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# TECHNOLOGICAL ADVANCEMENTS IN THE HOSPITALITY INDUSTRY OF THE 21ST CENTURY

Submitted by:

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# Abstract

**Purpose** – The overarching aim of this study is to gain insight into the intentions of hospitality managers to adopt new technologies, factors that influence their intentions, potential outcomes, the implications for the future of the hospitality workforce, and new labour management strategies in this era.

**Design/methodology/approach** – In this study, a qualitative research methodology was employed to explore the influence of managers' intentions to adopt advanced technologies on the future of the hospitality workforce. The study employed the purposive sampling method to conduct semi-structured interviews with 27 participants at the managerial level in the United Kingdom restaurants. Additionally, non-participant observations were conducted to provide further support for the study. The acquired data were subjected to thematic content analysis.

**Findings** – This study thoroughly explored managers' intentions on the adoption of advanced technologies and presented them comprehensively using the Technology Acceptance Model (TAM) model as a framework. The study presented three primary scenarios for the future of the labour force in the restaurant industry, each of which was thoroughly and individually examined along with strategies to effectively manage each scenario. These findings hold significant importance. The study underscored the requisite skills that employees must possess to secure a job in the era of technological advancements.

**Originality/value** – The majority of research using TAM has focused on examining the individual acceptability of technology in consumer and guest contexts. This study is among the initial ones to employ the Technology Acceptance Model (TAM) to examine managerial viewpoints. This study aimed to identify the factors that influence managers' intentions to adopt advanced technologies in restaurants using TAM. It emphasised that there are hidden factors that impact intentions to use technologies from a managerial perspective that have not been previously explored from a customer perspective. This study is among the first to explore the impact of managers' intentions to adopt advanced technologies on the future of the labour force. It delves into three primary scenarios and provides strategic recommendations for managing these scenarios from a managerial standpoint. This study has identified the necessary technological competencies that hospitality practitioners must possess in the current era, as well as the impact of these competencies on employee remuneration.



**Keywords:** Technological advancements, Technology acceptance model (TAM), Qualitative research, Hospitality, Labour force

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# Introduction

## 1.1 Research Background

The hospitality industry ranks as the sixth largest employer in the United Kingdom. In September 2023, the tourism and hospitality sector in the United Kingdom made a significant contribution of 2.8 million employment opportunities, representing approximately 7.6% of the country's total workforce. The term "hospitality" encompasses a wide-ranging industry that encompasses hotels, restaurants, cafes, bars, and pubs. The food and accommodation services sector made a significant contribution of £73.8 billion to the UK economy in 2023. Concurrently, the hospitality sector has consistently experienced a shortage of staff, and a higher rate of job openings compared to other economic sectors (Hutton *et al*., 2024).

The hospitality industry consistently demonstrates a proactive approach to adopting cutting-edge technological advancements to enhance service quality, productivity, and financial performance for enterprises. In recent years, there have been significant advancements in various technological solutions, including artificial intelligence (AI) (Wang & Uysal, 2024), robotics (Liu *et al.*, 2024), mobile applications, and cloud-based platforms (Li *et al.*, 2024). The aforementioned advancements have significantly transformed the dynamics of the hospitality sector, thereby creating new opportunities for growth and presenting new obstacles, particularly in relation to the future of the labour force (Seyitoğlu *et al.*, 2023; Pericleous *et al.*, 2025; Shin *et al.*, 2025).

According to Belanche *et al.* (2021) and Lock (2022), the utilisation of digitalisation is being employed to enhance and optimise hospitality services for customers and guests. The Henn-Na hotel achieved the distinction of being the world's first hotel operated exclusively through advanced technological systems in 2015. In addition, robots are employed as personnel in Malaysian coffee shops to cater to customers (Sadangharn, 2021; Yang & Chew, 2021). Since 2016, the hotel industry has witnessed widespread implementation of robotics and AI, leading to significant changes in the field globally, not limited to China, Japan, and Malaysia (Koo *et al.*, 2021). Liu *et al.* (2022a) and Seyitoğlu *et al.* (2023) have also underscored the increased utilisation of diverse advanced technologies in the restructuring of the hospitality sector subsequent to the COVID-19 pandemic. These technologies are highly adaptable and can be used in various capacities, such as cooking, front-desk clerking, personal shopping, and couriering, among other functions. Nozawa *et al.* (2022) stated that hotels employ the latest technologies to optimise the check-in/out procedure, provide amenities, welcome guests, guide visitors, maintain cleanliness in public areas, and facilitate meal preparation.

In recent decades, there has been a proliferation of literature on advanced technologies in the hospitality field (Ivanov *et al.*, 2017; Drexler & Lapré, 2019; Ivanov, 2019; Ivanov & Webster, 2020) that focuses on guests' acceptance of these technologies (Ivanov *et al.*, 2018; Gursoy *et al.*, 2019; Hou *et al.*, 2021), advanced technologies impact on service enhancement and productivity (Kuo *et al.*, 2017; Belanche *et al.*, 2021), hospitality key challenges in the era of industry 4.0 (Moktadir *et al.*, 2018; Balasubramanian & Ragavan, 2019; Mingotto *et al.*, 2021; Nam *et al*., 2021), advanced technology and hospitality competitiveness (Chan & Tung., 2019; Yang *et al.*, 2021). Undoubtedly, the hospitality industry has experienced notable advantages as a result of

technological advancements (Ivanov & Webster, 2024; Santiago *et al.*, 2024). However, concerns have arisen regarding the potential for substantial alterations in hospitality employment and the potential dehumanisation of the client experience. According to Chan and Tung (2019), Cheong and Lee (2021), and Cheong *et al.* (2023), the advent of self-service technologies such as automated check-in kiosks, chatbots, and food delivery systems has significantly diminished the need for front-line employees in the hospitality industry. This has raised concerns regarding the future of the labour force (Pericleous *et al*., 2025) and the overall quality of the guest experience.

According to Stock (2018) and Tussyadiah and Park (2018), there is no obstacle to substitute humans with advanced technology in hotels. This is because robots are capable of performing front desk tasks, providing room service, and establishing social connections with clients. It has been asserted that the ongoing debates and perspectives surrounding this matter will persist until an unexpectedly advanced technology supplants human beings, leading to disastrous consequences. Contrarily, Choi *et al.* (2020) and Kim and Cha (2024) noted that the efficacy of human-technology interactions surpasses that of human replacement, particularly in the context of the hotel industry, where the presence of human personnel is indispensable. This viewpoint is based on the premise that robots will assist managers in addressing human resources (HR) challenges such as recruiting temporary employees, coordinating work schedules during the offseason, and enhancing hotel reputation. Conversely, robots will perpetually be incapable of completely substituting humans in the labour force, and occupations will continue to necessitate human involvement for the foreseeable future. Both Ivanov (2020) and Ghosh *et al.* (2024) participated in this controversy and forecasted that digitalisation would bring about substantial transformations in the service sector, encompassing both front-end and back-end operations. These changes would involve the introduction of new job roles and the elimination of existing ones. Consequently, the nature of the service and the prerequisites for performing the tasks will undergo a transformation.

Although the authors hold differing viewpoints on this matter, they can concur that technological progress will influence managers' mindset to encourage the adoption of technology in the hospitality sector and exert control over the three primary aspects of operation, employees, and guests. Furthermore, the impact of this phenomenon extends to the transformation of work nature, job opportunities, and the requisite skill sets for securing employment (Ivanov, 2020).

The preceding debate signifies that current hospitality research pertaining to cutting-edge technologies is typically distinguished by (1) a lack of examination regarding the prospects of hospitality managers in relation to the recent technological era, specifically in terms of their acceptance (Ivanov *et al.*, 2018; Pizam *et al.*, 2022; Tussyadiah *et al.*, 2022; Shin *et al.*, 2025); (2) a dearth of lucidity regarding the ultimate ramifications of advanced technologies on the workforce within the hospitality industry (Erebak & Turgut, 2021; Nam *et al.*, 2021; Pillai *et al.*, 2022; Vatan & Dogan, 2021; Cheong *et al.*, 2023); (3) new labour force management strategies are needed (Shin *et al.*, 2019; Choi *et al.*, 2020; Tuomi *et al.*, 2021; Shin *et al.*, 2025); (4) a dearth of understanding regarding the skills needed of employees in the era of advanced technologies (Murphy *et al.*, 2017; Shin *et al.*, 2025). This study enhances the existing research by exploring the intentions of hospitality managers to adopt new technologies, the factors that influence their intentions, potential outcomes, consequences for the future of the hospitality workforce, and new labour management tactics in this era.

**Table 1.1:** Summary of Gaps in knowledge and Initiatives to Fill Them.

| Gap(s) and Key literature | Filling the research voids |
|---|---|
| A lack of clarity on the ultimate impact of sophisticated technologies on the hospitality industry labour force (Erebak & Turgut, 2021; Nam *et al*., 2021; Pillai *et al*., 2022; Vatan & Dogan, 2021; Cheong *et al.*, 2023). Concerns exist over its potential to undermine human employment (Kilihan & Yilmaz, 2020; Koo *et al*., 2021; Kong *et al.*, 2023; Pericleous *et al.*, 2025) and the skills required of employees in the era of technological breakthroughs (Murphy *et al.*, 2017; Shin *et al.*, 2025). | This study explores the prospects for hospitality managers concerning the current technological era by illuminating the elements influencing managers' adoption intentions through the TAM lens, labour-related concerns, mainly focusing on their job future, new strategies of labour force management, and exploring the various functions of new technologies in the hospitality context. |
| Lacks examining the hospitality managers' prospects in matters related to the recent technological epoch in terms of managers' acceptance (Ivanov *et al*., 2018; Pizam *et al.*, 2022; Tussyadiah *et al.*, 2022; Pericleous *et al.*, 2025; Shin *et al.*, 2025), labour-related concerns (Drexler & Lapre, 2019; Seyitoğlu *et al.*, 2023; Pericleous *et al.*, 2025), and new labour force management strategies (Shin *et al.*, 2019; Choi *et al*., 2020; Tuomi *et al*., 2021; Pericleous *et al.*, 2025; Shin *et al.*, 2025). | |
| Exploring the multifaceted functions of new technology in hospitality (Gursoy *et al*., 2019; Mingotto *et al*., 2021; Cheong *et al.*, 2023). | |
| Lacks advanced technology research in the hospitality context (Park, 2020; Shin & Jeong, 2020; Cheong *et al.*, 2023). | |
| Despite TAM's origins as a model to predict user acceptance and usage of technology in the workplace, Davis *et al*. (1989) and Slade *et al.* (2015) noted that the majority of TAM studies have also investigated the individual acceptability of technology in the consumer and guest context, such as in (Nizar & Rahmat, 2018; Pillai & Sivathanu, 2020; Yang *et al.*, 2021) studies. | The Technology Acceptance Model (TAM) paradigm is employed in this inquiry. The purpose of this study is to determine if PEOU and PU influence the managers of hospitality venues' decisions to implement/use advanced technology in service and to explore the other elements that influence their decision and projected implications on the labour force. |
| The hospitality industry's future workforce needs to be investigated in more depth, hence more empirical research is necessary (Cobos *et al.*, 2016; Ivanov & Webster, 2020; Reis *et al*., 2020; Mingotto *et al*., 2021; Pericleous *et al.*, 2025). | Unlike the vast majority of hospitality studies, which have relied on quantitative techniques, this one takes a qualitative, in-depth approach. |

## 1.2 The Research Significance

The extant body of literature in the field of hospitality substantiates the dearth of advanced technological research within the hospitality domain (Park, 2020; Shin & Jeong, 2020; Cheong *et al.*, 2023) and lacks examining the hospitality managers' prospects in matters related to the recent technological epoch in terms of managers' acceptance (Ivanov *et al.*, 2018; Pizam *et al.*, 2022; Tussyadiah *et al.*, 2022; Shin *et al.*, 2025), labour-related concerns (Drexler & Lapre, 2019; Seyitoğlu *et al.*, 2023), new labour force management strategies (Shin *et al.*, 2019; Choi *et al.*, 2020; Tuomi *et al.*, 2021; Shin *et al.*, 2025), and the skills required of employees in the era of

technological breakthroughs (Murphy *et al*., 2017). Tuomi *et al*. (2021) revealed that despite the wide range of research conducted on new technologies in the hospitality sector, still, more research in various contexts is needed, especially exploring new strategies in the hospitality sector.

The current body of research on technology in the hospitality industry has primarily emphasised the technology acceptance model (TAM). However, it has mainly concentrated on the individual acceptability of technology in the context of consumers and guests. These studies have predominantly relied on quantitative methods and a single data source, as demonstrated by studies conducted by Nizar and Rahmat (2018), Pillai and Sivathanu (2020), and Yang *et al.* (2021). The hospitality literature has provided limited evidence on the prospects of hospitality managers in relation to the recent technological era, specifically in terms of their acceptance (Ivanov *et al.*, 2018; Pizam *et al.*, 2022; Tussyadiah *et al.*, 2022). The aforementioned gaps indicated that further research is required to explore the role of the Technology Acceptance Model (TAM) in examining the intentions of hospitality managers to adopt new technologies, factors that influence their decisions, potential outcomes, the implications for the future of the hospitality workforce, and new labour management strategies in this era.

Consequently, this study aims to investigate the role of the TAM model in comprehending the factors that affect the intentions of hospitality managers to adopt new technologies, the factors that influence their decisions, potential outcomes, the implications for the future of the hospitality workforce, and new labour management strategies in this era. The research will utilise qualitative methods and collected data from various sources. Using the Technology Acceptance Model (TAM) as a framework, we will examine the intentions of hospitality managers to adopt advanced technologies and the factors that influence those intentions. This suggests the possibility of extending the TAM model by incorporating new constructs or introducing additional elements to the original constructs. An examination of managers' intentions and consumers' acceptance of advanced technologies in the hospitality industry, from a managerial standpoint, can serve as a reliable foundation for assessing whether these technologies displace human labour, create new jobs or work together with humans to enhance productivity, level of service, and employment opportunities. The findings of this study provide evidence-based insights that can aid business managers, especially those who are new in the market, as well as policymakers, in making informed decisions regarding technology investments. The findings obtained from this study provide strategies for managers in effectively navigating the future of the labour force. The study findings provide managers with guidance on the important skills they should prioritize when choosing job candidates.

## 1.3 Research Aim and Objectives

Consistent with the gaps mentioned above and unanswered questions, the overarching aim of this study is to gain insight into the intentions of hospitality managers to adopt new technologies, factors that influence their intentions, potential outcomes, the implications for the future of the hospitality workforce, and new labour management strategies in this era. While numerous questions could be relevant to this thesis, the following have been chosen to provide some focus while still allowing for extensive exploration:

**How will managers' intentions to adopt advanced technologies impact the future of the hospitality workforce?**

In order to ensure that the research aim is met, the following objectives were developed:

- Use the TAM model in a different context as a lens through which to examine hospitality managers' intentions for the adoption of new technologies, including the factors that influence their decisions.
- Acquiring comprehensive and analytical understanding of how managers' intentions to embrace advanced technologies affect the future of the workforce in the hospitality industry.
- Gain an understanding of the most recent strategies for managing hospitality workers in the age of technological advancement.
- To explore the new skills required in the technological advancement era and how employees' earnings affected in this era.

