

**Ameet Patel**

**AN EVALUATION OF MODERN METHODS OF  
DELIVERING CUSTOMER SERVICE AND THE ROLE OF AI**

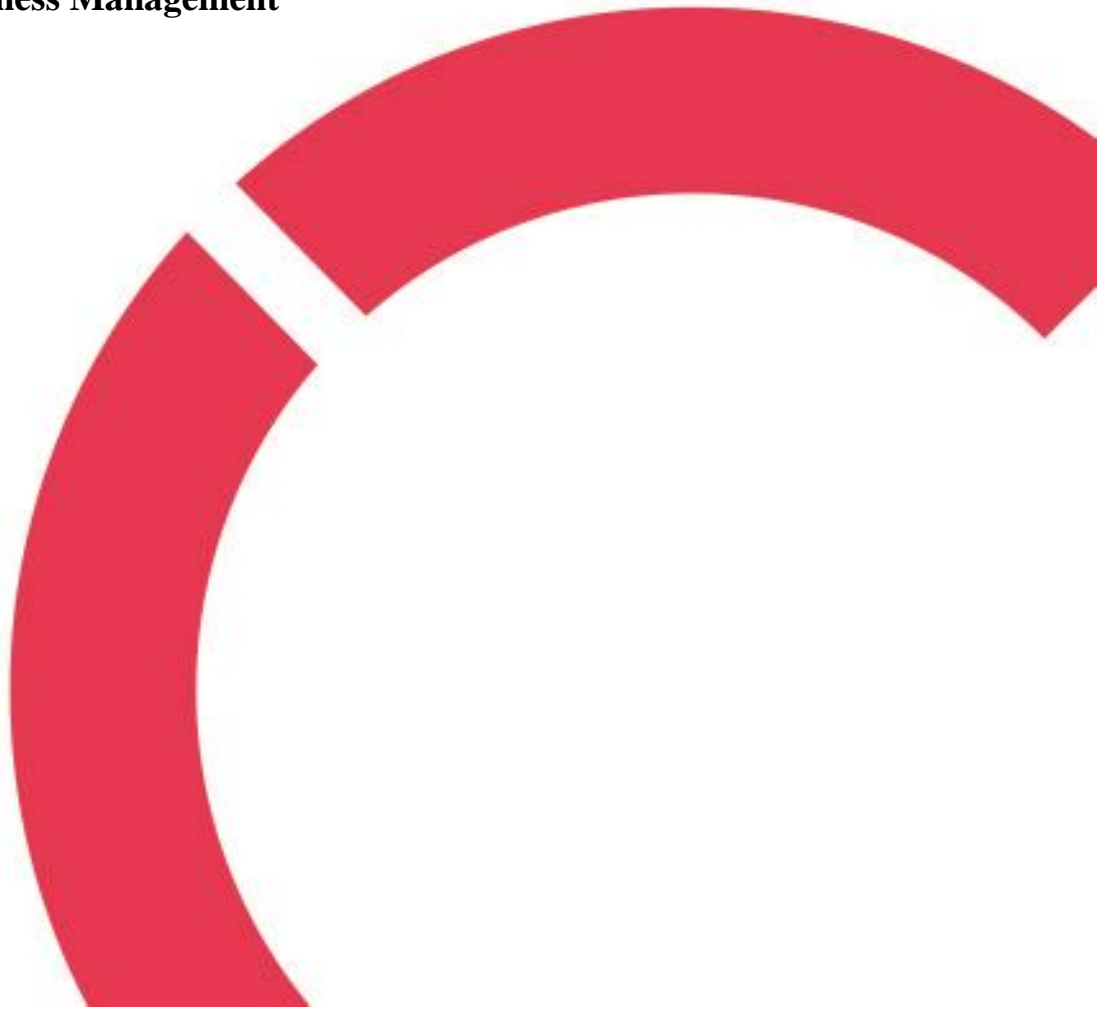
**Case study of McDonald's (ITIS) Finland**

**Thesis**

**CENTRIA UNIVERSITY OF APPLIED SCIENCES**

**International Business Management**

**May 2023**



## ABSTRACT

|  |                         |                              |
|--|-------------------------|------------------------------|
| <b>Centria University of Applied Sciences</b>  | <b>Date</b><br>May 2023 | <b>Author</b><br>Ameet Patel |
| <b>Degree programme</b><br>International business management   |                         |                              |
| <b>Name of thesis</b><br>AN EVALUATION OF MODERN METHODS OF DELIVERING CUSTOMER SERVICE AND THE ROLE OF AI.<br>Case study of McDonald's in (ITIS) Finland  |                         |                              |
| <b>Supervisor</b><br>Weimu You   |                         | <b>Pages</b><br>39+8         |
| <b>Instructor representing commissioning institution or company</b><br>Mc Donald's ITIS Finland  |                         |                              |
| <p>This thesis studied the modern method of providing customer service and the function of AI in quick-service restaurants. This thesis focuses on McDonald's in Finland since it is more manageable to do so than to investigate the impact of AI on all quick-service restaurants. The theoretical foundation of this thesis detailed how artificial intelligence originated through its history until now.</p> <p>This thesis presents the findings of a qualitative article analysis and literature study regarding artificial intelligence and its use in fast-food businesses, and quantitative analysis of the survey conducted using Webropol 3.0 which was administered to the customer of McDonald's ITIS. The theoretical framework described how AI came to be and how it has changed fast food establishments around the world, especially in Finland. This research also revealed the specific AI implementations employed by McDonald's in Finland and globally. McDonald's in particular served as a case study for researchers looking into the use of AI in fast food settings.</p> <p>In conclusion, the study demonstrated the significant impact that AI has on quick-service restaurants with regards to enhancing patron pleasure. The findings of this thesis suggest that AI will have far-reaching effects on the hospitality industry. Inevitably, that will occur throughout the industry.</p> |                         |                              |

### Key words

Artificial intelligence, Customer satisfaction, McDonald's AI, Quick service restaurants.

## **CONCEPT DEFINITIONS**

### **AI**

Artificial intelligence is the simulation of human intelligence processes by machines, especially computer systems.

### **AI FLE**

Artificial intelligence in front-line interactions

### **MIT**

Massachusetts institute of technology

### **POS**

Point of sale

### **QSR**

Quick service restaurants

**ABSTRACT**  
**CONCEPT DEFINITIONS**  
**CONTENTS**

|   |           |
|---|-----------|
| <b>1 INTRODUCTION.....</b>  | <b>1</b>  |
| <b>2 THEORETICAL FRAMEWORK .....</b>  | <b>3</b>  |
| 2.1 Customer satisfaction .....   | 3         |
| 2.2 Artificial intelligence .....   | 4         |
| 2.3 Types of artificial intelligence.....   | 5         |
| 2.4 Quick service restaurant (QSR) and role of artificial intelligence in the restaurant                | 6         |
| 2.5 Artificial intelligence and customer satisfaction .....   | 7         |
| 2.6 Artificial intelligence and customer satisfaction in quick service restaurants.....                 | 8         |
| <b>3 METHODOLOGY OF THE STUDY .....</b>   | <b>10</b> |
| 3.1 Research methodology.....   | 10        |
| 3.1.1 Qualitative research.....   | 10        |
| 3.1.2 Quantitative research .....   | 11        |
| 3.2 Data collection.....  | 11        |
| 3.3 Research design.....  | 12        |
| 3.4 Validity and reliability of research.....   | 12        |
| <b>4 STATISTICAL ANALYSIS AND FINDINGS OF THE STUDY .....</b>   | <b>14</b> |
| 4.1 Document analysis.....  | 14        |
| 4.2 Case study: McDonald's (ITIS) utilizing AI for customer satisfaction. ....                          | 15        |
| 4.3 Respondent profile.....   | 18        |
| 4.3.1 Age.....  | 18        |
| 4.3.2 Gender.....   | 18        |
| 4.3.3 Education.....  | 19        |
| 4.4 Analysis of survey.....   | 19        |
| 4.4.1 Visit to McDonald's (ITIS) in last 6months.....   | 20        |
| 4.4.2 Visit frequency at McDonald's (ITIS).....   | 21        |
| 4.4.3 Customer satisfaction with the customer service provided at McDonald's (ITIS).....                | 22        |
| 4.4.4 Customer service strengths at McDonald's (ITIS) .....   | 23        |
| 4.4.5 Areas for improvement in the customer service provided by McDonald's (ITIS).....                  | 24        |
| 4.4.7 Customer satisfaction with the modern customer service delivery methods at McDonald's (ITIS)..... | 26        |
| 4.4.8 The benefits of using modern methods of delivering customer service at McDonald's (ITIS).....     | 27        |
| 4.4.9 The challenges of using modern methods of delivering customer service at McDonald's.....          | 28        |
| 4.4.10 Improvement of customer service at McDonald's with the use of AI (ITIS) .                        | 29        |
| 4.4.12 Satisfaction with the AI-powered customer service at McDonald's (ITIS) ....                      | 30        |
| 4.4.13 The benefits of using AI-powered customer service at McDonald's (ITIS) ...                       | 31        |
| 4.4.14 Challenges of using AI-powered customer service at McDonald's (ITIS).....                        | 33        |
| 4.4.15 Limitations of using AI-powered customer service at McDonald's (ITIS).....                       | 34        |
| 4.4.16 Use of AI-powered customer service at McDonald's in the future.....                              | 34        |
| 4.4.17 Suggestions for improving the customer service at McDonald's (ITIS) .....                        | 35        |

|   |    |
|---|----|
| 4.4.18 Other based customer service experience at McDonald's (ITIS) .....   | 36 |
| 4.4.19 Feedback regarding the modern methods of delivering customer service and the role of AI at McDonald's (ITIS) ..... | 37 |
| 4.5 Findings.....   | 38 |
| 5 CONCLUSION.....   | 39 |
| REFERENCES.....   | 40 |
| APPENDICES  |    |

## FIGURES

|  |    |
|--|----|
| FIGURE 1. Visit to McDonald's (ITIS) in last 6months .....   | 20 |
| FIGURE 2. Visit frequency at McDonald's (ITIS). .....  | 21 |
| FIGURE 3. Customer satisfaction with the customer service provided at McDonald's (ITIS) .....                | 22 |
| FIGURE 4. Customer service strengths (ITIS).....   | 23 |
| FIGURE 5. Areas for improvement in the customer service provided by McDonald's (ITIS).....                   | 24 |
| FIGURE 6. Modern methods of delivering customer service at McDonald's (ITIS) .....                           | 25 |
| FIGURE 7. Customer satisfaction with the modern customer service delivery methods at McDonald's (ITIS) ..... | 26 |
| FIGURE 8. The benefits of using modern methods of delivering customer service at McDonald's (ITIS) .....     | 27 |
| FIGURE 9. Improvement of customer service at McDonald's with the use of AI (ITIS) .....                      | 29 |
| FIGURE 10. Interaction with AI-powered customer service at McDonald's (ITIS) .....                           | 30 |
| FIGURE 11. Challenges of using AI-powered customer service at McDonald's (ITIS).....                         | 33 |

## PICTURES

|   |    |
|---|----|
| PICTURE 1. Self-service kiosks in McDonald's (ITIS outlet) Finland (Taken by author) .... | 16 |
| PICTURE 2. McDonald's app (Screenshot taken from author's phone).....                     | 17 |

## TABLES

|   |    |
|---|----|
| TABLE 1. Customer feedback answers.....   | 23 |
| TABLE 2. Answers given for improvement in the customer service.....   | 24 |
| TABLE 3. Answers given into text field for the benefits of using modern methods of delivering customer service at McDonald's (ITIS) ..... | 27 |
| TABLE 4. The challenges of using modern methods of delivering customer service at McDonald's. ....  | 28 |
| TABLE 5. Customer feedback.....   | 28 |
| TABLE 6. Satisfaction with the AI-powered customer service at McDonald's (ITIS) .....   | 30 |
| TABLE 7. The benefits of using AI-powered customer service at McDonald's (ITIS) .....   | 31 |
| TABLE 8. Answers given into text field in regard to benefits of using AI-powered customer service at McDonald's (ITIS).....               | 31 |
| TABLE 9. Limitations of using AI-powered customer service at McDonald's (ITIS).....   | 34 |
| TABLE 10. Use of AI-powered customer service at McDonald's in the future .....  | 34 |
| TABLE 11. Suggestions for improving the customer service at McDonald's (ITIS).....  | 35 |
| TABLE 12. Recommend McDonald's (ITIS). ....   | 36 |
| TABLE 13. Feedback regarding the modern methods of delivering customer service and the role of AI at McDonald's (ITIS) .....              | 37 |

## 1 INTRODUCTION

Due to shifting customer preferences and difficult global economic conditions, the fast-food restaurant business has seen significant expansion in recent years. Since the global financial crisis and the worldwide reduction in individual income, spending has fallen on luxuries such as eating out has increased consumer preferences for lower-cost and more convenient meal alternatives (Quang et al., 2018).

Technology has enabled on-demand meal ordering, and the sector is shifting toward more inventive strategies to surpass client expectations. Consequently, artificial intelligence applications are gradually entering the food service sector (Addanki et al., 2022). Computational agents that act, respond, or behave intelligently are referred to as artificial intelligence (AI) (Prentice et al., 2020). Artificial intelligence (AI), a phrase for the invention of machines to perform complicated activities that often need human intelligence, is one example of digital innovation. Instead of using programming to make judgments, AI uses patterns and algorithms. With implications across all disciplines, industries, and economies, AI and other emerging technologies is affecting practically every industry in every country and bringing about a massive change in a non-linear way at an astonishing rate.

Artificial intelligence used in quick service restaurants has enhanced menu options, optimized operations, and provide a better customer experience. With the introduction of artificial intelligence, quick service restaurants' operational areas as well as other areas like marketing, inventory management, restaurant personnel, and finance will change. Quick service restaurants may customize their menus and generate the sort of cognitive interactions that customers need today with the aid of artificial intelligence. Quick service restaurants will collect orders more quickly and save customers' time by developing automated and tailored customer care. Companies are attempting to persuade customers to place orders using these applications rather than speaking to staff members behind a counter by developing various chatbot, speech recognition, or kiosks.

