efficiency.

One informant described the benefits of chatbot implementation:

"...For pre-arrival period inquiries, such as menu questions or specific requirements, a chatbot can answer instantly. I think customers will rely on that instead of receiving no response."

This aligns with previous research emphasizing that **AI-driven chatbots streamline customer interactions, automate repetitive tasks, and enhance the overall dining experience** (Behera et al., 2021). Chatbots can handle **frequently asked questions, reservation confirmations, and personalized recommendations**, ensuring a seamless customer journey (Peng & Ma, 2019; Perez-Soler et al., 2021). By reducing staff workload and increasing response efficiency, chatbots contribute to **enhanced customer satisfaction and operational effectiveness**.

Priority	Service Digitalization Type	Key Benefits	Supporting Literature
1st Priority	**Point of Sale (POS) System**	Improves order accuracy, streamlines payment processing, enhances inventory management	Panneerselvam (2022), Mendoza (2019)
2nd Priority	**Online Table Reservation**	Reduces wait times, optimizes seating arrangements, improves customer experience	Rayport & Bernad (2021), Gupta et al. (2019), Baron et al. (2020)
3rd Priority	**Chatbots**	Provides instant customer support, reduces staff workload, enhances engagement	Behera et al. (2021), Peng & Ma (2019), Perez-Soler et al. (2021)

Table 3: Summary of Priority Service Digitalization in Fine-Dining Restaurants

CONCLUSION AND IMPLICATIONS

Conclusion

The findings of this study highlight the dual perspectives of fine dining restaurant owners and managers regarding service digitalization, encompassing both its perceived benefits and costs. On one hand, digitalization is recognized for its extrinsic motivations, particularly in enhancing operational efficiency, service usefulness, and ease of use. Additionally, intrinsic motivations, such as enjoyment and brand innovation, contribute to the positive outlook on digital transformation. On the other hand, the perceived costs—both monetary and non-monetary—pose significant concerns. High initial investments, ongoing maintenance, technological dependency, and potential social disconnection are key barriers to full-scale digital adoption. While restaurant owners acknowledge these challenges, they also recognize that strategic implementation can maximize benefits while mitigating risks. Ultimately, the study emphasizes the importance of a balanced approach, where human interaction complements digital innovations to sustain the fine dining experience.

Theoretical Implications

This study contributes to the growing body of knowledge on service digitalization in the hospitality sector by extending theoretical discussions on technology adoption in fine dining restaurants. The findings reinforce the applicability of motivation-based theories, such as Self-Determination Theory (Ryan & Deci, 2020), by distinguishing between extrinsic motivations (e.g., efficiency, ease of use) and intrinsic motivations (e.g., enjoyment, brand value). Additionally, the study expands the Technology Acceptance Model (TAM) by incorporating restaurant-specific cost-benefit analyses, demonstrating that perceived usefulness and perceived ease of use are critical drivers of digital adoption in fine dining contexts (Abrahão et al., 2016).

Practical Implications

The insights from this study provide valuable guidance for fine dining restaurant owners, policymakers, and technology providers. Restaurant operators should adopt a strategic digitalization approach, selecting technologies that align with customer expectations while preserving the human touch. Prioritizing digital tools such as POS systems, online reservation platforms, and AI-powered chatbots can enhance customer service without compromising the experiential aspect of fine dining. Moreover, understanding cost concerns—both financial and operational—can help restaurants plan for long-term sustainability by incorporating flexible payment models, training programs, and system redundancies to minimize technological disruptions.

Limitations

Several limitations should be acknowledged in interpreting this study's findings. First, the study is constrained by a relatively small sample size, which may not fully capture the diversity of fine dining establishments across different regions. Second, the study focuses primarily on managerial perspectives, excluding customer perceptions, which are equally crucial in shaping digital service adoption. Additionally, the study is cross-sectional in nature, limiting insights into the long-term effects of service digitalization. Future research should incorporate longitudinal studies to explore the evolving nature of digital adoption and customer responses over time.

In addition, to ensure broader representation in the selection of participants, the study should expand its geographic scope beyond Bukit Jalil and Bukit Bintang. Including fine dining restaurants from different districts in Kuala Lumpur or even neighbouring cities would provide a more comprehensive understanding of service digitalization. Additionally, diversifying the business profiles of selected restaurants can improve the robustness of the findings. This can be achieved by including establishments with varying ownership structures, such as independent restaurants and chain outlets, as well as those operating at different price points. By capturing a wider range of businesses, the study can mitigate potential biases and ensure that the results are more reflective of the industry.

Furthermore, increasing the sample size through stratified sampling would enhance statistical validity and

generalizability. This approach allows for balanced representation across different restaurant sizes, customer segments, and levels of digital adoption. Instead of relying solely on restaurant owners and managers, the study should incorporate insights from multiple stakeholders, such as chefs, front-line service staff, and even customers, to gain a well-rounded perspective on digitalization challenges and benefits. Additionally, implementing a quota sampling method can help ensure representation across key categories, such as small, medium, and large establishments, as well as restaurants at different stages of digital transformation. These refinements would significantly strengthen the study's methodological rigor and improve the credibility of its findings.

Future Research Directions

Future studies should expand on the current findings by integrating customer perspectives to gain a holistic understanding of digitalization in fine dining. Comparative studies between fine dining, casual dining, and fast-food sectors could further contextualize the role of digital service adoption across different restaurant segments. Additionally, future research should explore emerging technologies such as augmented reality (AR) and blockchain-based reservation systems, assessing their feasibility and impact on restaurant operations. Investigating the impact of digitalization on employee experiences and workplace efficiency could also provide deeper insights into the operational challenges and opportunities that digital transformation presents.

By addressing these areas, future research can refine the framework for digital service integration, ensuring that fine dining restaurants effectively balance technological innovation with the essence of hospitality.

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