## 1.4 Structure of the Thesis

Chapter one presents the research background, significance, aims and objectives, as well as the contributions of the research. Chapter two provides an overview of the existing literature pertaining to the historical development of advanced technologies, the various components of advanced technology, the digitisation of the global hospitality industry, the advantages, and disadvantages of implementing advanced technology in the hospitality sector, the obstacles encountered during its implementation, and the factors that necessitate careful consideration before adopting advanced technologies. Given the long-standing understanding that the initial impression formed by guests and consumers during their interactions with human employees is a critical determinant of the success of investments in the hospitality industry, it was imperative to assess the level of guest willingness to engage with advanced technologies in service. The examination of guests' widespread acceptance shed light on the debate surrounding the expected outcomes and impacts of its extensive implementation on the hospitality workforce. The researcher shaped the controversy by considering three significant prospective scenarios, one of which is anticipated to occur within the hospitality sector. After identifying the gaps in the existing literature on the adoption of technological advances in the hospitality industry, the chapter concludes by identifying the direction of this research and the research gaps and questions to be answered.

Chapter three of this study provides a comprehensive defence and elucidation of the methodology and methods employed in the research. The initial section of this chapter presents a succinct overview of the research strategy and methodologies employed, followed by a comprehensive examination and justification of these selections. First, the initial stage involves an examination of the ontological and epistemological underpinnings of the research. This exploratory qualitative investigation gathers data by conducting twenty-seven comprehensive interviews and six observations. The utilisation of this qualitative methodology enables a comprehensive and precise exploration of participants' viewpoints on their inclination to embrace technological advancements within their organisations, as well as the consequences of these intentions on the hospitality workforce. The study was carried out in the UK restaurants that utilise cutting-edge technologies, including robots, kiosks, and chatbots. After a comprehensive examination of the data collection

process for the study, the chapter proceeds to elucidate the thematic content analysis technique employed for the analysis of the collected data. This chapter concludes by examining the researcher's role and the significant emerging concerns regarding trustworthiness, ethics, research limitations, and the summary of the chapter. Chapter four subsequently delves into the findings derived from the observations and semi-structured interviews. The areas covered in this study can be categorised into five primary themes: Managers' intentions towards technological advancements adoption, tech- related joblessness in the hospitality industry, Human Technology Interaction (HTI), two opposite phenomena: unemployment and jobs creation, and tech mastery in hospitality: navigating the modern skill set for job security. Thematic content analysis is employed to extract themes from the data and to initiate the process of gaining understanding regarding the intentions of hospitality managers to adopt new technologies, factors that influence their decisions, potential outcomes, the implications for the future of the hospitality workforce, and new labour management strategies in this era.

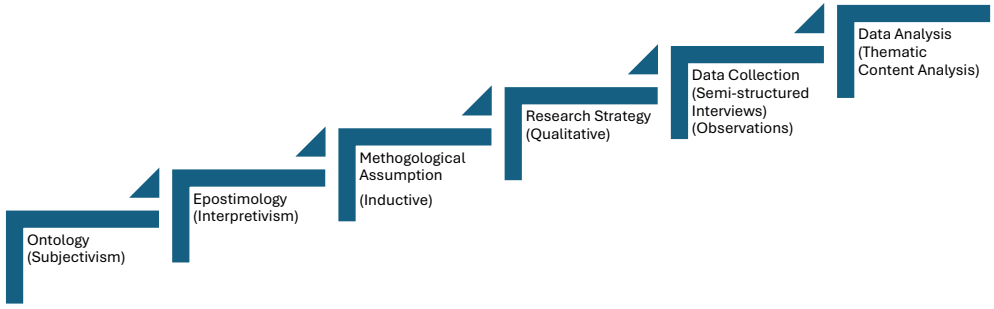
Chapter five of this study provides an interpretation of the findings and conducts a comparison with existing literature. The purpose of this comparison is to elucidate the areas in which the findings align, conflict, or add new insights about the intentions of hospitality managers to adopt new technologies, factors that influence their decisions, potential outcomes, the implications for the future of the hospitality workforce, and new labour management strategies in this era. The structure of this chapter aligns with the primary research objectives and key themes identified in the preceding chapter. In conclusion, chapter six presents a comprehensive summary of the research objectives and questions outlined at the beginning of the thesis, explaining their attainment and elucidating the significant theoretical and empirical contributions to knowledge resulting from this study. The subsequent section provides a reflection of the limitations of the study and the identification of potential avenues for future investigation.

# 2. Material and Methods

## 2.1 Overview of the Research Approach

Following is a summary of the chapter on research methodology and the overall research design. This summary gives the reader a sense of the overall project before diving into the methodology and the method's detailed explanation and justification (see Figure 2.1).

**Figure 2.1:** Methods Map




## 2.2 Methodological Underpinnings of the Thesis

### 2.2.1 Research Ontology: Subjective

This study aimed to comprehend and interpret reality based on the perspectives, interactions, and narratives of restaurant managers, assistant managers, and supervisors regarding the issue under investigation. The implementation of the data collection method aims to amass a substantial body of evidence from which a better comprehension of participants' perspectives can be drawn. Thematic content analysis, which will be discussed in detail below (section 2.6), was subsequently the most fruitful approach to comprehending this.

### 2.2.2 Research Epistemology: Interpretivism

This study's epistemological stance is interpretivism. According to the interpretive stance, things are meaningful entities apart from awareness and experience (Crotty, 1998, p.4). According to Bryman and Bell (2011), the interpretive epistemological stance rests on the meanings people give to phenomena. Interpretivism depends on the people who participate in the research and acknowledges how they affect it (Creswell, 2012). Unlike positivism, which seeks a single fact to explain phenomena, interpretivism seeks a commonly held interpretation of those phenomena. Taking an interpretivist epistemological stance would allow for a richer, more nuanced examination of differences and similarities in knowledge.

### 2.2.3 Research Strategy: Qualitative

The current research is an exploratory qualitative inductive study that aims to interpret the intentions of hospitality managers to adopt new technologies, the factors that influence their intentions, potential outcomes, consequences for the future of the hospitality workforce, and new labour management tactics in this era. A complete picture of the participants' range of perspectives on the topic can be gleaned through the qualitative method (Creswell, 2012). Qualitative methods are recommended for helping researchers "empower individuals" by gaining insight into their points of view (Creswell, 2012, p. 48). This study's inductive design influenced the collected and analysed data and established the discussion's overarching themes (Yilmaz, 2013). The difficulty in generalising qualitative research stems from the fact that qualitative researchers typically do not adhere to structured and predetermined formats (Creswell, 2012). The current research does not seek to generalise but rather to investigate the intentions of hospitality managers to adopt cutting-edge technologies and their potential effects on the future of the industry's workforce.

According to Strauss and Corbin (1998), "statistical procedures or other means of quantification" are not applied to qualitative research (p.11). Conversely, it draws attention to specific phrases and words within the relevant data (Bryman & Bell, 2011). According to Denzin and Lincoln (2005), qualitative researchers examine phenomena in their natural contexts to interpret and make sense of them. In this regard, the purpose of this qualitative study was to investigate respondent experiences to enhance the understanding of the phenomenon under investigation, as opposed to merely assessing agreement or disagreement with the prior work - as quantitative studies would (Lincoln, 1995; Denzin & Lincoln, 2003). In addition, the selected methods (interviews and observations in this study) based on this methodology provide the descriptive, interpretive, and detailed data required to deepen individual variation understanding. For instance, highlighting the theme of Human Technology Interaction (HTI) in the hospitality industry by conducting interviews with managers, assistant managers and supervisors and observing them in their work environment. Themes and patterns emerged from the data analysis (Creswell, 2007). Direct quotes and documentation of participants' perspectives and thoughts, and meanings about the phenomenon on a personal level were included in the presentation of findings (Denzin & Lincoln, 2005; Yilmaz, 2013).

## 2.3 Methods: Data Collection

### 2.3.1 Introduction

This study's overall research strategy is qualitative, based on the methodological position thoroughly discussed previously. Due to the interpretive and inductive nature of the research, the methods should reflect this. Interpretivism is typically associated with qualitative data collection techniques such as focus groups, participant observation, and interviews (Bryman & Bell, 2011). In this instance, there were two phases of data collection, so the following research methods were chosen:

- In-depth, semi-structured interviews with restaurant managers, assistant managers, and supervisors who use innovative technologies to serve guests. The semi-structured, in-depth interview was chosen due to its suitability for the epistemological position and the research perspective.

- Observations of the frontline areas of restaurants to determine restaurant ambience, automated tasks, the ratio of human personnel to advanced technology, changes in job responsibilities, staff-technology interaction, task-related skill, staff satisfaction and adaptability, new roles, impact on workforce structure, customer interaction, and service quality, productivity and efficiency, and customer satisfaction.

## 2.4 Semi-structured Interviews

The semi-structured, in-depth interview was chosen due to its suitability for the epistemological position and the research perspective. For instance, interviewing is considered a proper method of qualitative inquiry for obtaining descriptive data, insights into the values, human interaction, ethics, perspectives, and actions of organisational members through its flexibility for follow-up questions and probes (Cornelissen, 2017; Easterby-Smith *et al.,* 2002; Rubin & Rubin, 2004; Brinkmann, 2013; Denzin & Lincoln, 2018). For instance, it was possible to ask participants to provide examples of jobs that have been eliminated as a result of technological advancements and to elaborate on the reasons for this substitution of humans in subsequent questions. In addition, the number and wording of questions may change, allowing for the addition or omission of questions during the interview (Bryman & Bell, 2011). In this study, one question inquired about the new skills required of employees, followed by a series of questions probing the methods for upgrading these skills and the job positions in which it is required. According to Liedtka (1992), the personal interview is ideally suited for complex and exploratory research in the social sciences on topics such as studying intentions and decision-making.

When conducting research for a business, interviews are a common qualitative technique (Gray, 2017). Creswell (2012) argued that by asking a series of questions in an unconventional order, interviews could shed light on hidden information that cannot be observed (Creswell, 2007; Bryman & Bell, 2011; Denzin & Lincoln, 2018). Similar to qualitative studies in the hospitality industry (Cobos *et al.*, 2016; Shamim *et al*., 2017, Mingotto *et al*., 2021; Vatan & Dogan, 2021), semi-structured interviews were used to gain insight into the varying viewpoints and meanings held by managers regarding the managers intentions to adopt new technologies, the factors that influence their intentions, the potential outcomes, the ramifications for the future of the workforce, and new labour management strategies in this era.

### 2.4.1 Data Collection Process: Interviews

***Number and Date of Interviews***

The interviews were conducted in December 2022 for the pilot study and from early-January 2023 to mid-April 2023. Twenty-seven interviews with restaurant managers, assistant managers, and supervisors inclusive of two pilot interviews. Consequently, the study population consists of restaurant managers, assistant managers, and supervisors in the United Kingdom who employ advanced technology in their service operations. Each interview duration varied between 35 and 40 minutes, with an average of 45 minutes. All interviews were conducted either in-person or online and recorded digitally for accuracy, and transcribed.

### *Research Population*

The study's primary objective was to learn more about hospitality managers' plans to adopt new technologies, the factors that influence their intentions, the possible outcomes, the implications for the future of the workforce, and new forms of labour management in this era. Multiple search terms, including "artificial intelligence in the UK restaurants", "robots in the UK restaurants", and "advanced technologies in the UK restaurants" were used to conduct an initial, comprehensive online search. It was looked for if there was a standard list of eateries that use cutting-edge service technology. This search was sufficient because it returned results from news outlets (like https://www.bighospitality.co.uk/Article/2022/03/07/Rise-of-the-machines-Boparan-Restaurant-Group-trials-service-robots) rather than official, government-funded sources.

This official news website provided the names of a few restaurants that utilise advanced technology, such as Robotiza. Based on this, the official Robotiza website was examined, providing a solid path for acquiring the remaining sample. In order to list the names of these eateries, the official websites of the restaurants were accessed. After entering a keyword such as robot waiters/waitress in the United Kingdom, relevant results are displayed. The presented results include the official websites of restaurants that employ advanced technologies. Upon examining each website separately, it is confirmed that these restaurants use a variety of advanced technologies, such as robots, kiosks, Etc., to serve customers in the front and back areas. Then, during the interviews, some managers mentioned other restaurants and recommended them.

### *Research Sampling Technique*

Interviews were conducted primarily within and around London and Milton Keynes due to the widespread use of advanced technologies in UK restaurants. Utilising purposive, convenience, and snowball sampling. The selected sampling method is consistent with qualitative research in the hospitality industry that focuses on the sector's advanced technologies (Cobos *et al.*, 2016; Shamim *et al.*, 2017; Mingotto *et al.*, 2020; Vatan & Dogan 2021).

The interviewing procedure began with selecting suitable candidates to represent restaurant managers, assistants, and supervisors in settings where advanced technology is implemented. Consequently, participants were contacted directly via email using a non-probability, purposive technique known as convenience sampling. This sample is "simply available to the researcher by virtue of its accessibility" (Bryman & Bell, 2011, p. 190). In a non-probabilistic sampling strategy known as purposive sampling, the researcher deliberately selects study participants based on predetermined criteria. Study goals and population characteristics inform the sample selection (Creswell, 2014b; Neuman, 2014; Yin, 2014), and it was supplemented by additional snowball sampling.

## 2.4.2 Interview Research Protocol

### *Pilot Study*

This study's piloting procedure included two preliminary pilot interviews. The two pilot interviews allowed for the refining of the interview's main themes, which were then used to structure the interviews. Additionally, the emergent research strategy allowed for the flexibility to ask additional questions or address issues in subsequent interviews, if necessary. Consequently, the

inclusion of two pilot interviews was deemed necessary and essential in order to test the interview schedule and determine whether it was feasible for restaurant managers (Holloway, 1997; Bryman & Bell, 2011). The purpose of the first two interviews was to serve as a sort of pilot project, allowing the researcher to do things like

- determine the interview length,
- gauge the appropriateness of questions,
- highlight any ambiguous questions,
- determine whether specific questions were repeated,
- determine whether the wording used was suitable,
- determine whether the question structure was logical, and
- indicate whether the interview lasted for the allotted time.

The interviewing procedure began with email and concluded with either in-person or online meetings based on the interviewees preferences to complete the pilot interviews (London and Milton keynes). Two thirty- five minutes interviews were conducted with managers at two restaurants in the United Kingdom that use artificial intelligence, robots, and other forms of advanced technology to serve customers in December 2022. Before and after the pilot, the supervisory team discussed the pilot questions and developed enhancements to the questions' appropriateness, structure, and content.