The purpose of this thesis is to shed light on whether fast-food chains like McDonald's have been significantly impacted by the rise of AI. This thesis also provides an overview of the various forms of AI now in use in quick service restaurants, with particular emphasis on McDonald's. Artificial intelligence has not only enhanced the company's customer service and, by extension, their annual profit, by allowing them to develop more efficient strategy campaigns and meet the demands and

expectations of their clientele. In addition, the thesis analyzes how McDonald's in Finland has implemented AI to better serve its customers.

The thesis is divided into five chapters, each exploring different facets of the fast-food industry and the influence of artificial intelligence (AI) on customer satisfaction. Chapter 1 offers an overview of the fast-food industry's growth, caused by changing customer preferences and economic conditions, and how technology has enabled on-demand ordering. The chapter focuses on McDonald's and evaluates if AI has had a significant effect on the fast-food giant. It also scrutinizes different AI applications used in quick-service restaurants, especially McDonald's (ITIS).

Chapters 2 and 3 investigate the significance of customer satisfaction, how to measure it through survey (APPENDIX 1) and feedback, and how different types of AI, including analytical, functional, interactive, textual, and visual AI, can enhance it in the fast-food industry. The research uses a mixed-methods approach that combines qualitative and quantitative research to evaluate the impact of AI in fast-food restaurants, such as McDonald's, with a focus on ensuring credible results.

Chapters 4 and 5 analyze McDonald's (ITIS) utilization of AI technology to improve its services, such as self-service kiosks and a mobile app. The study indicates that customers are satisfied with these novel features as they have reduced wait times and offered more ordering alternatives. The food service industry is an untapped area for AI applications, and McDonald's (ITIS) can utilize customer insights to attract more customers and enhance its services. The chapters also suggest several strategies, such as reducing wait times, personalizing services, and training staff on menu items, that could enhance the overall customer experience.

In conclusion, this thesis investigates how AI can improve customer satisfaction in the fast-food industry, with a particular emphasis on McDonald's (ITIS). The research demonstrates that AI can provide personalized experiences, address problems quickly and effectively, and reduce wait times to enhance customer satisfaction. The study uses a mixed-methods approach combining qualitative and quantitative research to evaluate the impact of AI in fast-food restaurants, especially McDonald's (ITIS). McDonald's (ITIS) is utilizing AI technology to improve its services, and the food service industry has untapped potential for AI applications. By implementing strategies such as reducing wait times, personalizing services, and training staff on menu items, the overall customer experience can be enhanced.

## **2 THEORETICAL FRAMEWORK**

Chapter 2 discusses the importance of customer satisfaction in business success. Various methods of assessing customer satisfaction, such as surveys and customer feedback, are explored. The chapter emphasizes the importance of prioritizing product and service quality, as well as exceptional customer service. Artificial intelligence (AI) is also discussed as a potential tool for enhancing customer satisfaction through personalized experiences, prompt issue resolution, and reduced wait times. Studies investigating the implementation of AI in quick-service restaurants demonstrate its growing importance in improving customer satisfaction and highlight the need for businesses to adapt to remain competitive and successful.

### **2.1 Customer satisfaction**

According to the Harvard Business Review (Dixon et al., 2009), customer satisfaction refers to the subjective evaluation of one's purchasing experience, predominantly influenced by the perceived attributes and actual performance of a product. Essentially, it denotes the degree to which a consumer's expectations are met or exceeded by a product or service. Ascertaining customer happiness is crucial for businesses to ensure their success. It involves evaluating how content customers are with their interactions with a particular product or service. By enhancing customer satisfaction, enterprises can augment their sales, profitability, and customer loyalty, ultimately leading to sustained business prosperity.

Various methods are accessible to organizations for evaluating customer satisfaction, including surveys, focus groups, customer feedback, and customer service assessments. Surveys are frequently employed to gauge client satisfaction due to their convenience and swiftness in obtaining input (Parasuraman et al., 1988). Additionally, focus groups can offer a comprehensive comprehension of consumer desires and preferences. To recognize areas for improvement and enhance their services, companies necessitate consumer feedback and service evaluations (Heskett et al., 1997).

It is imperative for businesses to prioritize customer satisfaction by placing emphasis on the quality of their goods and services and providing exceptional customer service (Zeithaml et al., 2006). This is essential as it ensures that customers receive what they paid for. A critical component of excellent

customer service is having amiable and helpful employees who are prompt in responding to customers' inquiries (Parasuraman et al., 1985). Additionally, businesses should strive to make their products and services user-friendly and easily accessible to ensure a positive and convenient experience for customers (Oliver 2010).

In order for businesses to succeed over the long term and remain competitive, customer satisfaction is a crucial factor to take into account. Businesses should make an effort to deliver at a high level.

## **2.2 Artificial intelligence**

Artificial intelligence (AI) is a broad field of computer science concerned with building smart machines capable of performing tasks that typically require human intelligence (Sarker 2022). McCarthy originally used the word "Artificial Intelligence" in 1956, referring to it as “the science and engineering of making intelligent machines”. The way people "work, live, and relate to one another" is said to have been altered by AI and this change will undoubtedly quickly affect interactions with front-line service providers. While routine interactions between human front-line personnel and human consumers still occur, AI is becoming more and more important. AI is described as computers displaying aspects of human intelligence. It is used to refer to both non-human customers (AI customers) and workers (AI FLE) that replace a human counterpart in front-line interactions (Huang and Rust 2018).

Artificial intelligence (AI) refers to computational agents with intelligent actions, responses, or behaviours (Poole and Mackworth 2010). Building intelligent machines that can complete activities that would normally need human intelligence is the focus of artificial intelligence (AI), a large subfield of computer science. Thus, the goal is to create machines that, using computer programs or hardware, are capable of cognition and learning, so that they, in effect, mimic human cognitive abilities. Artificial intelligence (AI) can manage the vast network of interconnected individuals, corporations, states, and nations in a way that benefits everyone, and this has profound philosophical implications. So, the main purpose of AI is to teach computers and machines to act like humans by solving problems, making decisions, perceiving the world, and understanding speech. As a result, AI-based modelling is essential to creating automated, intelligent, and smart systems that meet the needs of the modern day. These systems have emerged as the next significant technical milestone and will shape the future of virtually every industry by increasing efficiency, speed, and accuracy (Sarker 2022).

## 2.3 Types of artificial intelligence

Understanding and performing intelligent tasks like reasoning, learning new skills, and adapting to novel environments and difficulties are at the heart of artificial intelligence (AI) (Russell & Norvig 2016). Therefore, artificial intelligence (AI) is a subfield of computer science and engineering concerned with modeling various aspects of human cognition. Nevertheless, creating a reliable AI model is difficult because of the ever-changing character of real-world situations and the wide variety of data that constitutes them (Poole and Mackworth 2017). To comprehend the issue of AI's strength, we examine many sorts of AI, such as analytical, functional, interactive, textual, and visual (Nilsson 2009). The scope of each category is outlined in terms of computer and real-world functions in the subsequent section (Murphy 2012).

By definition, analytics is the study and practice of discovering, explaining, and disseminating insights from data. To that end, analytical AI seeks to aid in data-driven decision making by identifying previously unseen insights, patterns, correlations, or dependencies in data. Since AI now has the analytical processing power to deliver insights to a business and make suggestions or recommendations, it has become an integral part of the business intelligence landscape of today. An analytical AI model can be constructed using several machine learning and deep learning methods to address a specific issue in the real world. Analytical AI, enabled by machine learning, examines large amounts of data for interdependencies and patterns to provide suggestions or provide insights to a business, hence facilitating data-driven decision-making. For instance, a data-driven analytical model can be used to evaluate potential threats to a company's bottom line (Sarker 2021).

Like analytic AI, functional AI analyzes vast volumes of data in search of recurring patterns and interdependencies. Functional AI, on the other hand, doesn't just make suggestions; it really does something. In robots and Internet of Things applications, for instance, a functional AI model could be helpful for taking immediate responses.

Automation of communication that is both efficient and engaging is firmly entrenched in many facets of our everyday lives, especially in the business world, and is often made possible by interactive artificial intelligence. For instance, an interactive AI model may be helpful when developing chatbots and intelligent personal assistants. It is possible to use many different methods, including machine learning, frequent pattern mining, reasoning, and AI intuitive search, while developing an interactive AI model (Bishop 2006; Mitchell 1997).

Companies can take use of text recognition, speech-to-text conversion, machine translation, and content development thanks to textual AI, which often encompasses textual analytics or natural language processing. Textual AI can be used by businesses to supplement internal knowledge repositories, allowing them to better serve their customers by, for example, responding to their questions (Bird, Klein & Loper 2009).

Vision-based AI can often do tasks such as object recognition, classification, and sorting, and image/video analysis. So, visual AI can be thought of as a subfield of computer science that teaches computers to acquire knowledge through observation and experience (Szeliski 2010). Computer vision and augmented reality are only two applications that frequently employ this type of AI.

Artificial intelligence (AI) emphasizes comprehending and performing cognitive activities including thinking, learning new skills, and adjusting to novel situations and problems (Sarker 2022). Based on capabilities there are two categories of artificial intelligence: weak AI and strong AI. Weak AIs like Siri, Alexa, and Google Assistant are present in our daily lives. These AIs are preprogrammed and lack the ability to think for themselves. Strong artificial intelligence (AI) computers can solve problems, reason independently, and forecast the best course of action (Rupali and Amit 2017). This artificial intelligence (AI) devices are capable of consciousness, learning, thinking, self-awareness, problem-solving, and puzzle-solving.

## **2.4 Quick service restaurant (QSR) and role of artificial intelligence in the restaurant**

In accordance with online dictionaries, fast food is a type of cuisine produced by restaurants that prioritize efficiency and affordability over nutritional value and quality. In today's society, individuals face mounting responsibilities and a shortage of free time, leaving little time for meals. Fast food establishments offer a solution to this dilemma. A fast-food restaurant is a specific type of restaurant that serves fast food and typically provides minimal table service, commonly referred to as a quick service restaurant (QSR) within the industry. Due to the convenience and time efficiency provided by fast food restaurants, along with shifts in consumer behaviour that favour dining out, the fast-food industry is expanding rapidly (Ritzer 2013).

The food industry faces increasing demands from a global population, with many individuals opting

for ready-to-eat meals to save time. However, limited manpower necessitates the use of machinery, including artificial intelligence (AI) technologies such as robots and mobile applications (Kimes 2011). AI has transformed the customer experience and enabled autonomous restaurant operations in fast-service sectors like McDonald's. The use of AI in the food industry shows promise for cost management and error mitigation, with applications ranging from employee training to quality control and kitchen preparation (Kretzschmar 2020).

## **2.5 Artificial intelligence and customer satisfaction**

AI technology has the potential to enhance customer satisfaction in enterprises by providing valuable insights and data-driven recommendations (Huang & Rust 2018). To comprehend customer perception of a product or service, AI can be utilized to evaluate customer feedback, preferences, and sentiment (Chen, Chiang & Storey 2012). Additionally, automating customer service tasks such as responding to queries through AI can improve customer service efficiency (Xu et al., 2017). By analysing consumer interactions and purchase history, AI can generate personalized experiences and product recommendations that align with their needs (Li & Karahanna 2015). Employing AI can enable businesses to offer more targeted and personalized consumer experiences, leading to increased levels of customer satisfaction. Empirical studies have demonstrated that AI contributes significantly to defining the consumer experience, making it an increasingly important factor for organizations to consider (Davenport, Guha & Grewal 2020).

According to a study by Salesforce (Meeker & Wu 2018), consumers are generally open to AI-powered experiences, with 51% of consumers anticipating that businesses will use AI to foresee their needs and offer suggestions. In addition, the study discovered that 69 percent of customers have a more favorable opinion of a company if their problem is handled quickly and efficiently, which is an area where AI can be especially helpful.

AI can increase customer satisfaction by delivering more individualized experiences, according to a different MIT Technology Review study. Artificial intelligence (AI)-powered chatbots, for instance, can use natural language processing to comprehend customer inquiries and offer individualized responses, increasing customer satisfaction rates.

According to a third Accenture study, clients who enjoyed working with AI-powered interactions were

more likely to refer the business to others. The research also revealed that AI can aid in lowering wait times and boosting first contact resolution rates, both of which can raise client satisfaction (Accenture 2017).

## **2.6 Artificial intelligence and customer satisfaction in quick service restaurants**

Overall, these studies indicate that AI has the potential to be a useful tool for enhancing customer satisfaction. AI can contribute to positive customer experiences and brand loyalty by offering personalized experiences, dealing with problems quickly and effectively, and cutting wait times.

Due to technological advancements, it is now feasible to place an order for food whenever it is most convenient for the customer. For this reason, more and more AI-based software is finding its way into the restaurant business. With the help of AI-powered technologies, the food service industry is working to entice and retain customers. Artificial intelligence in quick-service restaurants has been the focus of many researchers, and several studies have been done in this area (Brynjolfsson & McAfee 2014; Xu et al., 2018).

Authors Xi Yu Leung and Han Wen studied the customer's perceptions and behaviour when using chatbots in restaurants to take orders (Leung and Wen 2020). This study used a controlled laboratory experiment to investigate how the ordering procedure and kind of restaurant affected participants' sense of social presence, attitudes, satisfaction, and behaviour. Both customer happiness and behaviour were shown to be higher with the phone and online ordering methods than with the chatbot technique. Customer happiness, social presence, and cognitive attitude were all higher when orders were placed via phone (Leung and Wen 2020).

Authors Katharina Blöcher, and Rainer Alt analysed the current state of AI and robotics in the restaurant sector and proposes a systematic identification of process innovation potentials. A market analysis of the European artificial intelligence and robotics market for restaurant operations was done (Blöcher and Alt 2021).

Berezina et al. (2019) explored the application of AI and robots and presented many restaurants use scenarios. The study showed that the restaurant business had previously incorporated chatbots, voice-activated and biometric technologies, robot bartenders, cooks, and hosts, tableside ordering,

conveyors, and robotic food delivery.

Sharif (2021) studied customer satisfaction with self-service kiosks for quick-service restaurants. The study showed improvements in order accuracy, simple, comprehensible, and appealing menu design, and ordering speed using self-service kiosks.

Zhang et al. (2022) studied customer-friendly features of food-service robots. According to the author's research, there are four main factors that go into the evaluation of service robots in the business world: prior experience with service robots, value facilitation, service robot features, and interface comfort.

### **3 METHODOLOGY OF THE STUDY**

This chapter provides an overview of the research methods used in this study. It explains the rationale for choosing a mixed-methods approach and how it was implemented in the data collection process. It also describes the design and administration of the customer survey, as well as the data analysis techniques used in this thesis.

#### **3.1 Research methodology**

Research methodology encompasses the specific procedures and techniques employed to obtain, gather, structure, and interpret data pertaining to a particular domain. It constitutes a systematic and logical blueprint for resolving research problems. The methods section of research papers is crucial in evaluating the dependability of the findings. The methodology section strives to answer two fundamental queries: the techniques utilized to obtain or generate the data and the techniques employed to scrutinize the data. In this investigation, qualitative and quantitative research approaches were used to analyze how artificial intelligence (AI) is being implemented and affecting fast-food restaurants such as McDonald's. This strategy intends to conduct an extensive exploration of AI at McDonald's.

##### **3.1.1 Qualitative research**

Qualitative research is defined as the "study of the nature of phenomena," which includes "their quality, various manifestations, the context in which they appear, or the perspectives from which they can be perceived," but excludes "their range, frequency, and place in an objectively determined chain of cause and effect." (Philipsen & Vernooy-Dassen 2004). The steps of data collection and analysis in qualitative research are not as distinct and sequential as they typically are in quantitative research because qualitative research is characterized by flexibility, openness, and responsiveness to context.

Gathering data and analyzing data are two separate processes, although they often go hand in hand, leading to iterative refinement and growth. Some findings may also call for reconsidering the research question and/or approach. When no more useful information is discovered, the procedure is complete.

There must be thorough documentation of all decisions and their justifications if the process is to be seen as transparent (Punch 2013). Qualitative research techniques offer a more comprehensive and complete picture of the subject than quantitative research which focuses on specific and narrow areas.

### **3.1.2 Quantitative research**

Quantitative research methods involve collecting data through surveys and experiments, which is then analyzed using pre-determined measurement tools to produce statistical results (Creswell 2014). This approach allows researchers to describe a phenomenon by examining the factors that contribute to its outcome. Quantitative methods are well-suited for testing hypotheses and identifying causal relationships between social phenomena. However, some scholars argue that social reality is too complex to be reduced to hypotheses. At the end of a quantitative study, the hypothesis is typically either confirmed or rejected. Researchers using this approach select one or more variables to focus on in their study and collect data on those variables (Leedy & Ormrod 2010).

## **3.2 Data collection**

The act of gathering information or data from various sources for the purpose of research, analysis, or decision-making is recognized as a data collection method. Data collection methods are varied and can include both qualitative and quantitative techniques. Qualitative approaches aim to gather non-quantifiable information such as opinions, attitudes, and actions through methods like focus groups, interviews, and observation. Conversely, quantitative methods involve collecting numerical data via surveys, experiments, or observation such as rankings, ratings, or measurements. The selection of a data gathering method is influenced by factors like the study's topics, the type of data required and the target audience along with available resources. Researchers should ensure that their chosen method is impartial and ethical since it will determine the accuracy and reliability of the obtained data (Kumar 2019).

### 3.3 Research design

The goal of this study is to get fresh perspectives, spark ideas, offer questions, and investigate occurrences from a different angle. The research design serves as a blueprint that specifies the chosen methods, structure, and strategy for addressing problems and minimizing variability, acting as a framework for data collecting, measurement, and analysis (Kothari 2004). The study places more emphasis on fixing logical issues than logistical ones. In order to make inferences about the full population, sampling is a statistical approach that involves choosing a subset of components from a population. To collect a representative sample from the population, a sample design is used. 79 people responded to the survey (APPENDIX 1) after it was posted in open social media channels.

<https://link.webpolsurveys.com/Participation/Public/cef60303-d831-48f2-83ad-89c696746fb9?displayId=Fin2778612>

### 3.4 Validity and reliability of research

Validity and reliability are two essential components of any research study. "Validity is the extent to which a concept, conclusion, or measurement is sound and corresponds accurately to the real world," while "reliability is the consistency or stability of a measurement or instrument." (Yin 2009). In other words, a study is considered valid if it measures what it purports to measure and reliable if it produces consistent results over time. Ensuring the validity and reliability of research is critical to the credibility and generalizability of the results. Therefore, researchers must carefully design and conduct their studies to ensure that their results are both accurate and trustworthy.

Other experts in the field also emphasize the importance of validity and reliability. "Validity and reliability are critical to the scientific foundation of educational research." It explains that ensuring validity involves identifying the constructs to be measured and selecting appropriate methods and measures, while ensuring reliability involves using consistent methods and procedures to obtain consistent results. (Cohen, Manion & Morrison 2018).

Similarly, in the book "Research Methods for Business Students," It is stated that "Validity and reliability are essential to any research design" (Saunders, Lewis & Thornhill 2016). They point out that ensuring validity involves developing research questions that accurately reflect the objectives of the study, while ensuring reliability involves consistency in data collection and analysis.

In summary, ensuring the validity and reliability of research is essential for obtaining credible and generalizable results. Therefore, researchers must carefully design and conduct their studies to ensure that their results are accurate and trustworthy. In this way, they can contribute to the advancement of knowledge in their field and make a meaningful contribution to society.

## **4 STATISTICAL ANALYSIS AND FINDINGS OF THE STUDY**

In this chapter, we use the qualitative research technique of document analysis and the second section includes an analysis of information acquired from customers through social media platforms using a survey questionnaire, to look at how McDonald's (ITIS) in Finland is utilizing AI to provide services to its customers.

The data sources include both primary and secondary data. The primary data consists of a Webropol 3.0 survey that was administered to the customer of McDonald's (ITIS) (APPENDIX 1). The survey results were then processed, tabulated, and analyzed for the study. The secondary data comprises books, journals, discussion papers, annual reports, doctoral thesis, and other relevant sources that provide information on the topic.

### **4.1 Document analysis**

Document analysis is a methodical process for assessing and evaluating both printed and electronic (computer-based and Internet-transmitted) information. Document analysis, like other analytic approaches in qualitative research, entails the examination and interpretation of data to glean meaning, gain insight, and develop empirical knowledge (Corbin and Strauss 2008).

Document evaluation was selected as the qualitative data collection approach for this study because it offers the opportunity to assess data gathered by expert groups, which is rarely gained through other research methods, and since these records are easily available. Reports from many international organizations have been very useful for this study, and the majority are accessible via the websites of certain organizations.

#### **4.2 Case study: McDonald's (ITIS) utilizing AI for customer satisfaction.**

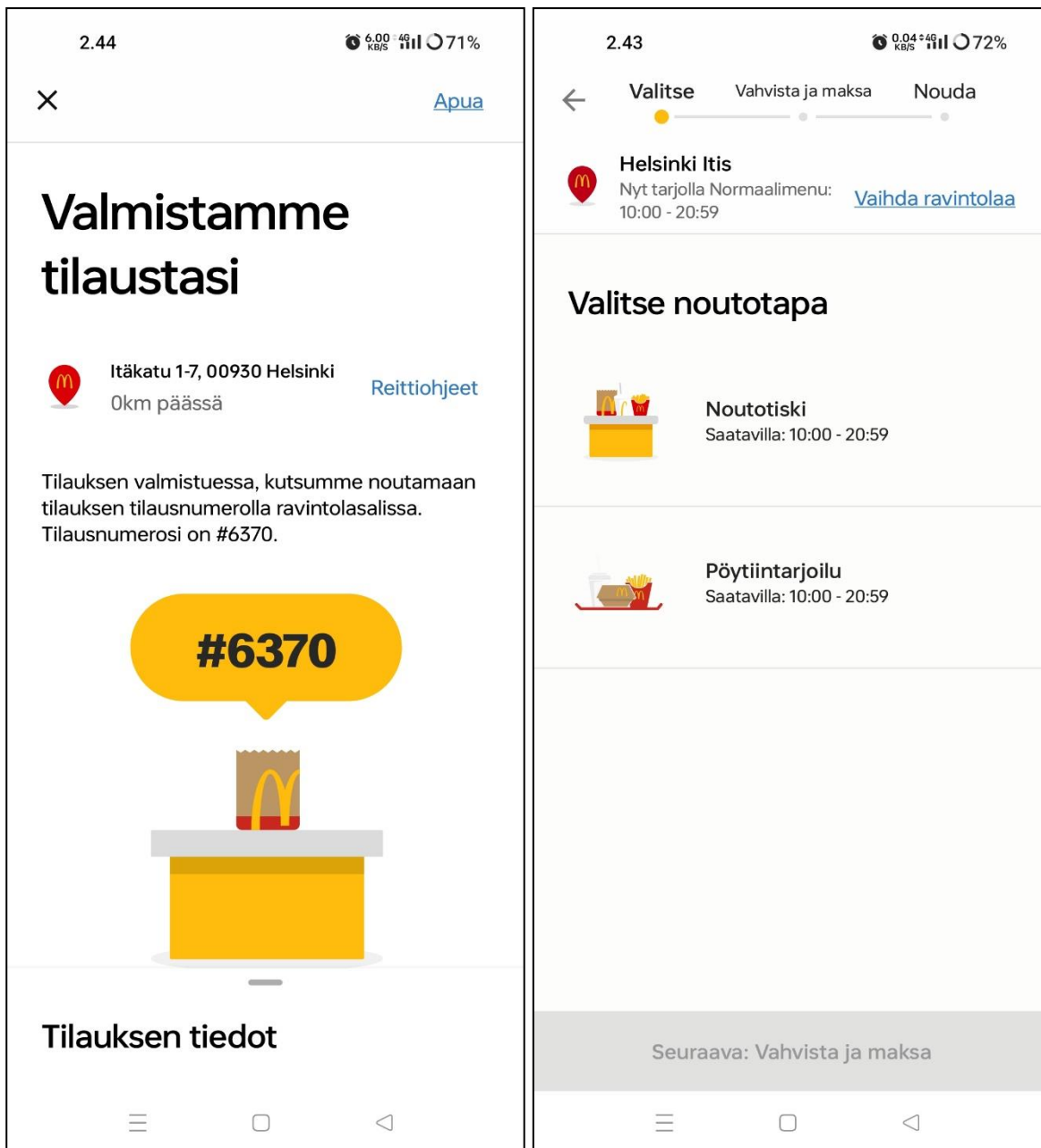
McDonald's (ITIS) has introduced self-service kiosks. McDonald's kiosk communicates a conversational interface with customers, for example when selecting a meal, the interface forwards a question towards consumers asking about the size of the meal and type of the beverage.

McDonald's kiosk consists of a computer and a customer-facing display, typically a touchscreen, housed in a cabinet. By using the kiosk, customers place orders that are sent straight to the kitchen, freeing up wait staff to perform other duties. Integrated with McDonald's POS systems, customers can select their preferred payment option, either with a credit card directly through the kiosk or cash at the counter, obtain a receipt, and then retrieve their meal at the counter. McDonald's can meet the demands of its customers and guests more efficiently thanks to the kiosks installed throughout the restaurant. McDonald's kiosks have reduced running expenses and increased sales through upselling and cross-selling opportunities. They also contributed to a more convenient dining experience for the customer, who may prefer ordering at their own pace rather than waiting for a waitress. With the use of kiosks, the ordering system at McDonald's is automated, allowing the wait staff to focus on more significant tasks, such as addressing the specific needs of each individual customer. A computerized method reduces wait times. With the availability of self-service kiosks, the ordering and delivery of meals has become considerably more convenient. Customers are given more ordering alternatives, which reduces both the waiting time to place an order with a staff member and the wait time to get their food.



PICTURE 1. Self-service kiosks in McDonald's (ITIS outlet) Finland (Taken by author)

Self-service kiosks, as the one shown in picture 1, have helped McDonald's (ITIS) understand more about their customers. In-store surveys are a great way to collect information from consumers while they are still present on the site. McDonald's can utilize the information to better target and service their customers.



PICTURE 2. McDonald's app (Screenshot taken from author's phone)

Picture 2 shows, the McDonald's app can be used to place orders for in-store pickup, delivery, or takeout depending on customer location. McDonald's also provides customer service via its app. Several features aimed to improve the McDonald's dining experience are available to customers who choose to download the Mowingo-powered McDonald's app. These include access to the menu, a nutritional calculator, and mobile coupons. Additionally, McCafe rewards allows customers to get a free coffee of any size and flavor after buying just five. To top it all off, the app lets customers pay with a linked credit card or mobile wallet to place customer's purchase in advance from anywhere you happen to be. Users' comfort with the app increases interaction between McDonald's and its customers.

The company requests that customers enter their current location so that it can keep track of the physical location of the chain's restaurants and send customers more relevant mobile offers.

As a result of the self-service kiosks and its app, McDonald's has been able to radically improve the dining experience of their customers, drastically reducing wait times while simultaneously boosting the number of orders their restaurants can process. In addition to freeing up counter workers for other tasks, directing consumers to self-service kiosks has drastically reduced the amount of cash handled onsite as more and more people switched to using cards and contactless payment methods.

### **4.3 Respondent profile**

This section gives a descriptive review of the background characteristics of respondents sampled from McDonald's ITIS customers.

#### **4.3.1 Age**

Out of the total 79 respondents, the age range varied from under 18 to 65 above. The majority of the respondents (39.2%) fell within the age range of 25-34 years old, followed by 22.8% of respondents falling in the age range of 35-44 years old. 16.5% of respondents were aged between 18-24 years old, whereas only 5.1% were under the age of 18 years old. The remaining 12.6% of respondents were aged 45 years old and above. The age distribution of the respondents provides insight into the age range of customers McDonald's ITIS Helsinki is serving and could potentially influence the methods of delivering customer service that the establishment may choose to adopt.