As suggested by many authors (Oppenheim, 2000; Creswell, 2014b; Denzin & Lincoln, 2018; Flick, 2018), the incorporation of a pilot study into the research was advantageous for a variety of reasons. The approach was validated by utilising the first two interviews as a pilot, and several issues to be aware of and modify for subsequent interviews were revealed. For instance, a number of questions elicited similar responses, and certain words were omitted due to respondents' ambiguity, resulting in the rephrasing of some questions.

The structure of the questions was also modified to increase fluidity; for instance, the questions regarding the future scenarios of the labour force were grouped to present and highlight each scenario separately rather than being asked in an interrupted format. However, the interviews' semi-structured design allowed for the flexibility in terms of both the number and wording of questions. Thus, the results of the pilot studies necessitated only minor adjustments to the interview schedule. This also indicated that the two interviews' transcribed data were to be integrated into the primary interview data analysis.

***Interview Structure***

Interviews were semi-structured, so their duration and flow greatly varied depending on the individual. The interview was conducted with the intention of delaying the introduction of the explicit terms such as 'human substitution', ‘job creation’ and ‘HTI’ until its conclusion. This allowed the research to remain in its exploratory phase for longer, as open questions helped with the investigation without forcing the conversation in a particular direction. The interview's first question and the overarching theme were open-ended to get a feel for initial topics associated with managers' intentions to adopt advanced technology.

**Example: What technological factors influence restaurant managers' intention to adopt advanced technologies?**

As is evident, the term human substitution was not used; instead, participants were asked about their general perceptions and intentions. This affords the opportunity to determine what managers intuitively consider future labour force scenarios. The researcher initially concentrated on the themes that participants in the open-ended question deemed most important. On the basis of the answer to this question, the rest of the questions were posed. One respondent, for instance, provided a detailed response in which he mentioned trust as a factor influencing his intent to implement advanced technologies. Following the participant's response, the researcher posed the question, "What types of errors can impact managers trust in advanced technologies?", before moving on to the next predetermined inquiry.

One set of interview questions was used for all managerial positions (managers, assistant managers, and supervisors). There were five main parts to the version. Open-ended questions were used to elicit narratives from the study participants and deeper insights from the researcher. Participant's personal information was collected in the first section. The interview's outline covered a wide range of topics but centred on these:

(1) Managers' intentions regarding the adoption of technological advances;
(2) Innovative technologies and anticipated future scenarios for the hospitality labour force;
(3) New skills and strategies to manage the future workforce in the era of technological progress.

More specific inquiries acted as probes and prompts, which were made under each question, but this was done not with the intention of asking every participant the same questions but rather with the hope that the interview would flow naturally, with questions being added or omitted where appropriate. Many authors, such as (Teddliei, 2009; Creswell & Clark, 2017; Denzin & Lincoln, 2018) opined that prompts were crucial in stimulating and maintaining the flow of further conversation in case participants felt unclear on a question or were asked to clarify what was being asked.

## 2.5 Observation

### 2.5.1 The Non-participant Observations

Consistent with qualitative studies of advanced technologies in hospitality (Ozgit & Caglar, 2015; Çalişkan & Sevim, 2023), this study collected data by observing participants in their natural environment (Creswell, 2007). The study employed a method of non-participant observation, which, according to Strauss and Corbin (1990), Bernard (1994), Lofland and Lofland (1995) and Bryman and Bell (2011), permits observation without participation in the social setting. While the researcher was present in the social setting for observations, the researcher was not an employee or otherwise involved for an extended period. This research investigates managers' intentions to adopt new technologies, the variables influencing their decisions and the consequences regarding labour force future. In this study, observation enabled the researcher to note the restaurant ambiance, automated tasks, the ratio of human personnel to employed advanced technology, changes in job responsibilities, staff-technology interaction, task-related skills, staff satisfaction

and adaptability, new roles, impact on workforce structure, customer interaction, and service quality, productivity and efficiency, and customer satisfaction.

In actual research settings, interviews and observations are complementary. The difference between the two is that interviews can reveal events that are not visible unless questions are asked to collect detailed information regarding a person's thoughts, feelings, and experiences. At the same time, observations can reveal events, behaviour and actions already in plain sight and consistent with what respondents shared (Bryman & Bell, 2011; Creswell, 2018; Denzin & Lincoln, 2018). As evidenced by observations, guests found the service of robots amusing and enjoyable. These examples align with what respondents shared about the significance of guest satisfaction when contemplating the implementation of innovative technologies. They reflected that the overwhelming majority of their guests appreciated and enjoyed this new experience. Researchers can learn more about the phenomenon they are studying by triangulating data from multiple sources (Denzin & Lincoln, 2011, Neuman, 2014; Patton, 2015).

## 2.6 Data Analysis

### 2.6.1 Content Analysis

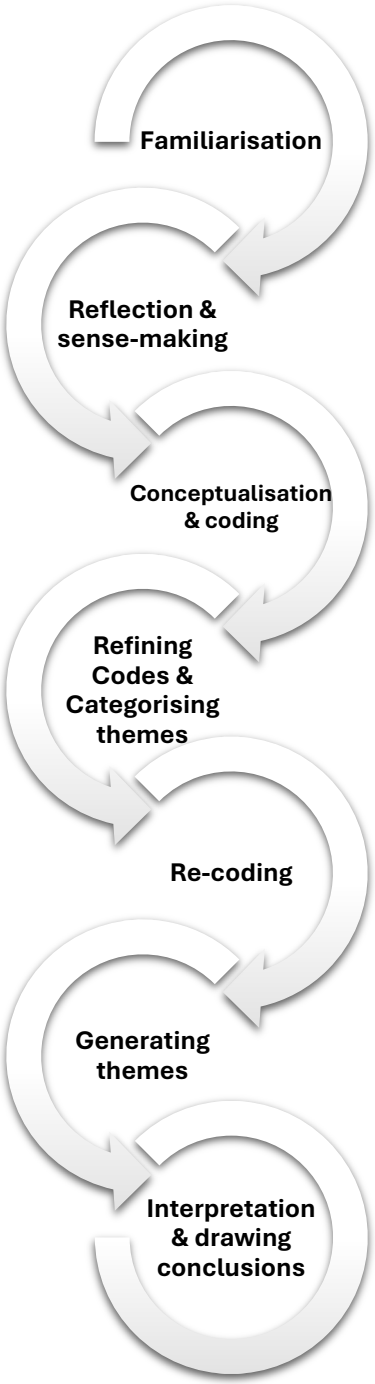
According to Duriau *et al.* (2007), content analysis is a useful technique for "gaining access to deep individual or collective structures such as values, intentions, attitudes, and cognitions" (p. 6). Due to a greater understanding of restaurant managers' intentions to adopt new technologies, the factors influencing their decisions and the consequences regarding labour force future, content analysis is particularly suited to this type of research. Managers' roles as decision-makers and their business intentions, which have a significant bearing on the future of the restaurant workforce, are distinctive features of high-tech restaurants. Therefore, content analysis is well-suited for use in the management context (Gephart, 1991; Ullmann, 1985) to provide a thorough investigation of topics like cutting-edge technologies and labour management, which can be challenging to study with more conventional quantitative approaches (Duriau *et al*., 2007).

Digital devices were used to record all interviews, and the resulting "intelligent verbatim" transcripts were reviewed and edited for accuracy. As will be discussed in greater detail in the section on ethics (section 2.9), prior to the interviews, permission was sought from all respondents to record them. A total of twenty-seven interviews were recorded, clocking in at nearly twenty hours; the transcription process took nearly forty-five days. The researcher listened to the recordings and read the transcripts multiple times to ensure accuracy and a natural flow of the conversations. This allowed the researcher to dive headfirst into the data right from the start of the analysis process. Also, the researcher returned to the field notes and reorganised them to continue drawing parallels between the participants' words and the observations.

### 2.6.2 Data Analysis Process

Figure 2.2 below depicted the iterative steps taken during the data analysis and coding procedure for interview data.

**Figure 2.2:** Procedures of Analysing Data




***Step one: Familiarization (Easterby-Smith et al., 2012)*** - This began with the collection of research data and carried on through interview transcription and the classification of observations. All interviews were recorded and transcribed intelligent verbatim for later analysis. This allowed for an uninterrupted narrative and a more accurate conversations account (Bryman & Bell, 2011), as the proceedings were not halted for excessive notetaking. Listening to the voice recordings, transcribing them into word documents, and reading the transcripts multiple times constituted the initial step of data analysis to gain a thorough understanding of the content (Saldaña, 2021). This

allowed for the coding of the transcriptions, which was necessary for the thematic content analysis to take place (Ryan & Bernard, 2003).

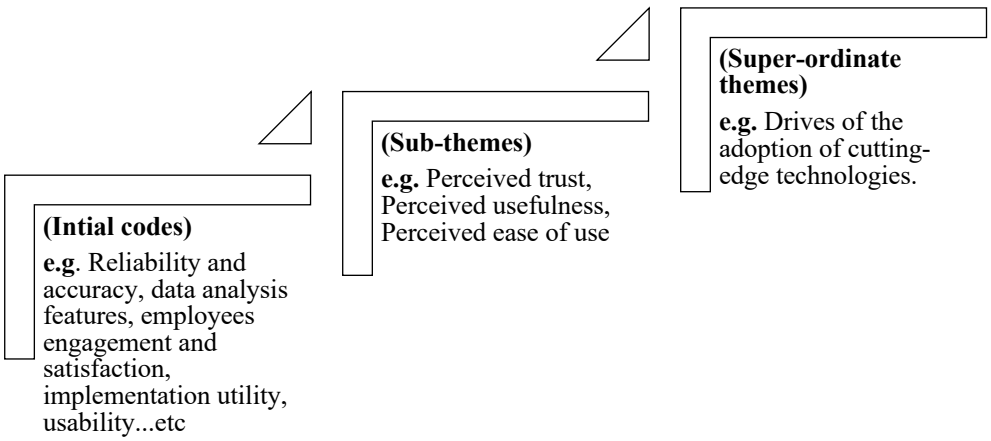
***Step two: Reflection and Sense-making*** - Taking the time to transcribe interviews, take notes, and read and reread data was laborious and time-consuming. However, it was necessary for the researcher to make sense of the data when juxtaposed with the existing literature on technological advancements and the future of the workforce. This enabled a critical comparison to determine whether the data supported or challenged our current understanding. It also highlighted any novel deviations from these or identified answers to knowledge gaps.

***Step three: Conceptualisation and Coding (Easterby-Smith et al., 2012; Miles & Huberman, 1994) -*** It is a common practice in qualitative content analysis to use coding to classify extensive datasets (Bryman & Bell, 2011). In order to make sense of the transcripts at this point, they had to be coded, which entailed labelling words, lines, or chunks of text (Patton, 2002). The data can be clustered (Miles & Huberman, 1994; Charmaz, 2006) to create categories and sub-categories.

Open or initial coding is the first type of coding (Strauss & Corbin, 1998) which entailed analysing the transcripts line by line and assigning codes as they were deemed necessary. It is described as an unrestricted initial coding designed to generate provisional descriptions of concepts that correspond to and match the data (Strauss, 1987). This inductively opens the enquiry and permits text segments to be assigned meaning, with provisional codes refined to the most appropriate after sufficient coding has been completed. Because of the proximity of the codes to the raw data, the analysis can be trusted (Thomas, 2006) also allowed for the assignment of new codes in cases where the interview guidance codes did not cover all data relevant aspects. The open coding procedure served as a springboard for further exploration of the emerging concepts and themes (Ryan & Bernard, 2003; Saldaña, 2021) providing the research questions' foundations.

***Step four: Refining Codes and Categorising of Themes -*** The richness of the qualitative data was captured by the open coding stage (Miles & Huberman, 1994). Following this initial coding, the second process consisted of advancing to higher levels of abstraction by differentiating between basic level codes that link to higher-level codes (Corbin & Strauss, 2008). Tree coding (Bryman & Bell, 2011; Neuendorf, 2016) and pattern coding (Lincoln & Guba, 1985; Miles & Huberman, 1994; Tesch, 2013) are two terms that describe the hierarchical structure in which analytical sub-themes subordinate the higher-level themes (see Figure 2.3). This facilitates the development and interpretation of the data.

**Figure 2.3:** Coding Levels




An illustration of these levels derived from the interview data includes reliability and accuracy, usability, implementation utility, competition, employees' engagement and satisfaction, solving labour issues, cost saving, data analysis features, reputation enhancement as explanatory factors that contributed to the formation of perceived trust, perceived usefulness and perceived ease of use as sub-themes. These sub-themes were encompassed within the broader theme of drives of the adoption of cutting-edge technologies. During the analysis, the codes were integrated and elevated to higher levels in order to establish prominent themes.

***Step 5: Re-coding*** - Due to the iterative nature of the coding process, codes and categories were refined and revised over time. However, as Saldaña (2021) points out, this refinement and revision process was more cyclical than linear, as it involved constant data comparisons and codes (Corbin & Strauss, 2008). When analysing data, it is helpful to reread the interview transcripts iteratively to derive themes, as Spence and Rutherfoord (2001), Braun and Clarke (2006) and Neuendorf, (2016) explain. This method is analogous to Goffman's (1974) work on 'frames.' It also permits uniformity, as well as the continuous comparison and reanalysis of codes (Spence & Rutherfoord, 2001).

***Step six: Theme Extraction and Data Linking -*** This phase consisted of identifying connections and patterns between the categories and the major themes of the data Braun and Clarke (2006) and Neuendorf (2016).

***Step seven: Interpretation and Conclusion-drawing*** - The use of thematic coding necessitated more interpretation by the researcher. Because "the analyst is searching not just for manifest but latent content as well" (Bryman & Bell, 2011, p. 298). This point was supported by Miles and Huberman (1994), Coffey and Atkinson (1996), and Silverman (2015). Therefore, this stage required the researcher to illustrate each theme and provide interpretations for making an argument based on delving deeper into and going beyond the data to reveal underlying meanings and concepts that support the aim of the research.

## 2.7 Trustworthiness of the Research

Miles and Huberman (1994), Creswell and Miller (2000), Shenton (2004), Denzin and Lincoln (2011), and Creswell (2014b) all recommended using triangulation to prove trustworthiness and bolster the validity of a study (Shenton, 2004). Evidence was gathered from a variety of restaurant

managers, assistant managers, and supervisors for this study. Moreover, evidence was gathered through a variety of methods, including interviews and observations. Evidence for the trustworthiness of this study relies heavily on voice recordings, field notes, and photographs taken during the data collection period.

Iterative questioning is a method for establishing credibility as stated by Shenton (2004). Interviews with managers, assistant managers, and supervisors were probed, prompted, and followed up on to elicit specific information about their experiences as explained by (Corbin & Strauss, 2008; Guest *et al*., 2013). This helped find new contradictions, clarify the final research findings, and come up with possible explanations. An instance the researcher engaged in discussions and posed follow-up inquiries regarding the causal factors behind the effects of technological advancements on the remuneration of human workers in the restaurant industry.