#### **4.3.2 Gender**

Out of the total 79 respondents, the majority of the respondents (50.6%) identified themselves as male, while 34.2% identified themselves as female. A smaller proportion of respondents (7.6%) identified themselves as on-binary, and another 7.6% preferred not to disclose their gender. The gender distribution of the respondents is relevant for McDonald's ITIS Helsinki as it could potentially influence the methods of delivering customer service that the establishment may choose to adopt to cater to different gender identities. It may also inform the company's recruitment and training practices

in terms of ensuring a diverse and inclusive workforce that can provide effective customer service to all customers.

### **4.3.3 Education**

Out of the 79 respondents, a majority (30.4%) of the respondents held a Master's degree. This was followed by 29.1% of respondents who held a Bachelor's degree. 16.5% of respondents held a high school diploma or equivalent, while 10.1% of respondents had completed some college or associate degree. Only a small proportion of respondents (6.3%) held a doctorate degree. A further 7.6% of respondents preferred not to disclose their highest level of education. The results suggest that the majority of the customers at McDonald's ITIS Helsinki are highly educated, with a significant proportion holding a Master's degree. This information could potentially influence the company's approach to delivering customer service and inform training practices to ensure that staff can provide effective service to customers of all educational backgrounds.

## **4.4 Analysis of survey**

This section describes the findings from the survey conducted online to assess customer satisfaction levels in McDonald's (ITIS). The analysis is based on researchers' understanding of the thesis topic. All excerpts of the survey are presented to support the analysis. The survey findings offer valuable insights into customers' preferences, expectations, and experiences with the brand, which can help McDonald's refine its strategies and enhance customer satisfaction with the use of AI.

#### 4.4.1 Visit to McDonald's (ITIS) in last 6months

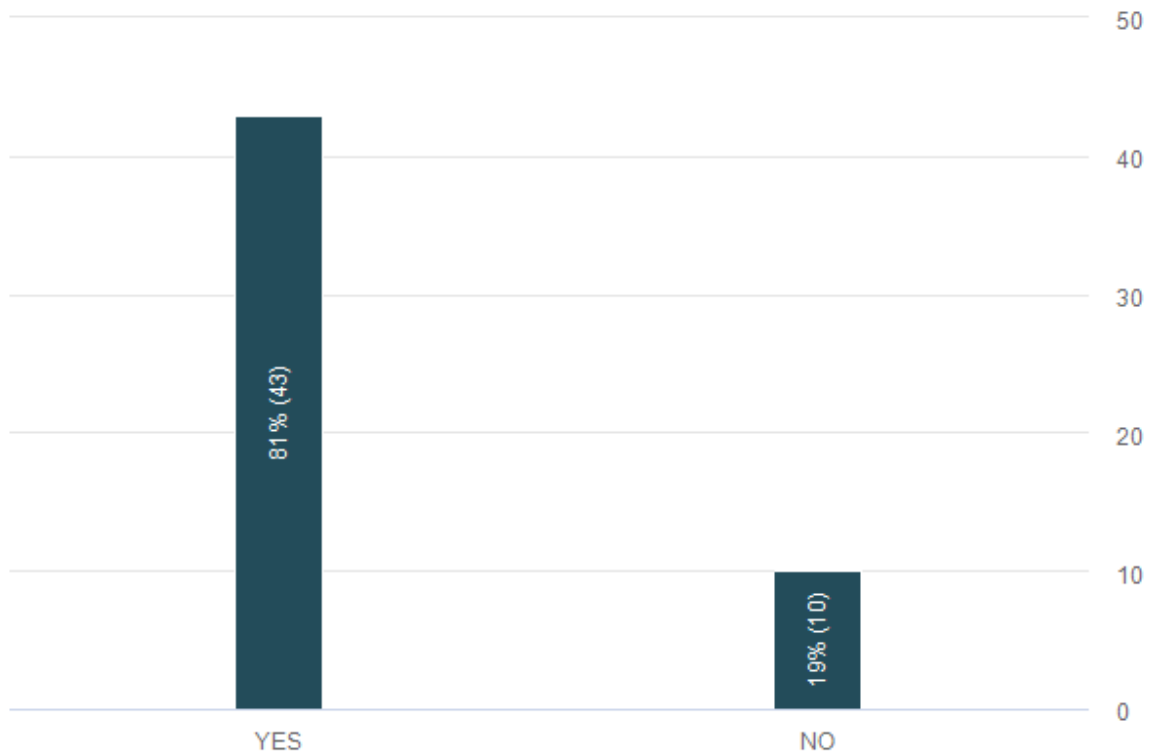


FIGURE 1. Visit to McDonald's (ITIS) in last 6months.

Figure 1 describes the respondent's visit to McDonald's (ITIS) in last 6months. A majority of 81% answered "YES," indicating that they had visited the McDonald's (ITIS) restaurant in the past 6 months. In contrast, 19% of respondents answered "NO," indicating that they had not visited the McDonald's (ITIS) restaurant in the past 6 months. The results suggest that a significant proportion of respondents have visited the McDonald's (ITIS) restaurant in the past 6 months, which could indicate high customer loyalty or brand recognition. On the other hand, those who have not visited may indicate a need for improvement in the methods of delivering customer service or marketing efforts to attract new customers.

#### 4.4.2 Visit frequency at McDonald's (ITIS)

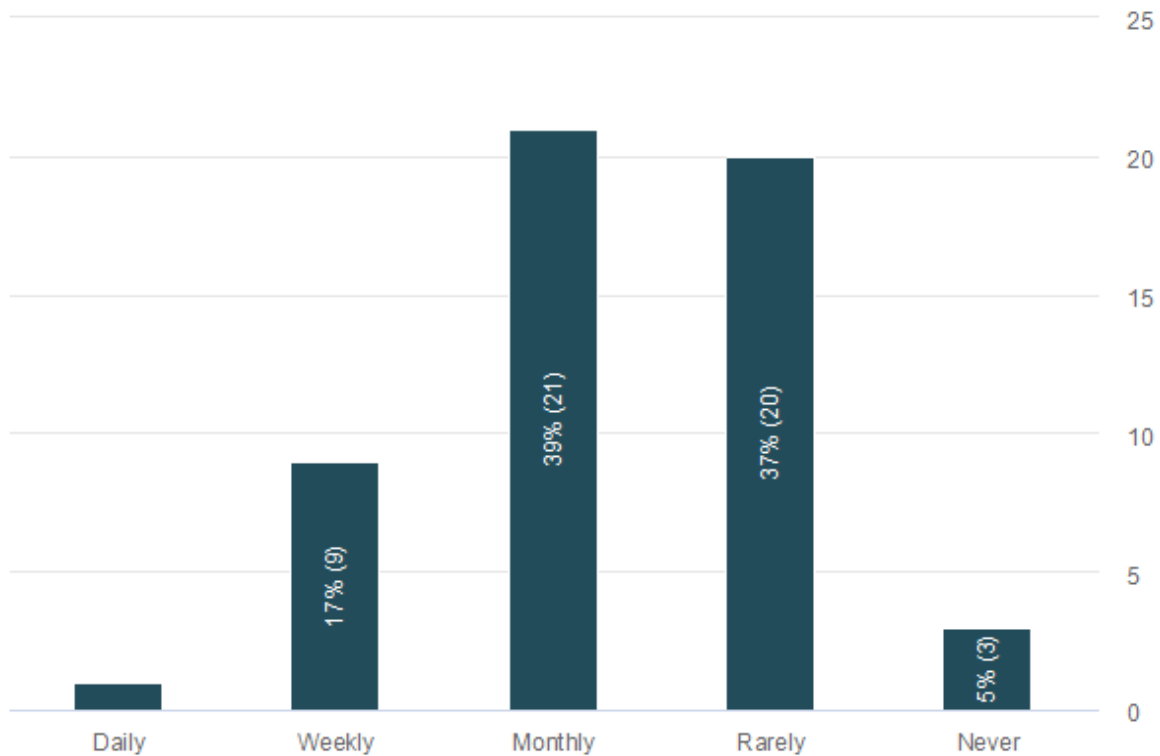


FIGURE 2. Visit frequency at McDonald's (ITIS).

Figure 2 shows that out of the 79 respondents, the most common response to visit frequency at McDonald's (ITIS) was "monthly" (39%), followed by "rarely" (37%). Only a small proportion of respondents answered "daily" (3%) or "never" (5%). 17% of respondents answered that they visited McDonald's (ITIS) on a weekly basis. The results suggest that the majority of customers visit McDonald's (ITIS) at least occasionally, with a significant proportion visiting on a monthly basis. The findings can be used by McDonald's (ITIS) to tailor the methods of delivering customer service and to adapt the menu offerings to cater to the preferences of the majority of customers who visit the restaurant occasionally.

#### 4.4.3 Customer satisfaction with the customer service provided at McDonald's (ITIS).

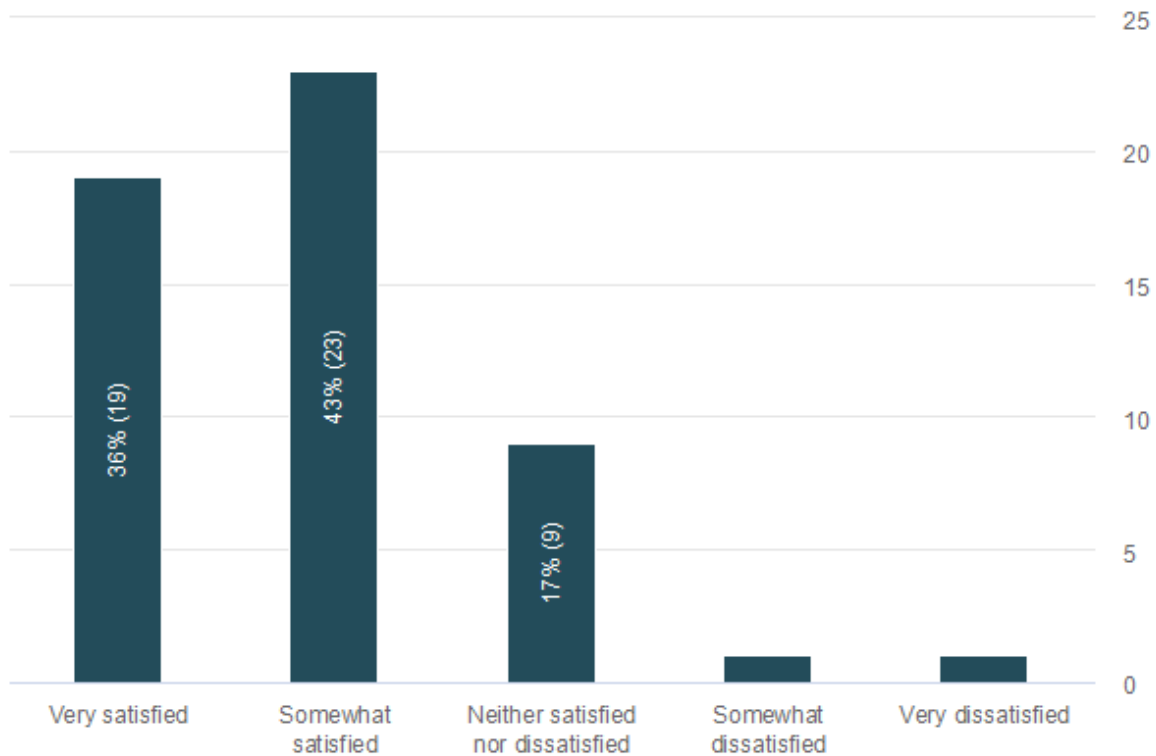


FIGURE 3. Customer satisfaction with the customer service provided at McDonald's (ITIS).

Figure 3 describes that out of the 78 respondents to the most common response the customer service provided at McDonald's (ITIS) was "somewhat satisfied" (43%), followed by "very satisfied" (36%). A smaller proportion of respondents answered "neither satisfied nor dissatisfied" (17%) or "somewhat dissatisfied" (2%). An equal number of respondents (2%) answered "very dissatisfied." The results suggest that a significant proportion of customers are satisfied with the customer service provided at McDonald's (ITIS), with the majority being somewhat or very satisfied. However, the responses indicate that some customers were not satisfied with the customer service provided, highlighting the need for the restaurant to improve their customer service delivery methods to meet the needs of all customers.