Second, the study was described in sufficient detail throughout so that its findings could be applied to other settings or contexts (Lincoln & Guba, 1985; Creswell & Miller, 2000; Bryman & Bell, 2011; Creswell, 2014b). This approach can be a crucial provision for facilitating transferability, as it aids in communicating the specific situations under consideration and, to some extent, the contexts that encompass them (Shenton, 2004). Included were the theoretical underpinnings, the creation of research instruments, the rationale behind participant selection, the techniques used to collect data, the identification of overarching themes, and the seven stages of data analysis. The study's findings also included participants' words expressed in quotes about their experiences.

Finally, an audit trail was established by keeping all research documents (phase by phase) to show the research's reliability and confirmability (Lincoln & Guba, 1985; Koch, 1994; Creswell & Miller, 2000). This comprised a logical narrative derived from the research question, literature review, and pilot study to guide the observations and interview questions. Coding procedures were backed by qualitative researchers (Miles & Huberman, 1994; Strauss & Corbin, 1998; Braun & Clarke, 2006), and the analysis followed previous studies' lines (Yu, 2020; Han *et al.*, 2021). The study drew findings and interpretations from the data collected, and research decisions and justifications were defended (Koch, 1994).

## 2.8 Limitations and Boundaries of the Research

Through the development of a rigorous research design, attempts have been made to eliminate as many limitations as possible from the study. According to Krippendorff (1980), cited by Liedtka (1992), the difficulty of analysing data in its "original manifestation" is due to the nature of the data and the fact that it originates from "complex symbolic forms in an indigenous language" (p. 170). Moreover, it is interesting to note that the interpretivist nature of this research perspective and methodological approach can also be viewed as its most significant limitation. Conducting and analysing interpretivist research depends on the interpretive skills of the researcher. They play a vital and substantial role in the study. However, the researcher's role has limitations, which were acknowledged previously in the methodology chapter. Efforts have been made to address these issues by strengthening reliability, confirmability, transferability, and credibility.

In addition, this study is qualitative, employing a small sample of restaurants in the United Kingdom that use advanced technologies to serve customers. Consequently, it may be challenging

to generalise and transfer the findings to other nations as reflected by (Creswell, 2013). Instead, Guba and Lincoln (1994) suggest that the breadth of the research should be emphasised. This requires dense descriptions and detailed accounts of the studied social world. This level of detail provides a foundation upon which others can evaluate the potential transferability to other settings.

This study is also restricted by what participants were willing to reveal about their opinions and experiences, as well as the degree to which the disclosed information was sensitive (Campin *et al*, 2013). As described in the preceding paragraphs, steps were taken to eliminate such issues; however, it is essential to recognise these obstacles when analysing and discussing the phenomenon's findings. This acknowledgement will aid in conveying a more accurate comprehension of the issue at hand.

Considering the abovementioned obstacles, these limitations are outweighed by the benefits of an in-depth qualitative approach, which was required to answer the research questions. Cornelissen (2017) further explains, "the hallmark of qualitative research in producing rich and detailed explanatory accounts of management and organisational phenomena is under pressure" (p. 369). He argued that perhaps we should not favour or stubbornly argue for any one method or style of theorising but rather learn to weigh the pros and cons of different approaches to science to gain a deeper understanding of the phenomena we are studying (Abbott, 2004; Cornelissen, 2017). The study will benefit from deeper comprehension and more nuanced contributions if the chosen methods are consistent with the story and allow the researcher to say everything they want with methodological rigor. This study is one of the few qualitative studies in a field dominated by quantitative research. As a result, this provided an opening to craft a qualitative strategy predicated on exhaustive investigation and a contextualised comprehension of the complex phenomenon through the constant comparison of respondents' viewpoints. It is hypothesised that new insights can be obtained from a qualitative research approach (Cornelissen, 2017).

## 2.9 Ethical Considerations

This research was not viewed as posing any ethical issues to society as a whole; anonymity and confidentiality of interviews participants was the primary concern. Likewise, it is crucial in qualitative research that the participant be protected from any potential harm that may result from their testimony being used in the study subsequently (Rubin & Rubin, 2004). Regarding the future use of data, careful consideration was therefore given to informed consent, confidentiality, anonymity, and honesty (Kirk & Miller, 1986; Neuman, 2014).

The researcher informed the participants of the interviews' qualitative nature and that their responses would be incorporated into a PhD dissertation when they were approached. Then, at the beginning of each interview, a verbal explanation of the proceedings and assurance of confidentiality were provided. Each respondent signed a consent form contained in the participant booklet, indicating whether they wished to have their interviews recorded. Everyone agreed to their voices being recorded. Individuals were also given unique labels beginning with P1 and ended with P27 to ensure their anonymity throughout data collection phase. Any other hints, names, or references that could reveal the identities of the individuals or their organisations were changed. This ensures anonymity and confidentiality by removing the identifying information of the people involved.

# 3. Main Findings of the Dissertation

## 3.1 Decoding Managerial Intentions for Advanced Technology Adoption

Davis (1985) constructed TAM model with the purpose of forecasting the frequency of system usage and predicting user behaviour. The Technology Acceptance Model (TAM) analysed an individual's intention to adopt new technology based on two variables: Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) (Davis, 1989). Davis *et al. (*1989), Venkatesh (2000), and Venkatesh and Davis (2000) provided a definition for Perceived Ease of Use as the degree to which an individual believes that utilising the system will not necessitate any exertion. The concept of perceived usefulness (PU) refers to the degree to which an individual believes that using a particular system would enhance their job performance (Davis, 1989; Li *et al.*, 2024).

### 3.1.1 Perceived Ease of Use (PEOU)

The study affirmed that Perceived Ease of Use (PEOU) significantly impacts intentions to adopt advanced technologies in the hospitality industry. The higher the ease of implementation and navigation of a technology, the greater the likelihood of its adoption, as it minimises operational disruptions, enhances staff productivity, and enhances the overall customer experience. Our study uniquely highlighted one factor that influence the perception of ease of use, particularly from a managerial perspective, which will be comprehensively discussed in Section 3.1.1.1

#### *3.1.1.1 Antecedents of PEOU*

*Employees Engagement and Satisfaction*

Our research findings within the framework of the Technology Acceptance Model (TAM) demonstrated a significant impact of employee engagement and satisfaction on managers' inclination to adopt advanced technologies in the hospitality industry. The participants noted that employee satisfaction and active engagement tend to reduce employee turnover rates, leading to time and resource savings for the restaurant in terms of recruitment and training. Furthermore, the use of sophisticated technology can provide employees with a range of tools that increase their efficiency and greatly improve service delivery, resulting in an overall improvement in customer satisfaction. This underscores the importance of employee engagement and satisfaction as a determinant of the perceived ease of use in the Technology Acceptance Model (TAM).

### 3.1.2 Perceived Usefulness (PU)

Our study found that managers consider the usefulness factor to be a key factor in their decision-making process when deciding whether to implement advanced technology in the restaurant industry. Managers are more likely to adopt technological solutions that improve operational procedures, increase order accuracy, reduce labour costs, improve customer service, and provide valuable information and insights for decision-making. As an illustration, a specific participant expressed the concept of 'cost reduction'. Another participant highlighted the importance of 'efficiency'. Our study specifically emphasises the antecedents of perceived usefulness from a managerial point of view. These factors will be thoroughly discussed in section 3.1.2.1.

#### *3.1.2.1 Antecedents of PU*

*Perception of the Brand*

Our research findings within the framework of the Technology Acceptance Model (TAM) demonstrated a significant impact of brand perception on managers' intentions to adopt and utilise advanced technologies. More precisely, the interviewees stated that incorporating cutting-edge

technology can improve the image of restaurants as contemporary, progressive, and focused on customer satisfaction. This highlights the significance of the brand's perception in influencing perceived usefulness (PU). The participants disclosed that integrating technology that corresponds with a favourable brand image enables them to allure tech-savvy customers, distinguish themselves from rivals, and instil confidence in the restaurant's capacity to cater to changing customer demands.

*The Significance of Competition*

Our research findings within the framework of the Technology Acceptance Model (TAM) demonstrated a significant impact of competition on managers' intentions to adopt advanced technologies in the hospitality industry. The interviewees emphasised that restaurant managers can differentiate their establishments from competitors by implementing contemporary technological solutions that offer unique features. Consequently, managers perceive advanced technology as a valuable tool for achieving a competitive advantage, leading to higher perceived usefulness. This highlights the significance of competition as a factor influencing the perceived usefulness of the Technology Acceptance Model (TAM).

*Innovations in Technology*

In the context of the Technology Acceptance Model (TAM), our research revealed a substantial influence of innovation on managers' inclination to embrace cutting-edge technologies in the hospitality sector. The interviewees stressed the importance of restaurant managers embracing innovative solutions and actively participating in technological experimentation to stay ahead in the industry. This approach enables individuals to examine inventive tactics for enhancing the overall customer experience, streamlining operational processes, and identifying more efficient approaches to restaurant management. This highlights the significance of innovation as a factor that influences the perceived usefulness in the TAM model. Participants stated that the use of technologies like artificial intelligence (AI) and automation allows managers to identify the most efficient strategies for their organisation, allowing them to adapt their methods to meet the evolving needs and preferences of their customers. This resulted in an increased perception of usefulness, as managers discovered that these technologies allowed establishments to efficiently adapt to changing trends and maintain a prominent position in the field.

*Labour Market Dynamics*

Our research findings within the framework of the Technology Acceptance Model (TAM) demonstrate a significant impact of labour market dynamics on managers' propensity to adopt advanced technologies in the hospitality industry. The participants observed that the current state of the labour market, which includes factors such as rising labour costs, labour shortages, and changing labour policies, serves as significant motivators for restaurant managers to adopt advanced technology. This underscores the importance of labour market dynamics as a determinant that impacts the perceived usefulness in the TAM model. Managers have been forced to seek new methods to reduce their dependence on manual labour, enhance operational efficiency, and maintain cost-effectiveness due to the obstacles mentioned above. Consequently, there was a heightened perception of usefulness, as managers expressed that streamlining labour-intensive tasks through advanced technologies allow existing staff to dedicate their time and energy to customer service and more valuable duties.

*Cost Efficiency*

Our research findings within the framework of the Technology Acceptance Model (TAM) indicated a significant impact of cost-effectiveness on managers' inclination to adopt advanced

technologies in the hospitality industry. The interviewees stressed that technology has the potential to decrease operational expenses and increase profitability. Technology can enhance resource utilisation, minimise inefficiencies, and decrease inaccuracies, thereby resulting in cost reduction. This can be achieved through labour-saving automation, streamlined inventory management, and efficient order processing. The significance of cost efficiency as a factor that influences the perceived usefulness in the TAM model is emphasised by this. The participants emphasised that technology has the potential to enhance the customer experience, resulting in greater customer loyalty, increased revenue, and a quicker return on investment, ultimately leading to a higher perceived level of usefulness.

### 3.1.3 Trust as an Essential Determinant

Our research findings within the framework of the Technology Acceptance Model (TAM) demonstrate a significant impact of trust on managers' intentions to adopt advanced technologies in the hospitality industry. This highlights the significance of trust as a construct that directly impacts behavioural intention (BI) in the technology acceptance model (TAM). Restaurant managers considering the adoption of advanced technology assess the technology's trustworthiness, which refers to their confidence in its security, reliability, and ability to meet operational goals. In addition, managers need assurance that the technology will effectively safeguard sensitive data while seamlessly integrating with current systems.

The study's findings identified three anticipated scenarios for the hospitality labour force, specifically in the restaurant industry, as a logical consequence of the manager's intentions to implement advanced technologies. The scenarios are structured according to the participants' estimations of their probability of occurrence, highlighting each scenario background, the job level at which it will take place, the nature of the tasks involved, and the suggested strategies for managing the workforce in this context with detailed tips for its implementation. Each scenario in-depth and individually discussed in the dissertation and this is summarised in sections 3.2 to 3.4.

## 3.2 Scenario 1: Human Technology Interaction

### 3.2.1 The root causes of this scenario

The study's findings revealed that the interaction between humans and technology is the most anticipated scenario, as emerging technologies can effectively collaborate with human workers at all employment levels, from entry-level to managerial positions. An illustrative instance involves cutting-edge technologies such as kiosks, which can enhance the focus of front-line employees on customer service by simplifying their tasks. Due to the importance of the human element in service, participants highlighted the likelihood of this scenario more than others. This implies that there will be no layoffs of employees, and technological advancements will only serve to improve and assist human workers in their specific positions. This finding aligns with field notes in which the researcher disclosed that a dining establishment had adopted robots to enhance its standing, support marketing initiatives through word of mouth, and aid human employees. In this scenario, the study's findings highlighted advanced technologies can effectively collaborate with humans on any task. The tasks that garner the highest focus are repetitive, involving physical effort, requiring prompt completion, and demanding cognitive abilities.

### 3.2.2 Advice on Effectively Navigating This Scenario: Suggestions for Actions

***Prioritising Human Value***

The study's findings offer recommendations that should be adhered to effectively manage human-technology interactions and preserve the labour force in restaurants. Participants emphasised the need for managers to prioritise areas where human employees make a substantial contribution. The participants highlighted the significance of customer engagement and hospitality, wherein human personnel excel in providing warmth, empathy, and a personalised experience that technology may lack.

***Allocating Resources Towards Training Programs***

The findings highlighted the importance of investing resources in training programmes in the context of human-technology interaction. The participants emphasised the importance of prioritising the enhancement of soft skills and technical proficiency in these programs. Training staff in the operation and use of the technology ensures they are skilled in its application, allowing them to seamlessly integrate it into their daily work routines.

***Fostering Collaborative Culture and Transparency***

The findings showed that managers need to encourage a culture of collaboration and transparency to enhance human-technology interaction through promoting shared learning and open communication. Encouraging discussions on how technology can enhance operational efficiency and customer service is crucial.

***Human-technology Interaction Ratio Assessment***

The findings emphasised the importance of continuously evaluating and adjusting the ratio of human-technology interaction as a recommendation in the context of human-technology interaction. The participants noted that this can occur through monitoring the balance between human-technology interaction, which requires the consistent use of assessments and feedback systems.

***Establish Incentives***

The findings showed that implementing rewards is essential in human-technology interactions. The participants ensured that one strategy involves utilising performance metrics to gauge the effective incorporation of technology into customer service, including higher customer satisfaction ratings, reduced response times, and tailored customer interactions. Employees who excel in combining technological tools with human interaction may be acknowledged through incentive programs, award ceremonies, or bonuses.

## 3.3 Scenario 2: Tech- related Joblessness in the Hospitality Industry

### 3.3.1 The Root Causes of This Scenario

In this scenario, new technologies could completely replace human workers in basic job positions (entry-level) like waitstaff, bartenders, and hosts. This is especially pertinent because these positions usually necessitate little to no previous experience. Supervisory-level positions can become completely obsolete, unlike managerial-level roles. This finding is consistent with observations that a single shift involves assigning three core personnel to the kitchen. Furthermore, they supervise customers as they get their food from the robot tray if they are unaccustomed to the procedure. They also perform cleaning duties and prepare the food for service. The absence of waiters is due to the multitasking of the kitchen staff and service robots in the dining area. In case

of this scenario, advanced technologies can replace human involvement in routine, physical, and time-sensitive tasks. Some respondents proposed that advanced technologies could potentially supplant humans in cognitive tasks and multitasking.