#### 4.4.4 Customer service strengths at McDonald's (ITIS)

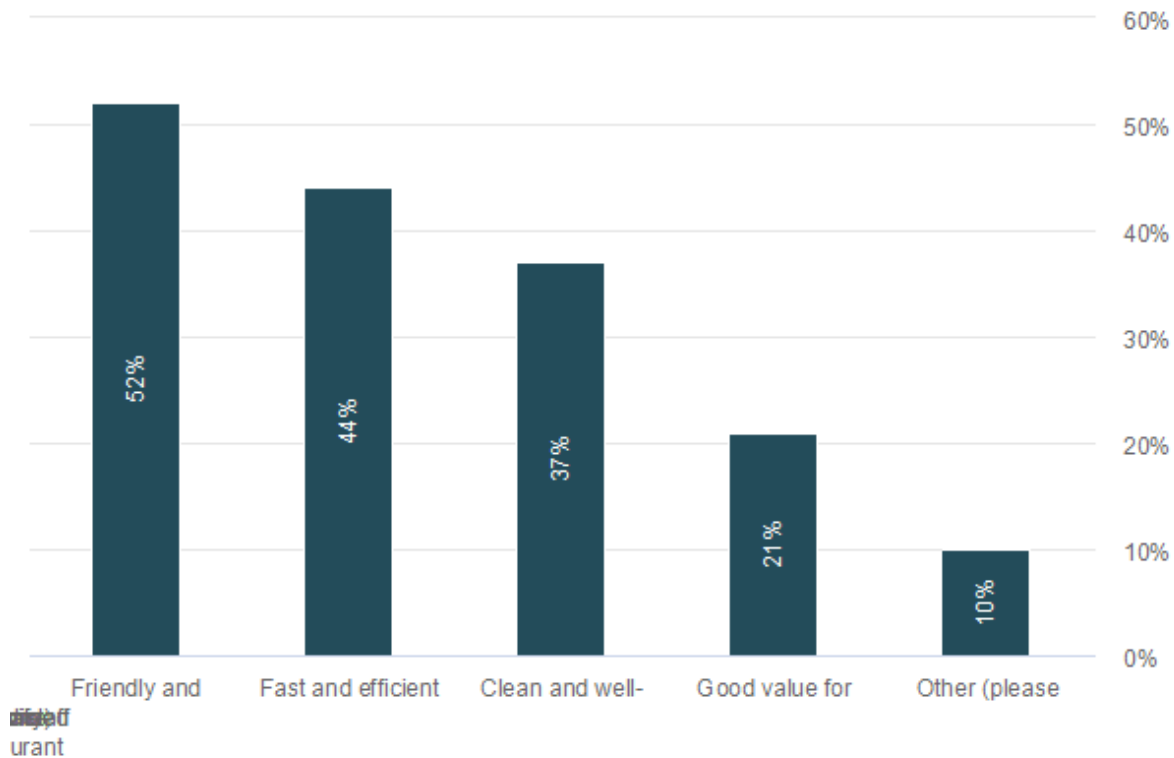


FIGURE 4. Customer service strengths (ITIS).

TABLE 1. Customer feedback answers.

| Answer options         | Given answer     |
|------------------------|------------------|
| Other (please specify) | Never been there |
| Other (please specify) | Language skills  |

In figure 4 and table 1 highlights that most respondents felt that the friendliness and helpfulness of the staff (52%) and the fast and efficient service (44%) were the main strengths of the customer service at McDonald's (ITIS). Additionally, 37% of respondents selected the cleanliness of the restaurant, and 21% felt that the good value for the price was a strength. About 10% of respondents provided their own response under the "other" category, with two respondents mentioning their language skills and their lack of experience visiting the restaurant. These findings could potentially guide McDonald's (ITIS) in identifying and prioritizing the strengths of their customer service to better meet the needs and preferences of their customers.

#### 4.4.5 Areas for improvement in the customer service provided by McDonald's (ITIS)

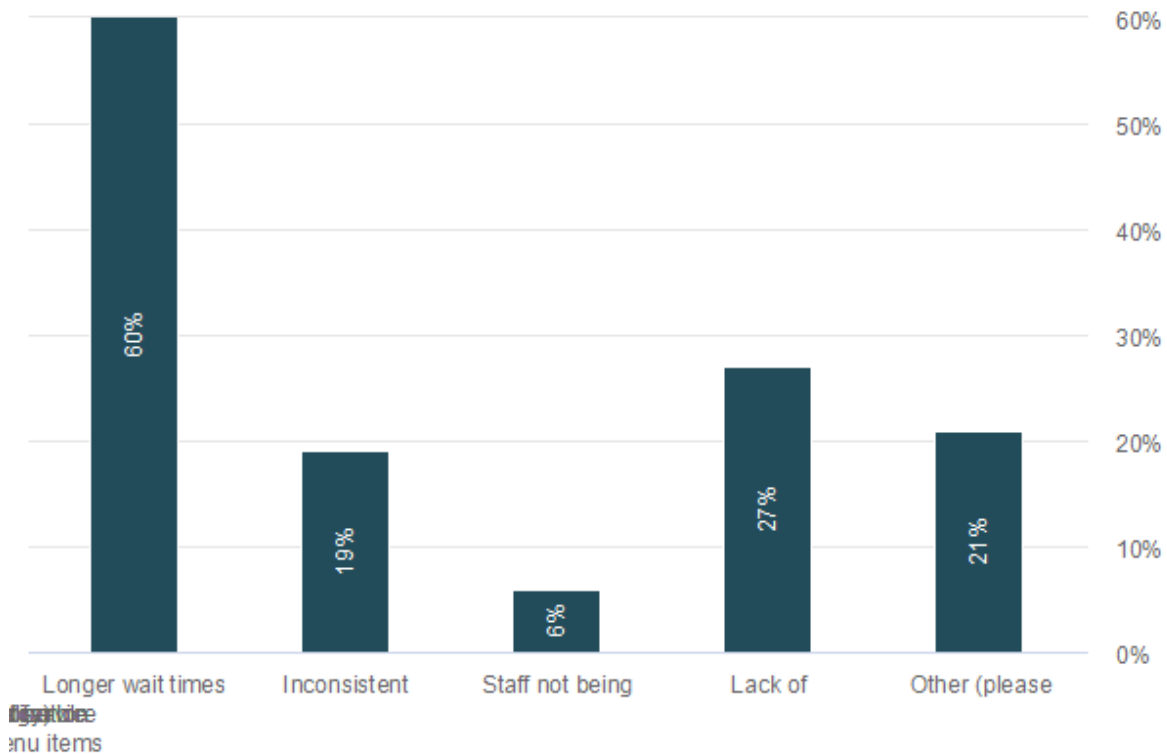


FIGURE 5. Areas for improvement in the customer service provided by McDonald's (ITIS).

TABLE 2. Answers given for improvement in the customer service.

| Answer options         | Given answer  |
|------------------------|---|
| Other (please specify) | More Vegetarian options like other countries                                |
| Other (please specify) | More outlets  |
| Other (please specify) | Cleaning  |
| Other (please specify) | Never been there  |
| Other (please specify) | Vegetarian option   |
| Other (please specify) | Dirty restaurant  |
| Other (please specify) | Cleanliness is not always well-maintained. Impersonal, but they are so busy |
| Other (please specify) | Self-pick items (paper, ketchup, hand disinfection, etc) always low         |
| Other (please specify) | Reduce price of their products.   |

Figure 5 and table 2 describe the most common response to areas for improvement in the customer service provided by McDonald's (ITIS) was "longer wait times" (60%), followed by "lack of personalization" (27%). A smaller proportion of respondents selected "inconsistent quality of service" (19%) and "staff not being knowledgeable about menu items" (6%). Additionally, 21% of respondents selected "other" and provided their own response. The responses under "other" included the need for more vegetarian options, more outlets, better cleaning, and reducing the prices of products. The findings suggest that reducing wait times and improving personalization are the primary areas for improvement in the customer service delivery methods at McDonald's (ITIS). The results can be used by McDonald's (ITIS) to improve their service delivery methods and attract customers by meeting their needs and preferences.

#### 4.4.6 Modern methods of delivering customer service at McDonald's (ITIS)

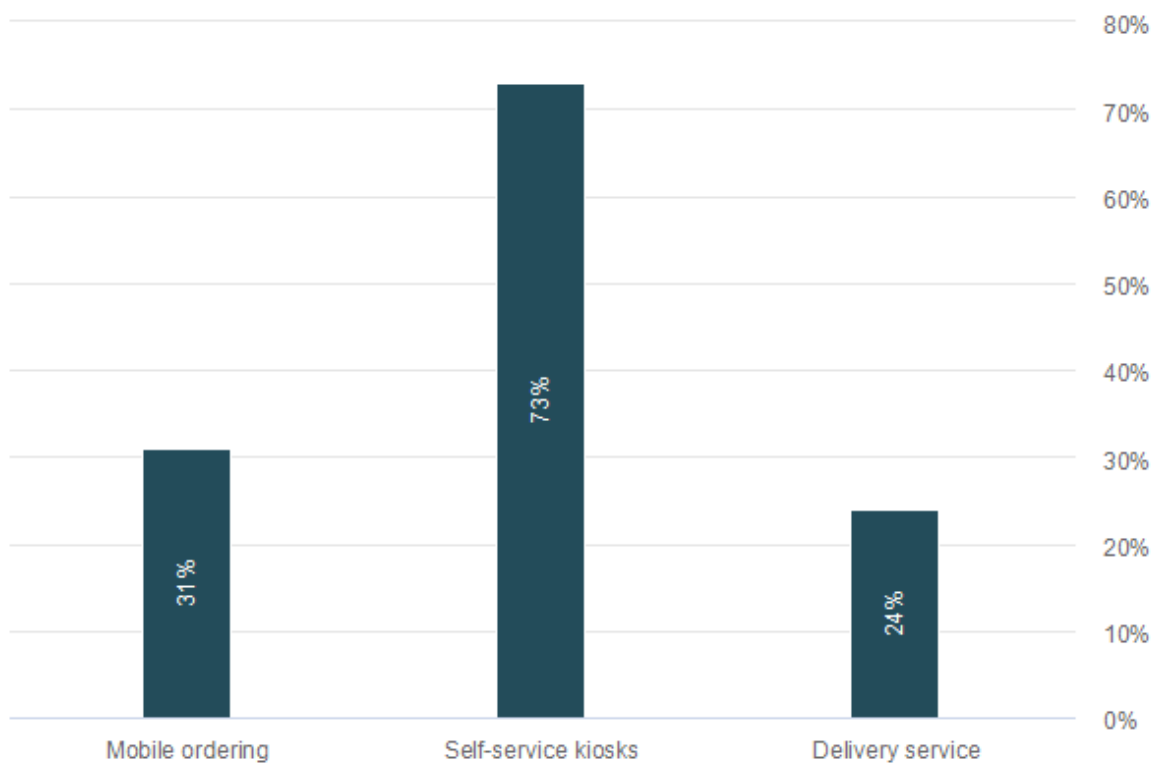


FIGURE 6. Modern methods of delivering customer service at McDonald's (ITIS).

In response to modern methods of delivering customer service at McDonald's (ITIS) shown in figure 6, out of the 76 respondents, the most commonly used method was self-service kiosks (73%), followed by mobile ordering (31%), and delivery service (24%). The results suggest that a significant proportion

of respondents have utilized the modern methods of delivering customer service at McDonald's (ITIS), highlighting the need for the restaurant to continue developing and implementing new technological solutions to enhance the customer experience.

#### 4.4.7 Customer satisfaction with the modern customer service delivery methods at McDonald's (ITIS)

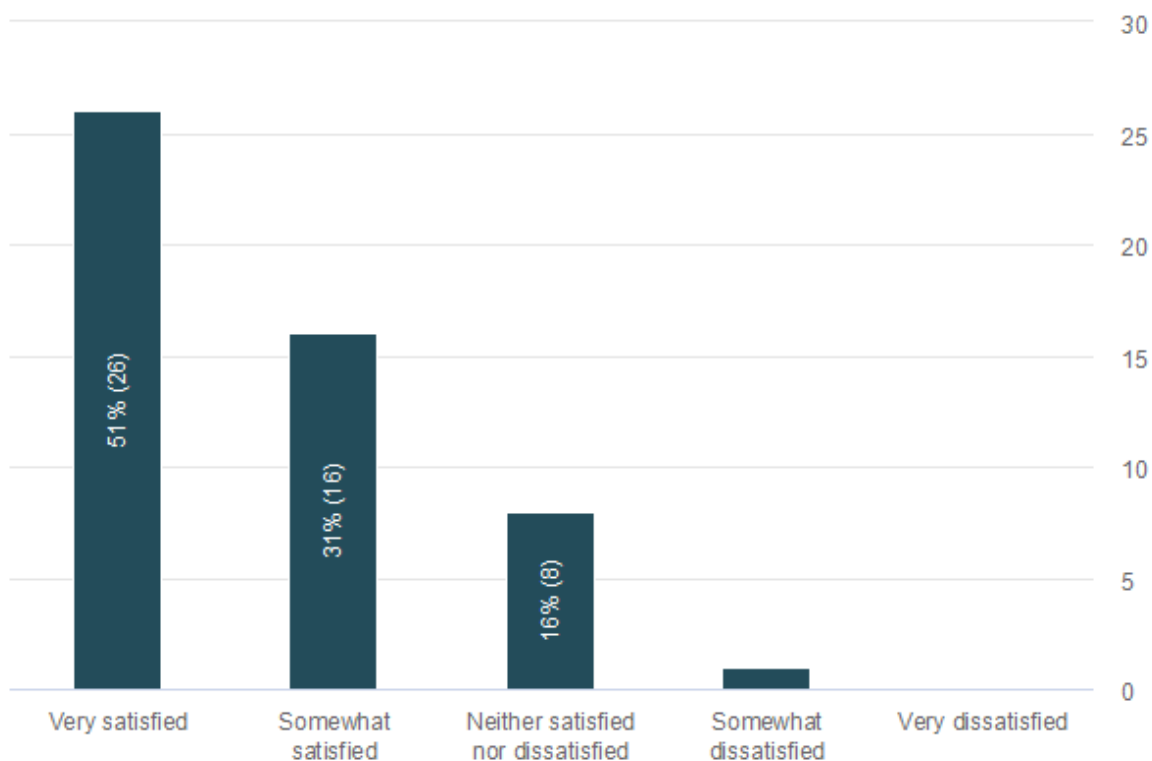


FIGURE 7. Customer satisfaction with the modern customer service delivery methods at McDonald's (ITIS).

Figure 7 shows the majority of respondents were either very satisfied (51%) or somewhat satisfied (31%) with the modern methods of delivering customer service at McDonald's (ITIS). A smaller proportion of respondents were either neither satisfied nor dissatisfied (16%), somewhat dissatisfied (2%), or very dissatisfied (0%). The results suggest that most respondents were satisfied with the modern methods of delivering customer service at McDonald's (ITIS), indicating that the restaurant has been successful in implementing modern technological solutions to enhance the customer experience.