### 3.3.2 Guidance for Navigating This Scenario: Recommended Actions

The study offers recommendations for effectively managing job losses in the hospitality industry and retaining the workforce in restaurants. Highlighting the areas where human employees add substantial value, investing resources in training programmes, and promoting a collaborative culture are commonly shared in this scenario and the scenario of human-technology interaction. The participants offered further suggestions for addressing the situation of job losses in the hospitality industry, as outlined below:

***Promote Innovation and Creativity***

The findings underscored the importance of cultivating a conducive environment that encourages innovation and creativity, as emphasised by the participants. Encouraging creativity and innovation in restaurants is a strategic method to prevent job loss when introducing advanced technology. This can be accomplished by promoting employees to share ideas, organising frequent brainstorming sessions for staff to propose innovative solutions to operational issues and ways to utilise technology efficiently, encouraging and compensating creative ideas to stimulate innovation, investing in continuous training to improve employees' digital literacy and problem-solving abilities, enabling them to adjust to and collaborate with technology.

***Upskilling and Reskilling***

The findings underscored the significance of enhancing and acquiring new skills. The participants emphasised the importance of creating pathways for skill development and retraining to provide the labour force with the necessary skills. Training modules may include both technical and soft skills relevant to the new technology. Soft skills such as software proficiency and adaptability are examples of this. Encourage employees to participate in these programs voluntarily by highlighting the benefits of acquiring new skills. Incentivise employees to participate in upskilling and reskilling by offering extra rewards, like salary raises or promotions. Create a supportive learning environment for self-improvement through online courses, workshops, and mentorship programs. Make sure the workforce remains agile and adaptable by regularly assessing and updating the training program to align with new technological advancements.

***Solicit Employee Feedback***

The findings highlighted the importance of seeking employees' feedback to prevent this scenario from happening. The participants stressed that this practice ensures that employees' viewpoints are not only considered but also successfully incorporated into the workplace to help them feel valued and listened to. Feedback can offer insights into areas that may require retraining and reskilling, helping employees adapt to changing technological needs, enhancing job security, and reducing the risk of layoffs.

***Plan and Clear Goals Setting***

The findings highlighted the importance of having a technology plan with clear objectives to prevent job loss. Participants stressed the need to set specific goals and key performance indicators (KPIs) that demonstrate how technology can enhance efficiency, streamline workflows, and improve organisational outcomes. The participants emphasised important tips for the technology implementation plan, such as developing a strategic plan with specific dates and milestones for technology integration.

## 3.4 Scenario 3: Two Opposite Phenomena; Unemployment and Job Creation

### 3.4.1 Participants' Viewpoints in that Scenario

According to the findings, this is the weakest scenario in which unemployment and job creation can occur concurrently. In this scenario, integrating advanced technologies improves efficiency in current roles and creates employment opportunities, significantly contributing to the growth and advancement of the restaurant industry. The participants stated that skilled individuals are required to supervise, maintain, and improve automated order processing systems, digital marketing platforms, and data analytics tools, all of which have been introduced due to technological progress. IT specialists, data analysts, and tech support teams are essential for successfully integrating and operating of these advanced solutions. Furthermore, the implementation of digital payment systems, user experience design, and app development by restaurants is driving the need for professionals in these areas. In addition, introducing robotics and automation in the restaurant industry could create new specialised professional positions responsible for overseeing and maintaining these technological advancements. Furthermore, with dining establishments incorporating technological advancements to enhance their services and reach a wider audience, there is a growing need for professionals skilled in menu engineering, digital marketing strategy, and social media management. However, participants noted that integrating advanced technologies in the restaurant industry could eliminate specific job roles. Implementing self-service kiosks, mobile applications, and online ordering systems could replace traditional roles like order takers and cashiers. The combination of robotics and smart kitchen appliances can improve cooking processes and impact the traditional responsibilities of kitchen staff. This contradicted the findings obtained from observations, which indicated that the researcher had not detected any additional staff positions being created in the dining area due to the two existing kitchen employees' expertise in operating the robots.

The findings in this scenario also demonstrated that job creation or unemployment is influenced by the job level. Participants noted that basic tasks such as order taking and payment processing can be automated at the entry-level, which may decrease the cashier and order clerk roles. Technology generates new possibilities in positions such as IT support, focusing on the upkeep and resolution of issues with automated systems. Implementing self-service kiosks and automated cooking processes in fast-food chains and quick-service establishments could reduce the need for kitchen and counter staff responsible for basic duties. Yet, these progressions also lead to job opportunities in software development, system maintenance, and digital marketing, indicating a transition towards technology-centric positions. Upscale or fine-dining restaurants prioritise personalisation and specialised skills, where technology can enhance human roles instead of replacing them. Customer service and experience-oriented positions like sommeliers and concierge services remain crucial.

### 3.4.2 Advice on Effectively Navigating This Scenario: Suggestions for Actions

The study provided recommendations for efficiently handling job creation and unemployment scenario. Allocating resources to training programs and fostering a collaborative culture are consistently emphasised in this and previous scenarios. The participants provided additional recommendations for dealing with the concern of job creation and unemployment in the hospitality sector, as listed below:

***Offer Support for Affected Employees***

The findings indicated that managers play a crucial role in supporting staff affected by the implementation of advanced technology. This can be accomplished by fostering a culture that prioritises empathy, transparency, and proactive assistance. Managers should clearly explain the reasons for technological advancements, highlighting the organisation's commitment to helping employees during the transition.

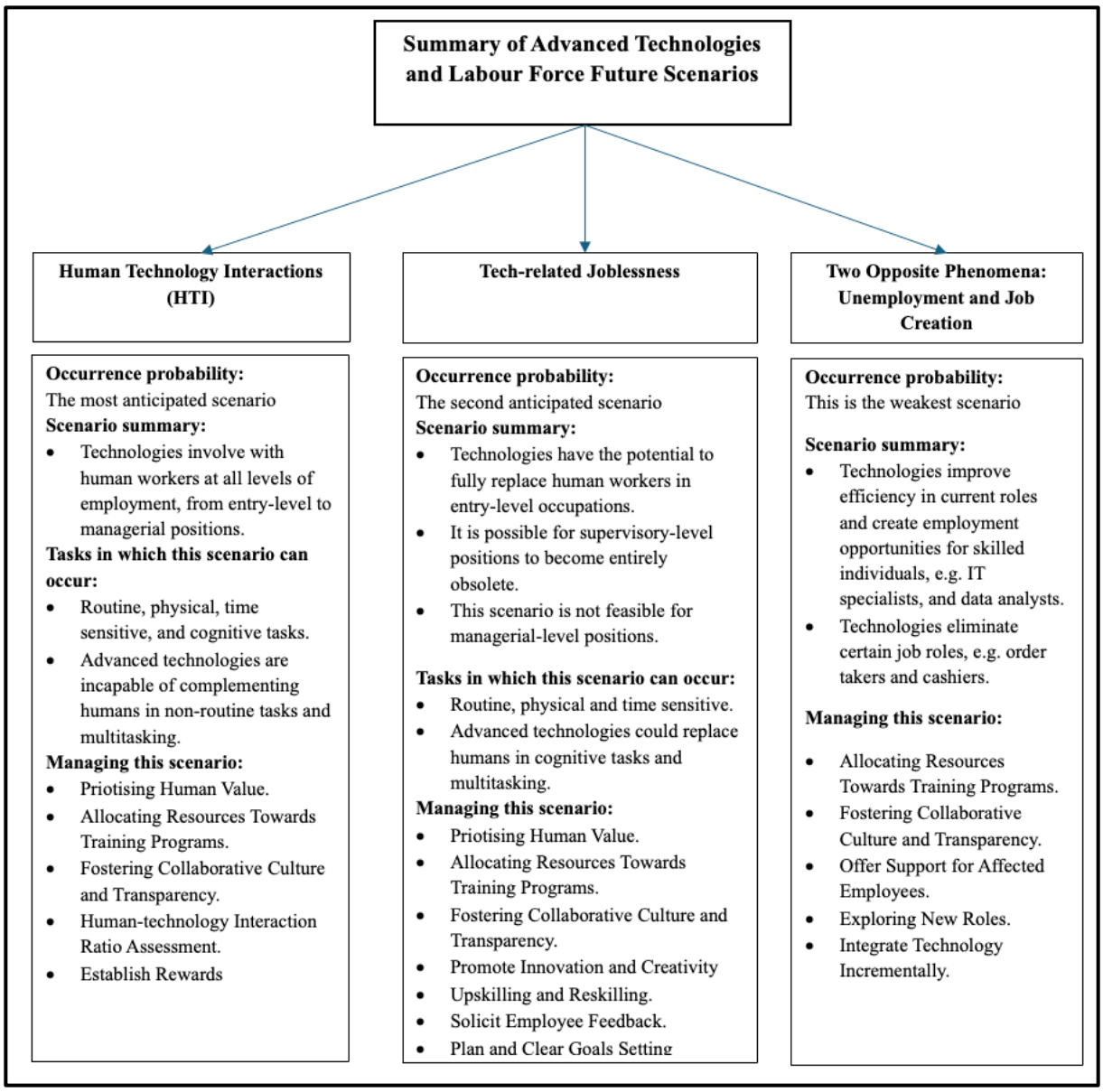
***Exploring New Roles***

The findings revealed that managers can reduce unemployment and improve job opportunities by taking a strategic and forward-thinking approach to discovering new roles. It is crucial to conduct a comprehensive assessment of the restaurant's operational procedures to identify precise areas where incorporating technology can enhance efficiency and create new job prospects. This could involve positions related to technology management, data analysis, digital marketing strategy implementation, and enhancing customer experience.

***Integrate Technology Incrementally***

The findings showed that gradual adoption enables a step-by-step integration, minimising the effect on current roles and providing staff with the chance to improve their skill sets. This approach ensures a smooth transition, allowing employees to adapt to the changing technological landscape without undue stress or risk of job loss.

**Figure 3.1:** Key findings from Labour force future scenarios




## 3.5 Tech Mastery in Hospitality: Navigating the Modern Skill Set for Job Security

### 3.5.1 Technical and Technology-Related Skills

***Technological Skills***

The findings indicated that employees need to have advanced technological skills, including a strong proficiency in point-of-sale (POS) systems, in order to smoothly process transactions. They should also have a thorough understanding of reservation and table management software to improve seating arrangements and navigate online ordering interfaces and delivery systems. Proficiency in customer relationship management (CRM) software is crucial for facilitating personalised interactions with customers and implementing loyalty programs. Furthermore, in order to facilitate efficient internal communication, foster collaboration, and enhance customer service, it is imperative that personnel possess a considerable level of expertise in utilising digital

communication tools. The comprehension and operation of automation in cooking equipment and inventory management systems are becoming increasingly crucial in the restaurant field.

***Data Analytics Skills***

The findings suggested that to derive significant insights from customer behaviour, sales patterns, and operational metrics, individuals must possess a considerable level of expertise in utilising data analytics tools. Data analytics involves the capacity to derive significant patterns from extensive datasets produced by technological platforms and subsequently convert these findings into practical strategies.

***Problem Solving Skills***

The findings emphasised the importance of workers possessing the ability to identify, comprehend, and resolve issues that arise during technical interactions. This includes resolving technical problems, addressing consumer grievances regarding automated services, and ensuring the seamless operation of technology-dependent processes. It is crucial to have the ability to quickly adapt and create innovative solutions when faced with challenges in using digital tools or automated systems.

***Language Skills***

The findings suggested that it is crucial for individuals to have strong language skills to effectively communicate with customers and work together with technologically advanced systems. Efficient and concise communication plays a crucial role in guiding clients through their interactions with automated services, ensuring a seamless and positive experience. Highly skilled individuals who are fluent in multiple languages improve customer service by efficiently communicating in diverse languages and addressing the requirements of different customers.

### 3.5.2 Interpersonal and Soft Skills

***Emotional Intelligence Skills***

The study findings indicated that employees need to have improved interpersonal and empathetic skills to understand and address customer concerns, especially in technology-related situations. The comprehension of when it is beneficial to employ technology to enhance efficiency, and when it is more appropriate to utilise human interaction, such as in scenarios involving personalised recommendations or the resolution of complex problems, is essential. The management of situations where customers experience frustration or confusion due to technology necessitates employees to exhibit qualities such as patience, active listening, and effective communication.

***Communication Skills***

The findings of the study indicated that possessing the ability to effectively communicate with both customers and technology is of utmost importance. Proficiency in guiding and instructing customers is essential to ensure a positive experience when using technology-driven services. When communicating intricate details about menu choices influenced by AI-powered suggestions or addressing customer inquiries regarding chatbot engagements, it is imperative to employ language that is both lucid and succinct. Moreover, in restaurant settings, where cooperative teamwork remains crucial, employees must articulate their thoughts and ideas when working with automated systems or coordinating tasks that involve technology-dependent procedures. Adaptable communication is essential as it allows staff to tailor their interactions based on the situation, whether it is direct customer engagement or collaborative work with colleagues in a technologically advanced workplace.

***Creative Skills***

The findings underscored the necessity for employees to exhibit creativity in devising innovative strategies to enhance customer experiences and adapt to the dynamic technological landscape. In order to develop interactive and engaging interactions with automated services, it is imperative to employ innovative problem-solving techniques. Using technology for marketing and customer engagement necessitates the creation of persuasive digital content, such as visually attractive menus or captivating social media campaigns, which emphasises the importance of creative skills. An enhanced dining experience is achieved through the integration of innovative technologies and ingenuity by personnel, resulting in a dynamic and memorable dining experience. Moreover, in collaborative environments where technological progress intersects with the culinary arts, the capacity to create inventive recipes or enhance kitchen operations through automation becomes crucial.

### 3.5.3 Advanced Technologies and Wages

The findings revealed that a notable percentage of participants recognised the impact of advanced technology on employees' salaries within the restaurant sector amidst the period of technological progress. The findings of the study indicate that individuals who possess pertinent technical and technological competencies, along with robust interpersonal and soft skills, are more inclined to secure higher remuneration. On the other hand, individuals who did not possess these skills were not found to undergo proportional salary increments. A subset of participants indicated that the implementation of advanced technologies has a detrimental impact on employee remuneration, as it diminishes pay. This perception stems from the notion that technologies relieve employees of repetitive, tedious responsibilities. Other minority groups perceive that this alleviation will enable employees to focus on more complex and value-adding duties, thus enhancing their overall performance. Increased productivity can result in employees taking on more specialised roles, which in turn leads to greater recognition and appreciation of their skills and contributions, justifying salary raises.

# 4. New and Novel Findings of the Dissertation

The present section of the conclusion offers a concise overview of the core themes and contributions derived from the research. These gaps and unresolved areas of enquiry in the literature encompassed several aspects. Firstly, there is a dearth of advanced technology research, specifically in hospitality. Secondly, there is a lack of examination regarding the prospects of hospitality managers in the recent technological epoch, particularly in terms of their acceptance. Thirdly, most Technology Acceptance Model (TAM) studies have focused on the individual acceptability of technology within the consumer and guest contexts only. Fourthly, there is a lack of clarity regarding the ultimate impact of advanced technologies on the labour force of the hospitality industry, and the existing studies are quantitative. Fifthly, there is a dearth of knowledge regarding the new strategies for managing the labour force. Lastly, there is a lack of understanding regarding the skills required from employees in the era of technological breakthroughs. The gaps identified in the existing literature have underscored this research agenda and offered opportunities for future investigation.

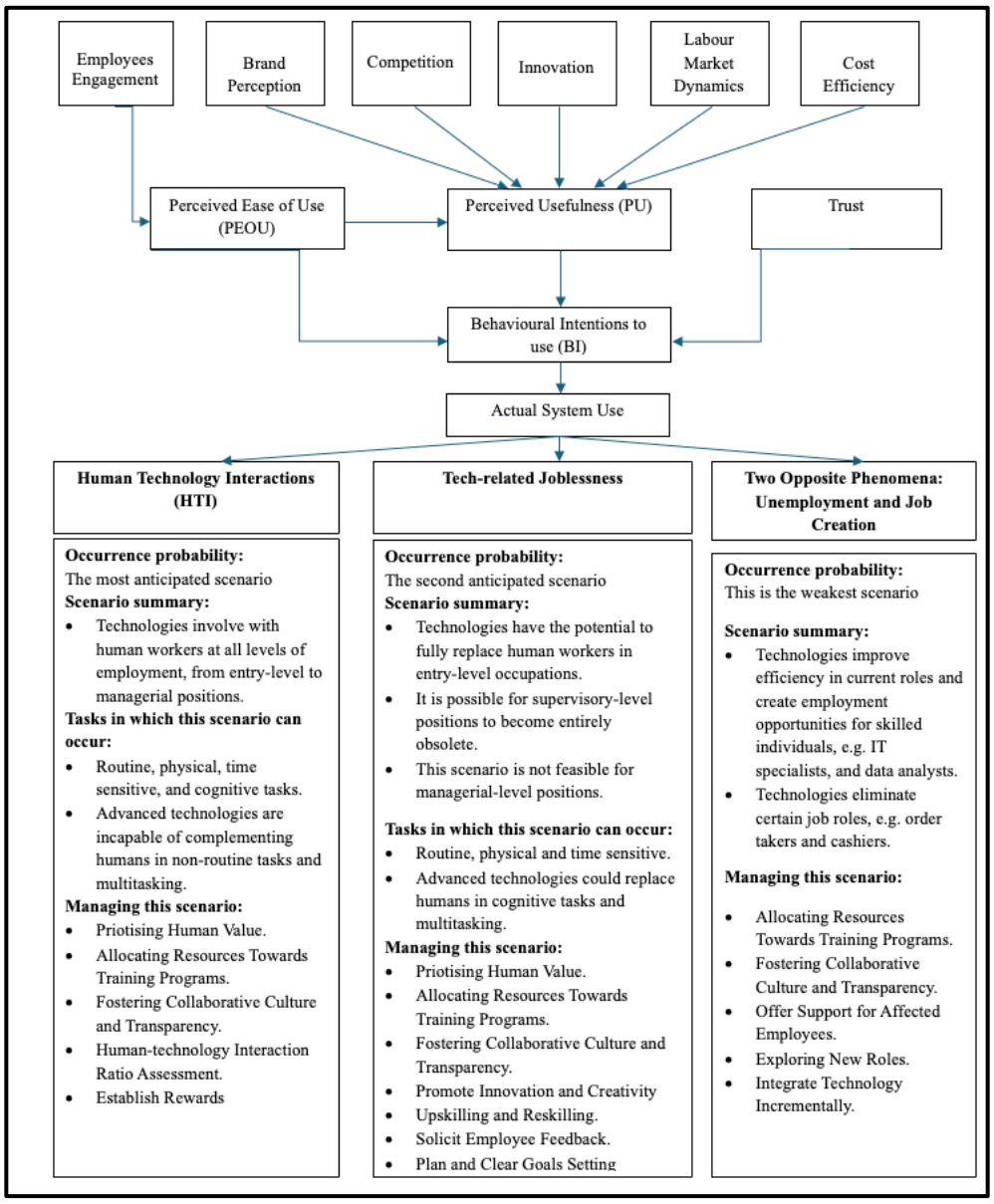
This study aimed to explore the intentions of hospitality managers to adopt new technologies, the factors that influence their intentions, potential outcomes, consequences for the future of the workforce, and new labour management tactics in the current era, using the Technology Acceptance Model (TAM) as a framework. The novel findings of this research are as follows:

- The findings revealed that the adoption of advanced technologies in restaurants is impacted by various factors from a managerial standpoint through TAM model lens (Davis, 1985). The perceived usefulness (PU) of the technology is a crucial factor to take into account. The perception of usefulness (PU) is subject to the influence of several antecedents, such as the perception of the brand, competitive advantage, innovation and experimentation, labour market conditions, and cost-effectiveness. The subsequent factor is the perceived ease of use (PEOU). The perception of the (PEOU) is subject to the influence of employee engagement and satisfaction as an antecedent of the (PEOU). In the present study, trust is recognised as a main determinant or construct within the Technology Acceptance Model (TAM) that influences managers' intentions to adopt advanced technologies. This finding serves as an extension of the TAM model in the context of this research and different than the factors that have been revealed from guests/consumers context using TAM lens excessively in previous research (See Figure. 4.1).
- The findings of the study deeply unveiled three anticipated scenarios for the labour force in the hospitality sector, specifically within the restaurant industry, as a rational consequence (post-adoption) of the managers' intentions to embrace cutting-edge technologies. The scenarios are structured according to the participants' evaluations of their probability of occurrence, namely human technology interaction (HTI), tech-related joblessness, and unemployment and job creation. Moreover, the findings unveiled these scenarios individually and in-depth, highlighting each scenario background, the job level at which it will take place, the nature of the tasks involved, and the suggested strategies for managing the workforce in this context with detailed tips for its implementation.
- **In the first scenario (HTI)**, the study's findings indicated a high level of anticipation for the interaction between humans and technology. This is due to the potential of emerging technologies to effectively engage with human workers across various employment levels, ranging from entry-level to managerial positions. An exemplification can be observed in the utilisation of advanced technologies like kiosks, which can potentially augment the concentration of frontline personnel on customer service by streamlining their responsibilities. Participants emphasised the significance of the human factor in service, with some highlighting the likelihood of this scenario more than others. This suggests that there will be no workforce reductions, and technological progress will solely contribute to enhancing and supporting human workers in their specific positions.
- The study revealed that most participants believe advanced technologies can effectively collaborate with humans across various tasks. Advanced technologies can enhance human efforts in physical, cognitive, and time-critical tasks. Moreover, it has been noted that it cannot effectively assist humans in non-routine tasks and multitasking. The findings underscored the need for various actions to be taken in the event of this scenario, including prioritising areas where human employees contribute significant value, allocating resources towards training programs, fostering a collaborative culture and transparency, maintaining an ongoing assessment and modification of the human-technology interaction

ratio, and establishing rewards. The comprehensive dissertation version provided examples that illustrate the application of each strategy within the restaurant industry (Chapter 4).

- **In the second scenario (Tech- related Joblessness)**, emerging technologies could fully substitute human workers in entry-level positions such as waitstaff, bartenders, and hosts. These positions typically require minimal or no prior experience, making this particularly relevant. Supervisory-level positions have the potential to become entirely outdated, in contrast to managerial-level roles. The majority of participants believe that advanced technologies have the potential to supplant human involvement in routine, physical, and time-sensitive tasks. Some respondents proposed that advanced technologies could potentially supplant humans in cognitive tasks and multitasking. The significance of the human element in service, with varying ratios of human-technology balance, led the participants to assess it as a second scenario and emphasise that this scenario will partially happen. This suggests that substitution will occur to some extent, reaching up to 75% while still retaining a weak presence of the human element.
- The findings revealed that the current and previous scenarios take similar actions to address the human replacement issue, such as emphasising areas where human employees add significant value, allocating resources to training programs, and fostering a collaborative culture. Additional actions that can be taken in the event of this scenario, include fostering an environment that promotes innovation and creativity, providing opportunities for upskilling and reskilling, including and soliciting employee feedback, and implementing a technology plan with clear goals. The detailed dissertation version included examples demonstrating the implementation of each technique in the restaurant business (Chapter 4).
- **In the third scenario (unemployment and job creation),** the study's findings revealed that the respondents believed that the restaurant industry's adoption of cutting-edge technologies had created new job opportunities. However, this scenario contended that although the incorporation of cutting-edge technologies might result in job creation, it might also cause the elimination of some jobs. A small percentage of respondents proposed that the impact of new technologies on employment differs depending on the job level. Although the percentage of human-to-technology balance varied, some participants emphasised the possibility that this scenario could happen because of how important humans are to service. This suggests that substitution could occur to some extent—up to fifty percent—with the human component still partly existing. The participants proposed the following actions to prevent unemployment and assist the workforce if this scenario comes to pass; allocating resources to training programs, fostering a transparent and collaborative culture, offering support to affected employees, exploring new opportunities and roles, and facilitating the integration of advanced technologies incrementally. The comprehensive dissertation version included examples illustrating the use of each strategy in the restaurant industry (Chapter 4).

**Figure 4.1:** A Framework for Understanding Technology Adoption and Labour Force Future (TALFF) (Pre-adoption and post adoption stages)




- The literature review unveiled a conspicuous dearth of comprehension of the skills demanded of employees in the epoch of technological advancements. The findings

emphasised that the skills encompass a range of technical and technology-related proficiencies, including technological skills, data analytics skills, problem-solving skills, and language skills. The skills include interpersonal and soft skills, such as emotional intelligence, communication skills, and creativity.

- The most surprising finding from this study is the influence of skills changes on employee's remuneration According to the majority of participants, individuals who demonstrated relevant technical and technological proficiency and strong interpersonal and soft skills were more likely to be rewarded with higher salaries. Conversely, individuals lacking these skills were not observed to receive commensurate salary increases. A minority of participants posited that the implementation of advanced technologies has a negative effect on employee salaries, as it reduces remuneration due to the alleviation of task-related burdens. A small proportion of respondents believed that implementing advanced technologies has an optimistic impact on employee remuneration by augmenting wages, as it enhances their overall productivity, leading to heightened acknowledgement and gratitude for their skills and contributions. This study addressed the existing gaps in knowledge, as demonstrated in chapters four and five.

# 5. Practical Applicability of the Results

The findings provided evidence-based insights to assist stakeholders in the restaurant industry in making informed decisions regarding technology investments. The study provided a comprehensive guide for restaurant managers on the factors to consider when thinking about adopting new service technologies. The study, while consistent with existing understanding of the significance of usability, utility, and trust in securing managerial acceptance of advanced technologies, uncovered the factors influencing perceived ease of use, namely employee engagement and satisfaction. Furthermore, it highlighted the factors influencing perceived usefulness, including cost efficiency, innovation, brand perception, competition, and labour market dynamics from a managerial standpoint. It is crucial for designers, developers, and vendors to reveal these factors to fully understand the challenges encountered by restaurants and to showcase how their products provide effective solutions and are continuously improved.

The research findings have brought attention to three potential scenarios for the future of the labour force in the restaurant industry. These scenarios were thoroughly examined, each elucidated individually, considering the various job levels and natures. Furthermore, an analysis was conducted on the strategies that can be considered for each scenario, thereby aiding managers in effectively navigating the future of the labour force and identifying when technology functions as an aid for human tasks and when it acts as a replacement. Gaining insight into the concrete effects on the labour force facilitates the formulation of decisions that drive business progress and safeguard the personnel's well-being.

Analysing strategies for each scenario offers vital guidance for industry professionals and policymakers to develop a resilient and sustainable workforce for the future of the restaurant industry. Restaurant managers can assist human resources (HR) in achieving a balance between the personal touch appreciated by diners and the efficiency provided by emerging technologies. Human resources should incentivise employees who effectively integrate technological tools with interpersonal communication. Moreover, impacted employees should receive both psychological

and practical support. Human Resources should develop training programs beyond simple task instruction; they must also emphasise reskilling and upskilling employees to improve adaptability and digital literacy. Employees must be ready to multitask, engage in cognitive activities, and acquire new competencies, particularly AI, to cope with the evolving technological landscape and adeptly prevent obsolescence.

Based on the research findings, managers can enhance workforce management by prioritising human value in areas where they possess considerable influence. Managers must prioritise reskilling and upskilling, seek feedback from workers, and formulate clearly defined plans to address potential unemployment concerns. Managers must pinpoint areas where technological integration can improve efficiency and offer job opportunities. We encourage for a phased integration of new technologies to determine potential opportunities for the establishment of new roles. This research should prompt policymakers to establish regulations that protect employees' rights and promote equitable labour practices. This may include collaboration with restaurateurs and educational institutions to create programs that correspond with workforce development in this changing landscape.

This research is crucial in emphasising the skills employees need to develop to succeed in the face of technological progress. For managers, identifying the skills needed in this era highlights that employee development is of utmost importance and facilitates the creation of training programs that are in line with the changing requirements of the hospitality industry. Additionally, it guides managers regarding the essential skills they should prioritise when selecting job candidates.

This study was among the first to emphasise the impact of acquiring new skills in the era of technological advancements on employee salaries. Based on the majority of participants' perspectives, it was observed that individuals who exhibited pertinent technical and technological skills, along with robust interpersonal and soft skills, were more likely to receive higher remuneration. This guide gives managers insights into the importance of retaining skilled employees in the latest technologies to sustain a competitive advantage within the hospitality industry. Employers may provide competitive salaries and training programs to incentivise employee retention, acknowledging the significance of these workers to the business's success. This holds particularly true in a highly competitive labour market where proficient individuals have numerous employment opportunities.

A subset of participants argued that integrating advanced technologies hurts employee salaries and diminishes compensation by relieving task-related burdens. The adverse effect on salaries could result in more extensive modifications to the labour market. With the devaluation of specific jobs caused by technology, the workforce may transition towards emerging roles created or improved by technology. This transition has the potential to generate a surge in demand for novel skill sets, ultimately resulting in salary modifications that accurately align with the significance of these emerging positions. This perspective directs policymakers and managers to continuously discuss modifications to the minimum wage, benefits, and working conditions to guarantee equitable remuneration and treatment of employees in the present era.

# References


Abbott, A. (2004). *Methods of Discovery: Heuristics for the Social Sciences.* New York, NY: W.W Norton.