#### 4.4.8 The benefits of using modern methods of delivering customer service at McDonald's (ITIS)

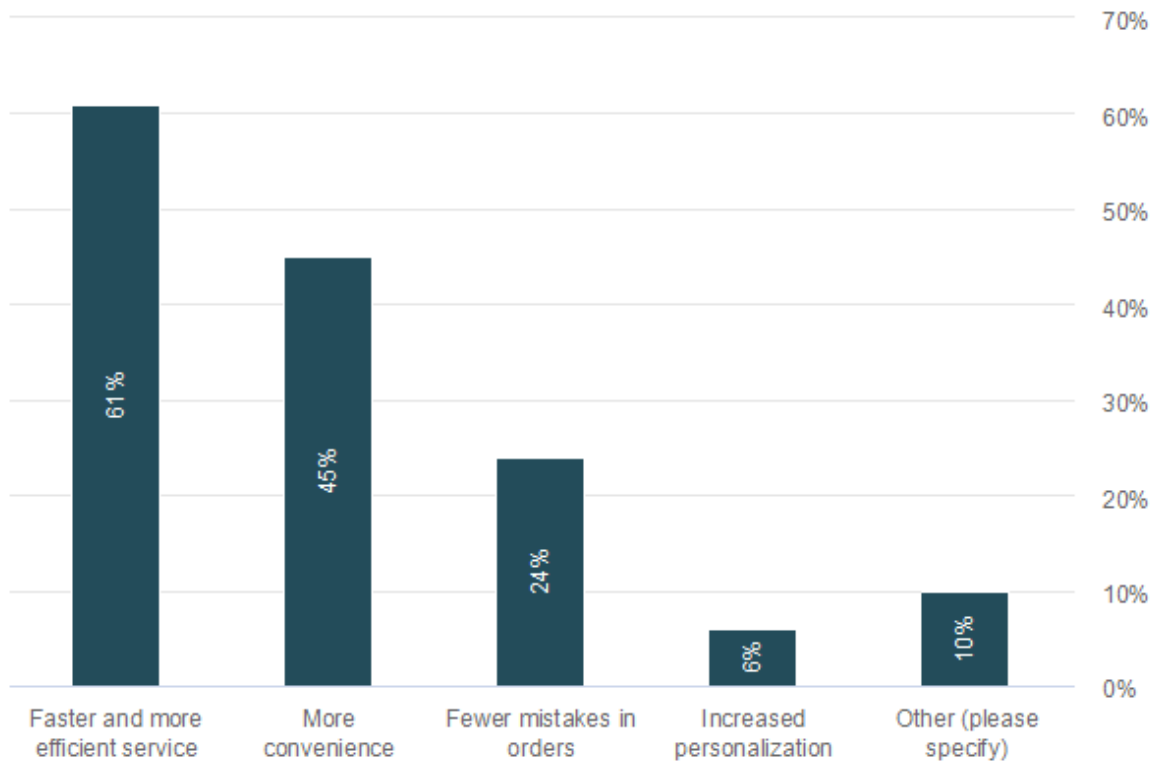


FIGURE 8. The benefits of using modern methods of delivering customer service at McDonald's (ITIS).

TABLE 3. Answers given into text field for the benefits of using modern methods of delivering customer service at McDonald's (ITIS).

| Answer options         | Given answer                                 |
|------------------------|--|
| Other (please specify) | I have never visited McDonald's. So, no idea |
| Other (please specify) | Never been there                             |
| Other (please specify) | Possibility to get the order to the table    |
| Other (please specify) | No language barrier                          |
| Other (please specify) | You don't have to talk to anyone.            |

According to figure 8 and table 3 out of the 76 respondents, the most common response to what do you think are the benefits of using modern methods of delivering customer service at McDonald's (ITIS)? was "faster and more efficient service" (61%), followed by "more convenience" (45%). A smaller proportion of respondents selected "fewer mistakes in orders" (24%) and "increased personalization" (6%). Additionally, 10% of respondents selected "other" and provided their own response. The

responses under "other" included the possibility to get the order to the table, the absence of a language barrier, and not having to talk to anyone, which suggests that the use of modern methods of delivering customer service can provide greater autonomy and ease to customers.

#### 4.4.9 The challenges of using modern methods of delivering customer service at McDonald's.

TABLE 4. The challenges of using modern methods of delivering customer service at McDonald's.

|   | No | Percentage |
|---|----|------------|
| Technical issues                        | 26 | 34.2%      |
| Difficulty in using the technology      | 20 | 26.3%      |
| Lack of human interaction               | 23 | 30.3%      |
| Reduced job opportunities for employees | 20 | 26.3%      |
| Other (please specify)                  | 10 | 13.2%      |

TABLE 5. Customer feedback

| Answer options         | Given answer  |
|------------------------|---|
| Other (please specify) | No answer. As no idea about information technology & also never visited McDonald's. |
| Other (please specify) | Screen number   |
| Other (please specify) | Never been there  |
| Other (please specify) | No bring to tab on options if there are no external numbers available               |

Table 4 shows there were 76 respondents, the most common challenge identified was "technical issues" (34.2%), followed by "lack of human interaction" (30.3%) and "difficulty in using the technology" (26.3%). A smaller proportion of respondents identified "reduced job opportunities for employees" (26.3%) as a challenge. Additionally, 13.2% of respondents selected "other" and provided their own response. The responses under "other" included issues such as slow internet connection and issues with accuracy in order fulfillment in the table 5. The findings suggest that while modern methods of delivering customer service can enhance the customer experience, there are also challenges associated with the use of technology, particularly in terms of technical issues and a lack of human interaction.

#### 4.4.10 Improvement of customer service at McDonald's with the use of AI (ITIS)

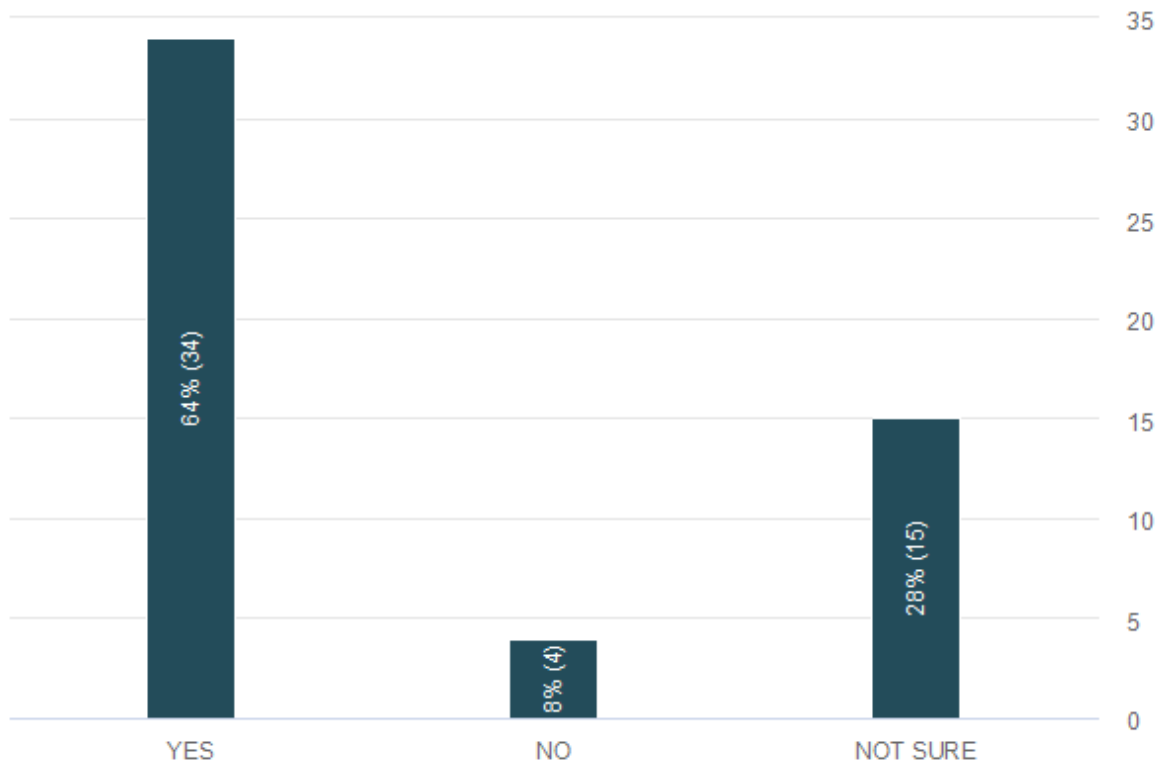


FIGURE 9. Improvement of customer service at McDonald's with the use of AI (ITIS).

As shown in figure 9 the majority of the 78 respondents (64%) believed that AI can improve customer service at McDonald's (ITIS). 12 respondents (8%) did not believe that AI could improve customer service, while 23 respondents (28%) were unsure.

4.4.11 Interaction with AI-powered customer service at McDonald's (ITIS)

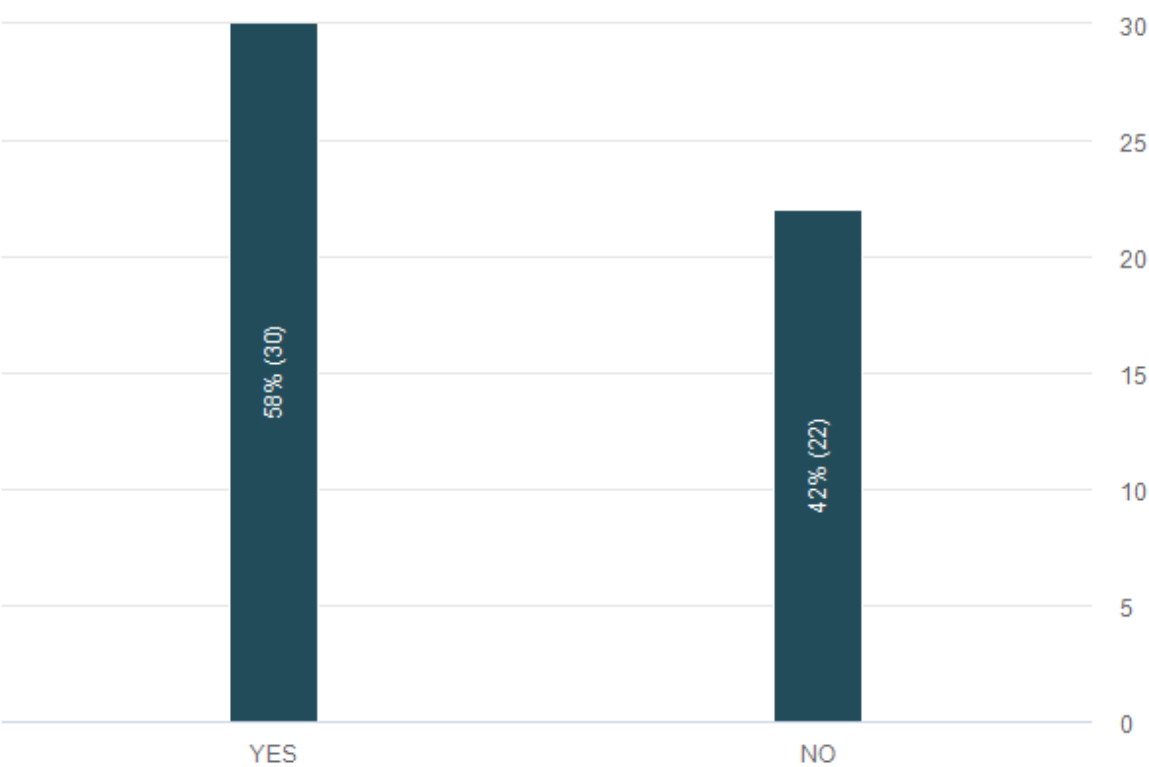


FIGURE 10. Interaction with AI-powered customer service at McDonald's (ITIS).

Figure 10 above shows the survey found that out of the 52 respondents, a majority of 30 (58%) had interacted with AI-powered customer service at McDonald's (ITIS), while 22 (42%) had not. This suggests that a significant proportion of customers have experienced AI-powered customer service at McDonald's (ITIS).

4.4.12 Satisfaction with the AI-powered customer service at McDonald's (ITIS)

TABLE 6. Satisfaction with the AI-powered customer service at McDonald's (ITIS).

|                                    | No | Percentage |
|------------------------------------|----|------------|
| Very satisfied                     | 23 | 32.0%      |
| Somewhat satisfied                 | 16 | 22.2%      |
| Neither satisfied nor dissatisfied | 22 | 30.6%      |

TABLE 6. (continues).

|                       |   |      |
|-----------------------|---|------|
| Somewhat dissatisfied | 6 | 8.3% |
| Very dissatisfied     | 5 | 6.9% |

Table 6 points out that the 72 respondents who had interacted with AI-powered customer service, a total of 39 (54.2%) were satisfied to some extent with the service provided by McDonald's (ITIS). Specifically, 23 (32.0%) were very satisfied with the AI-powered customer service, while 16 (22.2%) were somewhat satisfied. However, 11 (15.3%) respondents expressed some level of dissatisfaction with the AI-powered service, with 6 (8.3%) being somewhat dissatisfied and 5 (6.9%) being very dissatisfied.

Interestingly, a significant proportion of respondents, 22 (30.6%), expressed a neutral stance towards the AI-powered customer service provided by McDonald's (ITIS), indicating that they neither had a positive nor negative experience with the service. This suggests that while some customers find AI-powered customer service effective, others may not feel strongly about it one way or the other. Overall, these findings suggest that while AI-powered customer service has the potential to improve customer experiences, it may not be the best option for all customers.

#### 4.4.13 The benefits of using AI-powered customer service at McDonald's (ITIS)

TABLE 7. The benefits of using AI-powered customer service at McDonald's (ITIS)

|                                   | No | Percentage |
|-----------------------------------|----|------------|
| Faster and more efficient service | 32 | 43.8%      |
| More personalized service         | 21 | 28.8%      |
| Reduced wait times                | 27 | 37.0%      |
| Increased accuracy in orders      | 15 | 20.5%      |
| Other (please specify)            | 6  | 8.2%       |

TABLE 8. Answers given into text field in regards to benefits of using AI-powered customer service at McDonald's (ITIS)

| Answer options         | Given answer     |
|------------------------|------------------|
| Other (please specify) | Never been there |

Table 7 and table 8 suggest that the majority of the 73 respondents saw faster and more efficient service as the key benefit of using AI-powered customer service at McDonald's (ITIS). This may be because AI-powered systems can handle a large number of requests at once, reducing wait times and improving overall efficiency. Additionally, AI-powered systems can process orders and provide recommendations quickly, leading to faster service and shorter wait times.