Balasubramanian, K., & Ragavan, N. A. (2019). What are the key challenges faced by the Malaysian hospitality and tourism industry in the context of industrial revolution 4.0?. *Worldwide Hospitality and Tourism Themes*, *11*(2), 194-203. https://doi.org/10.1108/whatt-11-2018-0079 .

Belanche, D., Casaló, L. V., & Flavián, C. (2021). Frontline robots in tourism and hospitality: service enhancement or cost reduction?. *Electronic Markets*, *31*(3), 477-492. https://doi.org/10.1007/s12525-020-00432-5 .

Bernard, H. R. (1994). *Research methods in anthropology: qualitative and quantitative approaches*. Sage publications.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology, 3*(2), 77-101. https://doi.org/10.1191/1478088706qp063oa .

Brinkmann, S. (2013). *Qualitative interviewing*. New York: Oxford University Press.

Bryman, A., & Bell, E. (2011). *Business research methods* (3rd ed.). Oxford: Oxford University Press.

Çalişkan, G., & Sevim, B. (2023). Use of service robots in hospitality: An observational study in terms of technology acceptance model. *Tourism and Hospitality Research*, 14673584231198438. https://doi.org/10.1177/14673584231198438 .

Campin, S., Barraket, J., & Luke, B. (2013). Micro-Business community responsibility in australia: Approaches, motivations and barriers. *Journal of Business Ethics, 115*(3), 489-513. DOI 10.1007/s10551-012-1396-1.

Chan, A. P. H., & Tung, V. W. S. (2019). Examining the effects of robotic service on brand experience: The moderating role of hotel segment. *Journal of Travel & Tourism Marketing*, *36*(4), 458-468. https://doi.org/10.1080/10548408.2019.1568953 .

Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. Sage.

Cheong, F., & Lee, Y. H. (2021). Developing an environmental management system for evaluating green casino hotels. *Sustainability, 13*(14), 7825. https://doi.org/10.3390/su13147825 .

Cheong, F., Huang, Q., Ye, H., & Law, R. (2023). Application and consequences of service robots in tourism and hospitality scenarios: A systematic literature review. *Journal of Quality Assurance in Hospitality & Tourism*, 1-23. https://doi.org/10.1080/1528008x.2023.2300119.

Choi, Y., Choi, M., Oh, M., & Kim, S. (2020). Service robots in hotels: understanding the service quality perceptions of human-robot interaction. *Journal of Hospitality Marketing & Management*, *29*(6), 613-635. https://doi.org/10.1080/19368623.2020.1703871.

Choi, Y., Choi, M., Oh, M., & Kim, S. (2020). Service robots in hotels: understanding the service quality perceptions of human-robot interaction. *Journal of Hospitality Marketing & Management*, *29*(6), 613-635. https://doi.org/10.1080/19368623.2020.1703871.

Cobos, L. M., Mejia, C., Ozturk, A. B., & Wang, Y. (2016). A technology adoption and implementation process in an independent hotel chain. *International Journal of Hospitality Management*, *57*, 93-105. https://doi.org/10.1016/j.ijhm.2016.06.005 .

Coffey, A., & Atkinson, P. (1996). *Making sense of qualitative data: Complementary research strategies*. Sage publications.

Corbin, J. M., & Strauss, A. L. (2008). *Basics of Qualitative research: Techniques and Procedures for Developing Grounded Theory* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Cornelissen, J. P. (2017). Preserving Theoretical Divergence in Management Research: Why the Explanatory Potential of Qualitative Research Should Be Harnessed Rather than Suppressed. *Journal of Management Studies*, *54*(3), 368-383. https://doi.org/10.1111/joms.12210 .
Cornelissen, J. P. (2017). Preserving Theoretical Divergence in Management Research: Why the Explanatory Potential of Qualitative Research Should Be Harnessed Rather than Suppressed. *Journal of Management Studies*, *54*(3), 368-383. https://doi.org/10.1111/joms.12210 .
Creswell, J. (2007). *Qualitative inquiry and research design: Choosing among five approaches* (2nd ed.). Thousand Oaks, California: Sage Publications Inc.
Creswell, J. (2007). *Qualitative inquiry and research design: Choosing among five approaches* (2nd ed.). Thousand Oaks, California: Sage Publications Inc.
Creswell, J. (2012). *Qualitative Inquiry & Research Design. Choosing Among Five Approaches* (3rd ed.). Thousand Oaks: Sage.
Creswell, J. W. (2014b). *Research design: qualitative, quantitative, and mixed methods approaches* (4th ed.). Sage Publications.
Creswell, J. W. (2018). *Qualitative inquiry and research design: Choosing among five approaches*. Sage Publications.
Creswell, J. W., & Clark, V. L. P. (2017). *Designing and conducting mixed methods research*. Sage Publications.
Creswell, J., & Miller, D. (2000). Determining validity in qualitative inquiry. *Theory into practice*, *39*(3), 124-130. https://doi.org/10.1207/s15430421tip3903_2 .
Crotty, M. (1998). *The Foundations of Research: Meaning and Perspectives of Social Research.* New South Wales: Allen and Unwin.
Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340. https://doi.org/10.2307/249008 .
Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340. https://doi.org/10.2307/249008 .
Davis, F., Bagozzi, R. & Warshaw, P. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management Science, 35* (8), 982-1003. https://doi.org/10.1287/mnsc.35.8.982 .
Denzin, N. K., & Lincoln, Y. S. (2011). *The Sage handbook of qualitative research* (4th ed.). Sage Publications.
Denzin, N., & Lincoln, Y. (2003). *Collecting and interpreting qualitative materials* (2nd ed.). Thousand Oaks, CA: Sage Publications.
Denzin, N., & Lincoln, Y. (2005). *The Sage handbook of qualitative research* (3rd ed.). Thousand Oaks, CA: Sage Publications.
Denzin, N., & Lincoln, Y. (2018). *The Sage handbook of qualitative research* (5th ed.). Thousand Oaks, CA: Sage Publications.
Drexler, N., & Lapré, V. B. (2019). For better or for worse: Shaping the hospitality industry through robotics and artificial intelligence. *Research in Hospitality Management*, *9*(2), 117-120. https://doi.org/10.1080/22243534.2019.1689701 .
Duriau, V. J., Reger, R. K., & Pfarrer, M. D. (2007). A content analysis of the content analysis literature in organization studies: Research themes, data sources, and methodological refinements. *Organizational Research Methods, 10*(1), 5-34. https://doi.org/10.1177/1094428106289252 .

Easterby-Smith, M., Thorpe, R., & Jackson, P. R. (2012). *Management Research* (4th ed.). London: Sage Publications.

Easterby-Smith, M., Thorpe, R., & Lowe, A. (2002). *Management Research: An Introduction* (2nd ed.). London: Sage Publications.

Erebak, S., & Turgut, T. (2021). Anxiety about the speed of technological development: Effects on job insecurity, time estimation, and automation level preference. *Journal of High Technology Management Research, 32*(2), 100419. https://doi.org/10.1016/j.hitech.2021.100419 .

Flick, U. (2018). *An introduction to qualitative research*. Sage publications.

Gephart, R. P. (1991). Multiple methods for tracking corporate social performance: Insights from a study of major industrial accidents. In J. E. Post (ed.), *Research in Corporate Social Performance and Policy* (Vol. 12) (pp. 359-385). Greenwich, CT: JAI Press.

Ghosh, D., Ghosh, R., Roy Chowdhury, S., & Ganguly, B. (2024). AI-exposure and labour market: A systematic literature review on estimations, validations, and perceptions. *Management Review Quarterly*, 1-28. https://doi.org/10.1007/s11301-023-00393-x .

Goffman, E. (1974). *Frame Analysis: An Essay on the Organization of Experience*. Cambridge, MA: Harvard University Press.

Gray, D. (2017). *Doing research in the business world*. London: Sage Publications Ltd.

Guba, E., & Lincoln, Y. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *The SAGE handbook of qualitative research* (pp. 105–117). Thousand Oaks, CA: Sage.

Guest, G., Namey, E. E., & Mitchell, M. L. (2013). *Collecting qualitative data: A field manual for applied research*. Sage.

Gursoy, D., Chi, O. H., Lu, L., & Nunkoo, R. (2019). Consumers acceptance of artificially intelligent (AI) device use in service delivery. *International Journal of Information Management, 49*, 157-169. https://doi.org/10.1016/j.ijinfomgt.2019.03.008 .

Han, D., Hou, H., Wu, H., & Lai, J. H. (2021). Modelling tourists' acceptance of hotel experience-enhancement Smart technologies. *Sustainability, 13*(8), 4462. https://doi.org/10.3390/su13084462.

Holloway, I. (1997). *Basic concepts for qualitative research*. Oxford: Blackwell Science.

Hou, Y., Zhang, K., & Li, G. (2021). Service robots or human staff: How social crowding shapes tourist preferences. *Tourism Management*, *83*, 104242. https://doi.org/10.1016/j.tourman.2020.104242.

Hutton, G., Keep, M., Ward, M., & Brien, P. (2024, April 15). Fiscal support for tourism and hospitality in coastal areas - House of Commons Library. House of Commons Library. https://commonslibrary.parliament.uk/research-briefings/cdp-2024-0035/. {Accessed 29 February 2024}.

Ivanov, S. (2019). Ultimate transformation: How will automation technologies disrupt the travel, tourism and hospitality industries?. *Zeitschrift für Tourismuswissenschaft*, *11*(1), 25-43. https://doi.org/10.1515/tw-2019-0003 .

Ivanov, S. (2020). The impact of automation on tourism and hospitality jobs. *Information Technology & Tourism*, *22*(2), 205-215. https://doi.org/10.1007/s40558-020-00175-1 .

Ivanov, S. H., Webster, C., & Berezina, K. (2017). Adoption of robots and service automation by tourism and hospitality companies. *Revista Turismo & Desenvolvimento*, *27*(28), 1501-1517. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2964308 .

Ivanov, S., & Webster, C. (2020). Robots in tourism: A research agenda for tourism economics. *Tourism Economics, 26*(7), 1065-1085. https://doi.org/10.1177/1354816619879583 .

Ivanov, S., & Webster, C. (2024). Automated decision-making: Hoteliers' perceptions. *Technology in Society*, *76*, 102430. https://doi.org/10.1016/j.techsoc.2023.102430 .

Ivanov, S., Webster, C., & Garenko, A. (2018). Young Russian adults' attitudes towards the potential use of robots in hotels. *Technology in Society*, *55*, 24-32. https://doi.org/10.1016/j.techsoc.2018.06.004 .

Ivanov, S., Webster, C., & Garenko, A. (2018). Young Russian adults' attitudes towards the potential use of robots in hotels. *Technology in Society*, *55*, 24-32. https://doi.org/10.1016/j.techsoc.2018.06.004 .

Kim, C. Y., & Cha, S. S. (2024). Customers' value changes on robot-serviced restaurants. *International Journal of Tourism Research*, *26*(1), e2631. https://doi.org/10.1002/jtr.2631 .

Kirk, J., & Miller, M. L. (1986). *Reliability and validity in qualitative research*. Sage Publications.

Koch, T. (1994). Establishing rigour in qualitative research: the decision trail. *Journal of Advanced Nursing*, 19(5), 976-986. https://doi.org/10.1111/j.1365-2648.1994.tb01177.x .

Koo, B., Curtis, C., & Ryan, B. (2021). Examining the impact of artificial intelligence on hotel employees through job insecurity perspectives. *International Journal of Hospitality Management*, *95*, 102763. https://doi.org/10.1016/j.ijhm.2020.102763 .

Krippendorff, K. (1980). *Content analysis: An introduction to its methodology.* Newbury Park, CA: Sage Publications.

Kuo, C. M., Chen, L. C., & Tseng, C. Y. (2017). Investigating an innovative service with hospitality robots. *International Journal of Contemporary Hospitality Management*, *29*(5), 1305-1321. https://doi.org/10.1108/ijchm-08-2015-0414 .

Li, F., Zhu, D., Lin, M. T., & Kim, P. B. (2024). The technology acceptance model and hospitality and tourism consumers' intention to use mobile technologies: Meta-analysis and structural equation modeling. *Cornell Hospitality Quarterly*, 19389655241226558. https://doi.org/10.1177/19389655241226558 .

Li, F., Zhu, D., Lin, M. T., & Kim, P. B. (2024). The technology acceptance model and hospitality and tourism consumers' intention to use mobile technologies: Meta-analysis and structural equation modeling. *Cornell Hospitality Quarterly*, 19389655241226558. https://doi.org/10.1177/19389655241226558 .

Liedtka, J. M. (1992). Exploring ethical issues using personal interviews. *Business Ethics Quarterly*, *2*(2), 161-181. https://doi.org/10.2307/3857569 .

Lincoln, Y. (1995). Emerging criteria for quality in qualitative and interpretive research. *Qualitative inquiry, 1*(3), 275-289. https://doi.org/10.1177/107780049500100301 .

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage Publications.

Liu, J., Zhou, L., Yang, L., & Liu, D. (2024). The dehumanization of service robots influences hospitality consumption emotion. *International Journal of Hospitality Management*, *119*, 103707. https://doi.org/10.1016/j.ijhm.2024.103707 .

Liu, X. S., Yi, X. S., & Wan, L. C. (2022a). Friendly or competent? The effects of perception of robot appearance and service context on usage intention. *Annals of Tourism Research*, *92*, 103324. https://doi.org/10.1016/j.annals.2021.103324 .

Lock, S. (2022). *Digitalization of hospitality worldwide- statistics & facts*. Retrieved from: https://www.statista.com/topics/8339/digitalization-of-the-hospitality-industry/#dossierKeyfigures . {Accessed 06 June 2022}.

Lofland, J., & Lofland, L. H. (1995). *Analyzing social settings: A guide to qualitative observation and analysis* (3rd ed.). Belmont, CA: Wadsworth.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook*. Thousand Oaks, CA: Sage.

Mingotto, E., Montaguti, F., & Tamma, M. (2021). Challenges in re-designing perations and jobs to embody AI and robotics in services: Findings from a case in the hospitality industry. *Electronic Markets*, *31*, 493-510. https://doi.org/10.1007/s12525-020-00439-y .

Moktadir, M. A., Ali, S. M., Kusi-Sarpong, S., & Shaikh, M. A. A. (2018). Assessing challenges for implementing Industry 4.0: Implications for process safety and environmental protection. *Process safety and environmental protection*, *117*, 730-741. https://doi.org/10.1016/j.psep.2018.04.020 .

Murphy, J., Hofacker, C., & Gretzel, U. (2017). Dawning of the age of robots in hospitality and tourism: Challenges for teaching and research. *European Journal of Tourism Research*, *15*(2017), 104-111. https://doi.org/10.54055/ejtr.v15i.265 .

Nam, K., Dutt, C. S., Chathoth, P., Daghfous, A., & Khan, M. S. (2021). The adoption of artificial intelligence and robotics in the hotel industry: Prospects and challenges. *Electronic Markets, 31*(3), 553-574. https://doi.org/10.1007/s12525-020-00442-3 .

Neuendorf, K. A. (2016). *The content analysis guidebook*. Thousand Oaks, CA: Sage Publications.

Neuman, W. L. (2014). *Social research methods: qualitative and quantitative approaches*. Boston: Pearson.

Nizar, N. N. M., & Rahmat, M. K. (2018). Examining the museum visitors' use of mobile technology through technology acceptance model (TAM). *Journal of Tourism, Hospitality, and Event Management*, *3*(11), 14-24.

Nozawa, C., Togawa, T., Velasco, C., & Motoki, K. (2022). Consumer responses to the use of artificial intelligence in luxury and non-luxury restaurants. *Food Quality and Preference*, *96*, 104436. https://doi.org/10.1016/j.foodqual.2021.104436 .

Oppenheim, A. N. (2000). *Questionnaire Design, Interviewing and Attitude Measurement*, (2nd ed.). London: Bloomsbury Publishing.

Ozgit, H., & Caglar, M. (2015). The effectiveness of the tourism and hospitality management programmes in the professional careers of their graduates in North Cyprus. *The Anthropologist*, *22*(2), 397-404. https://doi.org/10.1080/09720073.2015.11891892 .

Park, S. (2020). Multifaceted trust in tourism service robots. *Annals of Tourism Research*, *81*, 102888. https://doi.org/10.1016/j.annals.2020.102888 .

Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice*. Sage Publications.

Pericleous, K., Liasidou, S. and Dyankov, T. (2025). AI and hotel employees' coexistence: a helpful tool or a threat to job loss?. *Worldwide Hospitality and Tourism Themes, Vol. ahead-of-print No. ahead-of-print*. https://doi.org/10.1108/WHATT-01-2025-0001

Pillai, R., & Sivathanu, B. (2020). Adoption of AI-based chatbots for hospitality and tourism. *International Journal of Contemporary Hospitality Management, 32*(10), 3199-3226. https://doi.org/10.1108/ijchm-04-2020-0259 .

Pillai, R., Yadav, S., Sivathanu, B., Kaushik, N., & Goel, P. (2022). Use of 4.0 (I4. 0) technology in HRM: A pathway toward SHRM 4.0 and HR performance. *Foresight, 24*(6), 708-727. https://doi.org/10.1108/FS-06-2021-0128 .

Pizam, A., Ozturk, A. B., Balderas-Cejudo, A., Buhalis, D., Fuchs, G., Hara, T., ... & Chaulagain, S. (2022). Factors affecting hotel managers' intentions to adopt robotic technologies: A global study. *International Journal of Hospitality Management*, *102*, 103139. https://doi.org/10.1016/j.ijhm.2022.103139 .

Rubin, H. J., & Rubin, I. S. (2004). *Qualitative interviewing: The art of hearing data* (2nd ed.). London: Sage Publications.

Ryan, G. W., & Bernard, H. R. (2003). Techniques to identify themes. *Field Methods, 15*(1), 85-109. https://doi.org/10.1177/1525822x02239569 .

Sadangharn, P. (2021). A multidimensional analysis of robotic deployment in Thai hotels. *International Journal of Social Robotics, 14*(4), 859–873. https://doi.org/10.1007/s12369-021-00833-2 .

Saldaña, J. (2021). *The coding manual for qualitative researchers*. Sage.

Santiago, J., Borges-Tiago, M. T., & Tiago, F. (2024). Embracing RAISA in restaurants: Exploring customer attitudes toward robot adoption. *Technological Forecasting and Social Change*, *199*, 123047. https://doi.org/10.1016/j.techfore.2023.123047 .

Seyitoğlu, F., Atsız, O., & Acar, A. (2023). The future of restaurant labour: Evidence from the US restaurants. *Current Issues in Tourism*, 1-18. https://doi.org/10.1080/13683500.2023.2280150 .

Shamim, S., Cang, S., Yu, H., & Li, Y. (2017). Examining the feasibilities of Industry 4.0 for the hospitality sector with the lens of management practice. *Energies*, *10*(4), 499. https://doi.org/10.3390/en10040499 .

Shenton, A. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information, 22*(2), 63-75. https://doi.org/10.3233/efi-2004-22201 .

Shin, H. H., & Jeong, M. (2020). Guests' perceptions of robot concierge and their adoption intentions. *International Journal of Contemporary Hospitality Management*, *32*(8), 2613-2633. https://doi.org/10.1108/ijchm-09-2019-0798 .

Shin, H., Perdue, R. R., & Kang, J. (2019). Front desk technology innovation in hotels: A managerial perspective. *Tourism Management*, *74*, 310-318. https://doi.org/10.1016/j.tourman.2019.04.004 .

Shin, H., Ryu, J., & Jo, Y. (2025). Navigating artificial intelligence adoption in hospitality and tourism: managerial insights, workforce transformation, and a future research agenda. *International Journal of Hospitality Management*, *128*, 104187. https://doi.org/10.1016/j.ijhm.2025.104187

Silverman, D. (2015). *Interpreting qualitative data: Methods for analyzing talk, text and interaction.* Sage Publications.

Spence, L. J., & Rutherfoord, R. (2001). Social responsibility, profit maximisation and the small firm owner-manager. *Journal of Small Business and Enterprise Development, 8*(2), 126-139.

Stock, R. M. (2018). Can service robots hamper customer anger and aggression after a service failure?. https://econpapers.repec.org/RePEc:dar:wpaper:110838 .

Strauss, A. (1987). *Qualitative analysis for social scientists*. New York, NY: Cambridge University Press.

Strauss, A., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage.

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research* (2nd ed.). Thousand Oakes, CA: Sage Publications.

Teddlie, C., & Tashakkori, A. (2009). *Foundations of mixed methods research: Integrating quantitative and qualitative approaches in the social and behavioral sciences*. Sage.

Thomas, D. R. (2006). A general inductive approach for analyzing qualitative evaluation data. *American Journal of Evaluation, 27*(2), 237-246. https://doi.org/10.1177/1098214005283748 .

Tuomi, A., Tussyadiah, I. P., & Stienmetz, J. (2021). Applications and implications of service robots in hospitality. *Cornell Hospitality Quarterly, 62*(2), 232-247. https://doi.org/10.1177/1938965520923961 .

Tussyadiah, I. P., & Park, S. (2018). Consumer evaluation of hotel service robots. In *Information and Communication Technologies in Tourism 2018: Proceedings of the International Conference in Jönköping, Sweden, January 24-26, 2018* (pp. 308-320). Springer International Publishing. https://doi.org/10.1007/978-3-319-72923-7_24 .

Tussyadiah, I., Tuomi, A., Ling, E., Miller, G., & Lee, G. (2022). Drivers of organizational adoption of automation. *Annals of Tourism Research*, , 93, 103308. https://doi.org/10.1016/j.annals.2021.103308 .

Ullmann, A. E. (1985). Data in search of a theory: A critical examination of the relationship among social performance, social disclosure, and economic performance of U.S. firms. *Academy of Management Review, 10*(3), 540–557. https://doi.org/10.5465/amr.1985.4278989.

Vatan, A., & Dogan, S. (2021). What do hotel employees think about service robots? A qualitative study in Turkey. *Tourism Management Perspectives*, *37*, 100775. https://doi.org/10.1016/j.tmp.2020.100775 .

Venkatesh, V. (2000). Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model. *Information Systems Research*, *11*(4), 342-365. https://doi.org/10.1287/isre.11.4.342.11872 .

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management science*, *46*(2), 186-204. https://doi.org/10.1287/mnsc.46.2.186.11926 .

Wang, Y. C., & Uysal, M. (2024). Artificial intelligence-assisted mindfulness in tourism, hospitality, and events. *International Journal of Contemporary Hospitality Management*, *36*(4), 1262-1278. https://doi.org/10.1108/IJCHM-11-2022-1444 .

Yang, H., Song, H., Cheung, C., & Guan, J. (2021). How to enhance hotel guests' acceptance and experience of smart hotel technology: An examination of visiting intentions. *International Journal of Hospitality Management*, *97*, 103000. https://doi.org/10.1016/j.ijhm.2021.103000.

Yang, J., & Chew, E. (2021). A systematic review for service humanoid robotics model in hospitality. *International Journal of Social Robotics, 13*, 1397-1410. https://doi.org/10.1007/s12369-020-00724-y .

Yilmaz, K. (2013). Comparison of quantitative and qualitative research traditions: Epistemological, theoretical, and methodological differences. *European Journal of Education*, 48(2), 311-325. https://doi.org/10.1111/ejed.12014 .

Yin, R. K. (2014). *Case study research: Design and methods*. Sage Publications.

Yu, C. E. (2020). Humanlike robots as employees in the hotel industry: Thematic content analysis of online reviews. *Journal of Hospitality Marketing & Management*, *29*(1), 22-38. https://doi.org/10.1080/19368623.2019.1592733 .

# 6. Publications related to the process of obtaining a Ph.D. degree

## Publications List

Elmohandes, N., & Marghany, M. (2025). From Slavery to Fair Work in Hospitality: How New Technologies Affect. *Economica* (Accepted).

Elmohandes, N., & Marghany, M. (2024). Effective or ineffective? Using ChatGPT for staffing in the hospitality industry. *European Journal of Tourism Research*, *36*, 3617-3617.

Elmohandes, N., & Pető, K. (2023). Exploring the viability of service robots in performing human aesthetic labour in the hospitality industry. *Economica*, *14*(1-2), 60-68.

Elmohandes, N., & Csobán, K. (2022). Industrial 4.0 revolution: Can it positively step into a sustainable hospitality?. *Applied Studies in Agribusiness and Commerce*, *16*(2).

## Conference proceedings

Elmohandes, N. and Marghany, M. (2024, June 5-7). *The future of hospitality publications in the era of ChatGPT: Insights from academics*. Technology Enabled Competitiveness and Experiences in Tourism, Hospitality and Events. Hotelschool The Hague, Netherlands.

Marghany, M., Elmohandes, N., Saleh, M, Helal, M., Elshawarbi, N and Ghazy, K. (2023, July 5-7). *How Do Hotel Robot Aesthetics Affect Guests' Acceptance Intentions? A TAM Model Perspective.* Surrey 2023 Conference. University of Surrey, the UK.

Elmohandes, N. and Csobán, K. (2022, 31st March- 1st April). *Industrial 4.0 Revolution: Can it Positively Step into a Sustainable Hospitality?*. New Trends and Challenges in Management– Special Focus on Industry 4.0. International Scientific Conference, Faculty of Engineering, University of Debrecen, Hungary.

Elmohandes, N. and Osman, H. (2022, June 22-24). *Conflicting cultural values and the female tourist experience*. THE INC 2022 3rd Tourism, Hospitality and Events International Conference. University of Technology, Limassol, Cyprus.

Csobán, K., Elmohandes, N., Serra, G. and Károly, P. (2022, June 22-24).*The Impacts Of Technological Advancements On Sports Events Tourism*. THE INC 2022 3rd Tourism, Hospitality and Events International Conference, University of Technology, Limassol, Cyprus.

Elmohandes, N and Csobán, K. (2022, November 18). *Advanced Technology's Role In The Hospitality Industry's Hiring Process*. New Tourism, Opportunities and Challenges Conference The Department of Tourism and Hospitality at the Széchenyi István University, Hungary.

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Subject: PhD Publication List

Candidate: Nirmeen Mohamed Abdelaziz Ameen Elmohandes
Doctoral School: Doctoral School of Management and Business
MTMT ID: 10081127

## List of publications related to the dissertation

Articles, studies (4)

1. **Elmohandes, N. M. A. A.**, Marghany, M.: From Slavery to Fair Work in Hospitality: How New Technologies Affect?
   *Economica. "Accepted by Publisher"*, [1-23], 2025. ISSN: 1585-6216.

2. **Elmohandes, N. M. A. A.**, Marghany, M.: Effective or ineffective?: Using ChatGPT for staffing in the hospitality industry.
   *European Journal of Tourism Research. 36*, 1-22, 2024. ISSN: 1994-7658.
   DOI: http://dx.doi.org/10.54055/ejtr.v36i.3286
   IF: 2.9 (2023)

3. **Elmohandes, N. M. A. A.**, Pető, K.: Exploring the viability of service robots in performing human aesthetic labour in the hospitality industry.
   *Economica. 14* (1-2), 60-68, 2023. ISSN: 1585-6216.
   DOI: https://doi.org/10.47282/economica/2023/14/1-2/12928

4. **Elmohandes, N. M. A. A.**, Vargáné Csobán, K.: Industrial 4.0 Revolution: Can it Positively Step into a Sustainable Hospitality?
   *Apstract. 16* (2), 1-8, 2022. ISSN: 1789-221X.
   DOI: http://dx.doi.org/10.19041/APSTRACT/2022/2/4

## List of other publications

Articles, studies (3)

5. **Elmohandes, N. M. A. A.**, Vargáné Csobán, K.: Advanced Technology's Role in the Hospitality Industry's Hiring Process.
   In: "Új turizmus? - Lehetőségek és kihívások" XIII. Nemzetközi Turizmus Konferencia Tanulmánykötet. Szerk.: Albert Tóth Attila, Happ Éva; Kőmíves Csaba, Printz-Markó Erzsébet, Széchenyi István Egyetem, Győr, 59-67, 2023. ISBN: 9786156443199

6. Elsayed, Y., Hefny, M., Khan, M., Marghany, M., Radwan, A., **Elmohandes, N. M. A. A.**: Investigating Chain and Independent Restaurants' Facebook Presence: a Step Forward Towards Measuring their Online Image.
*Journal of Association of Arab Universities for Tourism and Hospitality. 20* (3), 130-147, 2021.
EISSN: 2682-4612.
DOI: http://dx.doi.org/10.21608/jaauth.2021.67275.1151

7. **Elmohandes, N. M. A. A.**, Abbas, T., Mansour, N.: Investigating the Effects of Using Simulation Training on Hotel Front-Office Employees' Performance.
*International Academic Journal Faculty of Tourism and Hotel Management. 4* (4), 50-71, 2018. ISSN: 2636-4255.
DOI: http://dx.doi.org/10.21608/ijaf.2018.95499

Conference presentations (2)

8. Osman, H., **Elmohandes, N. M. A. A.**: Conflicting cultural values and the female tourist experience.
In: THE INC 2022: Tourism, Hospitality & Events Innovation and Resilience during Uncertainty / (szerk.) Anna Farmaki, Cyprus University of Technology, Limassol, 140-141, 2022.

9. Vargáné Csobán, K., **Elmohandes, N. M. A. A.**, Serra, G., Pető, K.: The impacts of technological advancements on sports events tourism.
In: THE INC 2022: Tourism, Hospitality & Events Innovation and Resilience during Uncertainty / (szerk.) Anna Farmaki, Cyprus University of Technology, Limassol, 41-42, 2022.
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The Candidate's publication data submitted to the Tudóstér have been validated by DEENK on the basis of the Journal Citation Report (Impact Factor) database.

30 April, 2025

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