Interestingly, a sizeable proportion of respondents (28.8%) believed that more personalized service was a benefit of using AI-powered customer service. This could be because AI-powered systems can use customer data to provide personalized recommendations and offers. For instance, if a customer frequently orders vegetarian items, the AI-powered system can suggest similar items or offer customized promotions.

Furthermore, 27 (37.0%) respondents believed that reduced wait times was a benefit of using AI-powered customer service at McDonald's (ITIS). This is likely because AI-powered systems can handle a large volume of requests simultaneously, leading to a reduction in wait times.

Finally, 15 (20.5%) respondents believed that increased accuracy in orders was a benefit of using AI-powered customer service. AI-powered systems can help eliminate human error and improve the accuracy of orders. Overall, these findings suggest that respondents saw several benefits of using AI-powered customer service, with faster and more efficient service being the most commonly mentioned benefit.

#### 4.4.14 Challenges of using AI-powered customer service at McDonald's (ITIS)

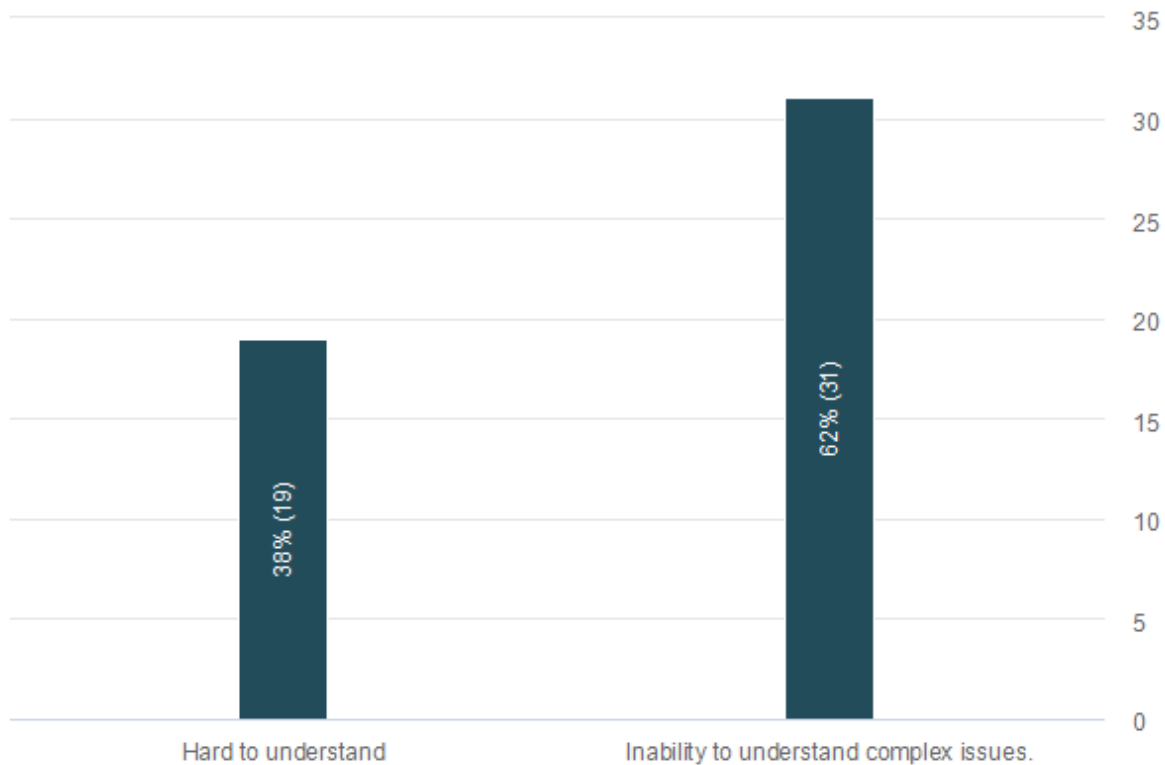


FIGURE 11. Challenges of using AI-powered customer service at McDonald's (ITIS).

Figure 11 shows that the survey found that 38% of the 50 respondents believed that one of the challenges of using AI-powered customer service at McDonald's (ITIS) was that it was hard to understand. This could refer to difficulties in using the technology or understanding the instructions provided by the AI system. On the other hand, most respondents (62%) believed that the inability of the AI system to understand complex issues was a challenge. This suggests that while AI-powered customer service may be useful for simple tasks, it may not be able to handle more complex issues or provide the same level of problem-solving ability as a human customer service representative. These findings highlight the need for McDonald's (ITIS) to carefully consider the limitations of AI-powered customer service and balance it with human interaction to provide the best possible customer service experience.

#### 4.4.15 Limitations of using AI-powered customer service at McDonald's (ITIS)

TABLE 9. Limitations of using AI-powered customer service at McDonald's (ITIS).

|  | No | Percentage |
|--|----|------------|
| Lack of human interaction                                | 37 | 49.3%      |
| Inability to handle complex issues                       | 20 | 26.7%      |
| Inability to understand and respond to customer emotions | 25 | 33.3%      |
| Lack of flexibility                                      | 16 | 21.3%      |
| Other (please specify)                                   | 6  | 8.0%       |

In table 9 the majority of the 75 respondents (49.3%) believed that the limitation of using AI-powered customer service at McDonald's (ITIS) was the lack of human interaction. 20 respondents (26.7%) believed that AI was unable to handle complex issues, while 25 respondents (33.3%) believed that it was unable to understand and respond to customer emotions. 16 respondents (21.3%) believed that the limitation of AI was the lack of flexibility, and 6 respondents (8.0%) specified "Other" as the limitation.

#### 4.4.16 Use of AI-powered customer service at McDonald's in the future

TABLE 10. Use of AI-powered customer service at McDonald's in the future.

|          | No | Percentage |
|----------|----|------------|
| YES      | 44 | 57.9%      |
| NO       | 11 | 14.5%      |
| NOT SURE | 21 | 27.6%      |

Table 10 shows most of the respondents (57.9%) were willing to interact with AI-powered customer service again at McDonald's (ITIS) in the future. This indicates a positive attitude towards the use of AI-powered customer service. On the other hand, 14.5% of respondents were not willing to interact again, which suggests that there are some concerns or negative experiences with the technology. It is worth noting that a significant number of respondents (27.6%) were not sure, which may reflect a lack of familiarity with or understanding of AI-powered customer service. Overall, the responses to this question suggest that there is potential for the use of AI-powered customer service at McDonald's

(ITIS), but further research and development may be necessary to address concerns and improve user experience.

#### 4.4.17 Suggestions for improving the customer service at McDonald's (ITIS)

TABLE 11. Suggestions for improving the customer service at McDonald's (ITIS)

| Given answers   |
|---|
| Improve service   |
| Nothing at this moment.   |
| Yes   |
| They should make fast service and more staff  |
| This is not related to me as not interested in IT and never visited McDonald's. So, sorry I can't drop any suggestions. I've just responded as you're going to research.  |
| No  |
| Everything is good some time cleaning not proper  |
| Nothing   |
| No  |
| Yes, the place is small McDonald's ITIS need more space place   |
| More regular training   |
| More cleaning   |
| I do not go to restaurants if they are dirty, and the bins are full. That sometimes happens now. Also, I am likely to go more often to restaurants where there are friendly people. Using self-service to order meals is ok, as it gives the benefit of ordering at the table. I do not think much AI is involved in that system; it is very simple |
| Can you improve your AI.  |
| No  |
| I think they need to improve AI for more flexibility  |

In table 11 it shown that out of the 41 respondents who answered, suggestions for improvement included improving the service, making the service faster and having more staff, improving cleaning, providing more space, and offering more regular training for employees. Some respondents also mentioned that they prefer friendly staff and are more likely to visit restaurants that are clean and well-

maintained. One respondent suggested improving the AI system, while others expressed that they do not have any suggestions.

#### 4.4.18 Other based customer service experience at McDonald's (ITIS)

TABLE 12. Recommend McDonald's (ITIS).

|                             | No | Percentage |
|-----------------------------|----|------------|
| Very likely                 | 26 | 35.6%      |
| Somewhat likely             | 22 | 30.1%      |
| Neither likely nor unlikely | 15 | 20.5%      |
| Somewhat unlikely           | 5  | 6.9%       |
| Very unlikely               | 5  | 6.9%       |

Table 12 shows that out of the 73 respondents who answered how likely are you to recommend McDonald's (ITIS) to others based on your customer service experience, 26 (35.6%) were very likely to recommend McDonald's (ITIS) to others based on their customer service experience, while 22 (30.1%) were somewhat likely to recommend it. 15 respondents (20.5%) were neither likely nor unlikely to recommend, while 5 respondents (6.9%) were somewhat unlikely to recommend, and another 5 respondents (6.9%) were very unlikely to recommend. These results suggest that a significant majority of respondents were either likely or somewhat likely to recommend McDonald's (ITIS) to others based on their customer service experience, indicating a generally positive perception of the restaurant's customer service.

#### 4.4.19 Feedback regarding the modern methods of delivering customer service and the role of AI at McDonald's (ITIS)

TABLE 13. Feedback regarding the modern methods of delivering customer service and the role of AI at McDonald's (ITIS).

| Given answers  |
|--|
| No   |
| Nothing at this point.   |
| No   |
| This is not related to me as not interested in IT and never visited McDonald's So, sorry I can't drop any suggestions. I've just responded as you're going to research.  |
| Let us be humane in some areas.  |
| Meet customer needs at every touch point and solve problems before they occur to achieve improved revenues and customer satisfaction scores.   |
| Nothing  |
| No   |
| Wide space   |
| So far okay.   |
| Very good service  |
| If AI is used new, it is very invisible to a customer, as there is no flexible interaction and no learning involved in the interaction. I am not interested in downloading an app, however, have too many of those already and have now need for it, as MacDonalds is the very definition of standardization, and I do not accept personalization from MacDonalds. |
| I'm unsure what AI means in this context, wish that was explained here.  |

Table 13 indicates that out of the 38 respondents who answered to feedback regarding the modern methods of delivering customer service and the role of AI at McDonald's (ITIS). Some mentioned that they are unsure about the role of AI in customer service at McDonald's (ITIS) and wish for more clarification. Others suggested being more humane and meeting customer needs at every touch point. Some respondents gave positive feedback about the service, while others did not have any additional comments.

## 4.5 Findings

Unlike other industries like e-commerce, pharmaceuticals, banking, and telecommunications, the food services business has not been studied as a potential AI application area. It's unlikely that the food services business will see as much innovation as the aforementioned industries because of the scarcity of AI skills in this field. This doesn't mean advancements won't be made in the food service industry; rather, it suggests that progress will be slower.

The study yielded significant information regarding the demographics, education, visit frequency, satisfaction levels, and strengths and weaknesses of customer service at McDonald's ITIS Helsinki. The restaurant can apply these insights to enhance its customer service delivery methods and menu offerings according to customers' preferences. The strategies to reduce waiting times, personalize services, and train staff on menu items would improve the customer experience and attract more customers.

## 5 CONCLUSION

This thesis clarifies the meaning of AI and related concepts for the public. There is no denying that the AI revolution of the 21st century is a watershed moment in human history. In the context of human society, artificial intelligence has been a complete success as a system for analyzing, refining, and deriving massive volumes of data. People can now find its uses in virtually any setting, be it at home, on their phones, in public spaces, at work, at hospitals, or in stores. One of the largest contributors to the global economy, the food service sector reaps in billions of dollars every year. Due to technological advancements, it is now feasible to place an order for meals whenever it is most convenient for the client, and the business is shifting towards more creative methods to meet customer expectations. So, AI software is slowly but surely making its way into the restaurant business.

It can be observed from the literature review that the prevalence of AI and related technologies in the restaurant industry is increasing. Recent developments such as self-service kiosks, food-service robots, and chatbots have been implemented to enhance customer experience and service efficiency. However, according to a study conducted by Leung and Wen (2020), some of these technologies are still insufficient in terms of customer satisfaction and social presence. Therefore, continuous assessment and improvement of the use of AI and related technologies by companies is imperative to meet customers' expectations.

Consistent with the literature, the survey conducted at McDonald's (ITIS) shows that most respondents had positive experiences with modern methods of customer service, such as mobile ordering and self-service kiosks. Nevertheless, limitations exist, including the absence of human interaction. Hence, it is essential for companies to strike a balance between incorporating modern methods and maintaining contact between customers and service personnel. The integration of AI-powered customer service can be a promising approach to enhance accuracy and efficiency in food service, but companies must acknowledge the challenges and limitations that come with this technology. Continuous evaluation and adaptation of the use of AI by companies is fundamental to ensure that customers' needs and expectations are met.

## REFERENCES

- Addanki Mounika, Patra Priyanka, and Kandra Prameela. Recent Advances and Applications of Artificial Intelligence and Related Technologies In the Food Industry. *Applied food research*, v. 2,.2 pp. 100126. doi: [10.1016/j.afres.2022.100126](https://doi.org/10.1016/j.afres.2022.100126)
- Accenture, 2017. *Technology Vision 2017: Amplify You*. [online] Available at: <https://newsroom.accenture.com/news/accenture-technology-vision-2017-forecasts-a-future-of-technology-for-people-by-people.htm>
- Berezina, Katerina & Ciftci, Olena & Cobanoglu, Cihan. 2019. *Robots, Artificial Intelligence, and Service Automation in Restaurants*. 10.1108/978-1-78756-687-320191010.
- Brynjolfsson, E., & McAfee, A., 2014. *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*. New York: W.W. Norton & Company.
- Bird, S., Klein, E., & Loper, E. (2009). *Natural Language Processing with Python: Analyzing Text with the Natural Language Toolkit*. O'Reilly Media, Inc.
- Bishop, C.M., 2006. *Pattern Recognition and Machine Learning*. New York: Springer.
- Blöcher, K. & Alt, R. 2021. AI and robotics in the European restaurant sector: assessing potentials for process innovation in a high-contact service industry. *Electronic markets*, 31, 529.
- Chun, Se-Hak, and Ariunzaya Nyam-Ochir. 2020. "The Effects of Fast Food Restaurant Attributes on Customer Satisfaction, Revisit Intention, and Recommendation Using DINESERV Scale" *Sustainability* 12, no. 18: 7435. <https://doi.org/10.3390/su12187435>
- Cohen, L., Manion, L., & Morrison, K. (2018). *Research Methods in Education*, 8th ed. London: Routledge.  
<https://doi.org/10.4324/9781315456539>
- Corbin, J. and Strauss, A., 2008. *Basics of Qualitative Research (3rd ed.): Techniques and Procedures for Developing Grounded Theory*. Thousand Oaks, CA: SAGE Publications, Inc. Available at: <https://dx.doi.org/10.4135/9781452230153> Accessed 30 Nov 2022.
- Chen, H., Chiang, R. H., & Storey, V. C. (2012). *Business intelligence and analytics: from big data to big impact*. *MIS Quarterly*.
- Davenport, T. H., Guha, A., Grewal, D., & Bressgott, T. (2020). How artificial intelligence will change the future of marketing. *Journal of the Academy of Marketing Science*. <https://doi.org/10.1007/s11747-019-00696-0>
- Dixon, M.J., Kimes, S.E., & Verma, R. 2009. *Customer Preferences for Restaurant Technology Innovations*.
- Haenlein, M., & Kaplan, A. (2019). *A Brief History of Artificial Intelligence: On the Past, Present, and Future of Artificial Intelligence*. *California Management Review*, 61(4), 5–14.  
<https://doi.org/10.1177/0008125619864925>

- Heskett, J.L., Sasser Jr, W.E., and Schlesinger, L.A., 1997. *The service profit chain: How leading companies link profit and growth to loyalty, satisfaction, and value*. New York: The Free Press.
- Huang, M.-H., & Rust, R. T. (2018). Artificial Intelligence in Service. *Journal of Service Research*. <https://doi.org/10.1177/1094670517752459>
- Kimes, S. E. & Collier, J. 2014. *Customer-facing payment technology in the US restaurant industry*. Available at: <https://hdl.handle.net/1813/71075>
- Kimes, S.E. (2011). The current state of menu engineering research and practice: A call for action. *International Journal of Contemporary Hospitality Management*
- Kumar, R. 2019. *Research Methodology: A Step-by-Step Guide for Beginners* ,5th edition. SAGE Publications India.
- Leung, Xi & Wen, Han. 2020. Chatbot usage in restaurant takeout orders: A comparison study of three ordering methods. *Journal of Hospitality and Tourism Management*. 45. 377-386. 10.1016/j.jhtm.2020.09.004.
- Li, X., & Karahanna, E. (2015). Online recommendation systems in a B2C e-commerce context: a review and future directions. *Journal of the Association for Information Systems*. DOI:[10.17705/1jais.00389](https://doi.org/10.17705/1jais.00389)
- Marr, B. 2022. *The metaverse and digital transformation at McDonald's* [online]. Available: <https://bernardmarr.com/the-metaverse-and-digital-transformation-at-mcdonalds/> [accessed 09/17/2022].
- Ministry of Economic Affairs and Employment 2017. *Finland's age of artificial intelligence*. Helsinki, Finland.
- Murphy, K.P., 2012. *Machine Learning: A Probabilistic Perspective*. Cambridge, MA: The MIT Press, pp.25-40.
- Mitchell, T.M., 1997. *Machine Learning*. New York: McGraw-Hill.
- Meeker, M. & Wu, L., 2018. *Internet Trends 2018*. Kleiner Perkins. Available at: <https://www.slideshare.net/kleinerperkins/internet-trends-report-2018-99574140>
- Nilsson, N.J., 2009. *The Quest for Artificial Intelligence: A History of Ideas and Achievements*. Cambridge: Cambridge University Press.
- Oliver, R.L., 2010. *Satisfaction: A Behavioral Perspective on the Consumer*. 2nd ed. New York: Routledge.
- Owen, R. 2022. Artificial intelligence at McDonald's – two current use cases [online]. Available: <https://emerj.com/ai-sector-overviews/artificial-intelligence-at-mcdonalds/> [accessed 09/15/2022].
- Philipsen, Hans & Vernooij-Dassen, Myrra. 2004. Kwalitatief onderzoek: nuttig, onmisbaar en uitdagend. *Huisarts en Wetenschap*. 47. 288-292. <https://doi.org/10.1007/BF03083760>

- Poole, D., & Mackworth, A. 2010. *Artificial Intelligence: Foundations of Computational Agents*. Cambridge: Cambridge University Press.
- Prentice, C., Weaven, S., & Wong, I.A. 2020. Linking AI quality performance and customer engagement: The moderating effect of AI preference. *International Journal of Hospitality Management*, 90, 102629.
- Punch, k. F. 2013. *Introduction to social research: quantitative and qualitative approaches*, sage.
- Parasuraman, A., Zeithaml, V.A. and Berry, L.L., 1988. SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), pp.12-40.
- Parasuraman, A., Zeithaml, V.A., and Berry, L.L., 1985. A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 49(4), pp.41-50.
- Quang, N., Nisar, T., Knox, D. & Prabhakar, G. P. 2018. Understanding customer satisfaction in the UK quick service restaurant industry. *British food journal*, 120, 1207.
- Rupali, M., & Amit, P. 2017. A Review Paper on General Concepts of “Artificial Intelligence and Machine Learning”. *International Advanced Research Journal in Science, Engineering and Technology*, 4, 79-82.
- Russell, S.J., and Norvig, P., 2016. *Artificial Intelligence: A Modern Approach*, 3rd ed. Upper Saddle River, NJ: Pearson Education, pp.12-35.
- Ritzer, G., 2013. *The McDonaldization of Society* 6. Thousand Oaks, CA: SAGE Publications.
- Rust, R.T., zahorik, a. J. & keiningham, t. L. 1995. Return on quality (roq): making service quality financially accountable. *Journal of marketing*, 59, 58.
- Sarker, i. H. 2021. Deep learning: a comprehensive overview on techniques, taxonomy, applications and research directions. *Sn computer science*, 2, 1.
- Sarker, i. H. 2022. Ai-based modeling: techniques, applications and research issues towards automation, intelligent and smart systems. *Sn computer science*, 3, 158.
- Saunders, M., Lewis, P., & Thornhill, A. (2016). *Research methods for business students*. Pearson Education.
- Shahril, Z., Zulkafly, H. A., Ismail, N. S., & Sharif, N. U. N. M. (2021). Customer Satisfaction Towards Self-Service Kiosks for Quick Service Restaurants (QSRs) in Klang Valley. *International Journal of Academic Research in Business and Social Sciences*.  
<http://dx.doi.org/10.6007/IJARBS/v11-i13/8502>
- Szeliski, R., 2010. *Computer Vision: Algorithms and Applications*. London: Springer Science & Business Media.
- Xu, B., Xu, L., Cai, H., Jiang, L., Luo, Y., & Gu, Y. (2017). *The design of an m-health monitoring system based on a cloud computing platform*. *Enterprise Information Systems*, 11(1), 17-36.

Xu, Boyi & Xu, Lida & Cai, Hongming & Jiang, Lihong & Luo, Yang & Gu, Yizhi. (2015). *The design of an m-Health monitoring system based on a cloud computing platform*. *Enterprise Information Systems*. Available at:

[https://www.researchgate.net/publication/281369661\\_The\\_design\\_of\\_an\\_m-Health\\_monitoring\\_system\\_based\\_on\\_a\\_cloud\\_computing\\_platform](https://www.researchgate.net/publication/281369661_The_design_of_an_m-Health_monitoring_system_based_on_a_cloud_computing_platform)

Xu, L. D., He, W., & Li, S., 2018. Internet of Things in Industries: A Survey. *IEEE Transactions on Industrial Informatics*.

Yaffe-Belany, d. 2019. *Would you like fries with that? Mcdonald's already knows the answer* [online]. Available: <https://www.nytimes.com/2019/10/22/business/mcdonalds-tech-artificial-intelligence-machine-learning-fast-food.html> [accessed 11/13/2022 2022].

Yin, R. K. (2009). *Case study research: Design and methods*. Sage Publications.

Zhang, X., Balaji, M. & Jiang, Y. 2022. Robots at your service: value facilitation and value co-creation in restaurants. *International journal of contemporary hospitality management*.

Zeithaml, V.A., Bitner, M.J., and Gremler, D.D., 2006. *Services marketing: Integrating customer focus across the firm*, 4th ed. New York: McGraw-Hill Irwin.

**AI Customer Service Evaluation In McDonald's (ITIS) Helsinki.**

1. What is your age?
  - ☐ Under 18
  - ☐ 18-24
  - ☐ 25-34
  - ☐ 35-44
  - ☐ 45-54
  - ☐ 55-64
  - ☐ 65 above
  
2. What is your gender?
  - ☐ Male
  - ☐ Female
  - ☐ Non-binary
  - ☐ I prefer not to say
  
3. What is your highest level of education?
  - ☐ High school diploma or equivalent
  - ☐ Some college or associate degree
  - ☐ Bachelor's degree
  - ☐ Master's degree
  - ☐ Doctorate or professional degree
  - ☐ Prefer not to say
  
4. Have you visited at McDonald's (ITIS) restaurant in the past 6 months?
  - ☐ YES
  - ☐ NO
  
5. How often do you visit McDonald's (ITIS)?
  - ☐ Daily

## APPENDIX 1/2

- ☐ Weekly
- ☐ Monthly
- ☐ Rarely
- ☐ Never

6. How satisfied are you with the customer service provided at McDonald's (ITIS)?

- ☐ Very satisfied
- ☐ Somewhat satisfied
- ☐ Neither satisfied nor dissatisfied
- ☐ Somewhat dissatisfied
- ☐ Very dissatisfied

7. What do you think are the strengths of the customer service provided by McDonald's (ITIS)? (Select all that apply)

- ☐ Friendly and helpful staff
- ☐ Fast and efficient service
- ☐ Clean and well-maintained restaurant
- ☐ Good value for the price
- ☐ Other (please specify) \_\_\_\_\_

8. What do you think are the areas for improvement in the customer service provided by McDonald's (ITIS)? (Select all that apply)

- ☐ Longer wait times
- ☐ Inconsistent quality of service
- ☐ Staff not being knowledgeable about menu items
- ☐ Lack of personalization
- ☐ Other (please specify) \_\_\_\_\_

9. Have you used any of the following modern methods of delivering customer service at McDonald's (ITIS)? (Select all that apply)

- ☐ Mobile ordering
- ☐ Self-service kiosks

## APPENDIX 1/3

☐ Delivery service

10. How satisfied are you with the modern methods of delivering customer service at McDonald's (ITIS)?

☐ Very satisfied

☐ Somewhat satisfied

☐ Neither satisfied nor dissatisfied

☐ Somewhat dissatisfied

☐ Very dissatisfied

11. What do you think are the benefits of using modern methods of delivering customer service at McDonald's (ITIS)? (Select all that apply)

☐ Faster and more efficient service

☐ More convenience

☐ Fewer mistakes in orders

☐ Increased personalization

☐ Other (please specify) \_\_\_\_\_

12. What do you think are the challenges of using modern methods of delivering customer service at McDonald's (ITIS)? (Select all that apply)

☐ Technical issues

☐ Difficulty in using the technology

☐ Lack of human interaction

☐ Reduced job opportunities for employees

☐ Other (please specify) \_\_\_\_\_

13. Do you think AI can improve customer service at McDonald's (ITIS)?

☐ YES

☐ NO

☐ NOT SURE

14. Have you interacted with AI-powered customer service at McDonald's (ITIS)?

☐ YES

APPENDIX 1/4

☐ NO

15. How satisfied were you with the AI-powered customer service at McDonald's (ITIS)?

- ☐ Very satisfied
- ☐ Somewhat satisfied
- ☐ Neither satisfied nor dissatisfied
- ☐ Somewhat dissatisfied
- ☐ Very dissatisfied

16. What do you think are the benefits of using AI-powered customer service at McDonald's (ITIS)? (Select all that apply)

- ☐ Faster and more efficient service
- ☐ More personalized service
- ☐ Reduced wait times
- ☐ Increased accuracy in orders
- ☐ Other (please specify) \_\_\_\_\_

17. What do you think are the challenges of using AI-powered customer service at McDonald's (ITIS)?

- ☐ Hard to understand
- ☐ Inability to understand complex issues.

18. What do you think are the limitations of using AI-powered customer service at McDonald's (ITIS)? (Select all that apply)

- ☐ Lack of human interaction
- ☐ Inability to handle complex issues
- ☐ Inability to understand and respond to customer emotions
- ☐ Lack of flexibility
- ☐ Other (please specify) \_\_\_\_\_

19. Would you be willing to interact with AI-powered customer service again at McDonald's in the future?

APPENDIX 1/5

- ☐ YES
- ☐ NO
- ☐ NOT SURE

20. How would you rate your overall satisfaction with the customer service provided by McDonald's (ITIS)?

- ☐ Very satisfied
- ☐ Somewhat satisfied
- ☐ Neither satisfied nor dissatisfied
- ☐ Somewhat dissatisfied
- ☐ Very dissatisfied

21. Do you have any suggestions for improving the customer service at McDonald's (ITIS)?

---

---

---

22. How likely are you to recommend McDonald's (ITIS) to others based on your customer service experience?

- ☐ Very likely
- ☐ Somewhat likely
- ☐ Neither likely nor unlikely
- ☐ Somewhat unlikely
- ☐ Very unlikely

23. Do you have any additional comments or feedback regarding the modern methods of delivering customer service and the role of AI at McDonald's (ITIS)?

---

---

---