

European International University, EIU-Paris

Doctoral Thesis

Title:

THE INFLUENCE OF COMPREHENSIVE TRAINING, ORGANIZATIONAL CULTURE, AND DEMOGRAPHIC FACTORS ON HOSPITALITY EMPLOYEES' READINESS, ATTITUDES, AND PERSPECTIVES TOWARD AUTOMATION

Submitted by:

HO TZE CHING

EIU932064

In Partial Fulfillment of the Requirements for the Degree of

Doctor of Business Administration (D.B.A.)

Supervisor:

Ky.Col.Prof.Dr.Edward Roy Krishanan

Date:

[July ,2026]

ACKNOWLEDGEMENT

First, I would like to express my deepest gratitude to God for endless blessings, guidance, and strength throughout my academic journey. I would like to extend my sincere appreciation to my respected supervisor, Ky. Col. Prof. Dr. Edward Roy Krishanan, whose guidance, expertise, and continuous support made the completion of this study possible. His valuable feedback, patience, and dedication to academic excellence greatly enhanced my research journey and professional growth.

My sincere appreciation also goes to the faculty and staff at European International University (EIU-Paris). Their open-door policy and willingness to answer my questions were of immense help throughout my academic journey. I would especially like to express my gratitude to my research colleagues and fellow students for their friendship, thought-provoking discussions, and mutual sharing of knowledge.

I also dedicate this work to all hospitality employees in Sibu, Sarawak, Malaysia who generously gave their valuable time and willingly shared their insights and perspectives, which helped me gain a deeper understanding of their preparedness for technological change.

Finally, I would like to express my sincere gratitude to my family members for their unwavering support and constant encouragement throughout my years of education, as well as during the research and writing of this thesis. Completing this thesis was challenging, but it was also deeply rewarding. Each of you contributed meaningfully to and enriched my academic journey.

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LIST OF ABBREVIATIONS AND ACRONYMS

AI - Artificial Intelligence

SMEs - Small and Medium-sized Enterprises

CT - Comprehensive Training

OC - Organizational Culture

DF - Demographic factors

AGE - Age

EDU - Education level

JT - Job tenure

RTA - Readiness toward automation

ATA - Attitudes toward automation

PTA - Perspectives toward automation

RAPTA - Readiness, attitudes, and perspectives toward automation

TAM - Technology Acceptance Model

TOE - Technology-Organizational-Environment Framework

UTAUT - Unified Theory of Acceptance and Use of Technology

PU - Perceived Usefulness

PEOU - Perceived Ease of Use

ABSTRACT

This study examined the influence of comprehensive training, organizational culture, and demographic factors on hospitality employees' readiness, attitudes, and perspectives toward automation in the hospitality industry in Sibu, Sarawak, Malaysia. As automation changed service delivery, understanding employee acceptance and adaptation was important for successful implementation.

A mixed-methods research design was employed, integrating quantitative survey data from 122 hospitality employees with qualitative data from 10 semi-structured interviews and non-participant observations conducted in selected 10 hotels in Sibu, Sarawak, Malaysia. Quantitative data were analyzed using Pearson correlation, regression analysis and ANOVA analysis, while qualitative data were thematically analyzed by using NVivo and triangulated with observational findings to enhance validity.

The findings revealed that comprehensive training had a strong and significant positive relationship with employees' readiness, attitudes, and perspectives toward automation. Organizational culture also demonstrated a significant influence, particularly in shaping employees' attitudes toward automation. In contrast, demographic factors such as education level and job tenure showed no significant predictive effect, while age exhibited only a weak and partial influence. The qualitative findings further supported these results by showing how training improved operational efficiency and psychological readiness, while organizational culture varied across hotels in Sibu and influenced communication, adaptation, and acceptance of automation.

Theoretically, the study extended the Technology Acceptance Model (TAM), the Technology–Organization–Environment (TOE) framework, the Unified Theory of Acceptance and Use of Technology (UTAUT), and Schein's Model of Organizational Culture by demonstrating that

comprehensive training and organizational culture exerted a stronger influence than demographic factors on hospitality employees' acceptance of automation technologies.

Ultimately, this study provided a comprehensive understanding of the factors influencing hospitality employees' readiness, attitudes, and perspectives toward automation. From a practical perspective, the findings offer managerial guidance for hospitality organizations by emphasizing employee-centered strategies, including comprehensive training, a supportive organizational culture, pilot testing, role redesign, and maintaining employee capability to support successful automation transitions. Future research is recommended to include larger samples from different locations, use longitudinal research designs, and further explore factors influencing employees' acceptance of automation. Successful automation in the hospitality industry depends not only on technological capabilities but also on how well organizations prepare and support their employees throughout the transition process. (359 words)

CHAPTER 1: INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Tourism is Malaysia's third-largest contributor to gross domestic product, after manufacturing and commodities. Malaysia recorded 10.65 million international visitor arrivals in the first quarter of 2026 (1Q2026), up 5.4% from a year earlier. With Malaysia targeting 47 million international tourist arrivals under the Visit Malaysia 2026 campaign (Yiao, 2026), hospitality organizations face increasing pressure to enhance operational efficiency and service quality. Consequently, automation technologies are likely to play a greater role in supporting business operations, making it essential to examine hospitality employees' readiness, attitudes, and perspectives toward automation.

The 21st century has witnessed an unprecedented boom in technological developments, with automation emerging as a disruptive force across multiple industries. The hospitality industry, known for its friendly, personalized, and customer-focused service, is undergoing a significant transformation driven by rapid technological innovation, especially automation and artificial intelligence (AI) (Kadagidze, L., & Ugrelidze, E., 2023; Ersoy, 2023). These advanced technologies are increasingly being integrated into various areas of hospitality operations, ranging from guest services to back-of-house tasks. Examples include self-check-in and check-out kiosks, automated concierge services, AI-powered customer service chatbots, mobile room keys, and more (Ivanov, S., Seyitoğlu, F., & Markova, M., 2020; Hameed, 2018). These technological advancements are expected to significantly improve operational efficiency, enhance service quality, and strengthen competitive advantage by automating routine tasks and allowing employees to focus on more customized and value-added activities. As a result, organizations can improve efficiency, reduce human error, and place greater focus on delivering customized customer service (Aluri, A., Gupta, R., & Brown, E. A., 2025; Ersoy, 2023; Ivanov, S., Seyitoğlu, F., & Markova, M., 2020; Hameed, 2018)

As automation technologies continue to reshape the workplace, many traditional roles in the hospitality industry are being redefined. At the same time, entirely new positions are emerging—

some of which have yet to be imagined or named. This major change requires employees to learn new skills and rethink how they adapt, interact, and understand their roles in a more automated workplace (Kumi, E., Osei, H. V., Asumah, S., & Yeboah, A., 2024; Gethe, R. K., & Hulage, M. S., 2020). For instance, the front desk agent evolves from a check-in processor into a 'Guest Experience Ambassador' focused on complex problem-solving and personalization, while the server, aided by ordering tablets and robotic runners, transforms into a 'Service Guide' who curates the dining narrative. Therefore, it is essential for hospitality leaders to actively engage with their employees throughout the transformation process, ensuring seamless integration of innovative technologies (Gethe, R. K., & Hulage, M. S., 2020; Aluri, A., Gupta, R., & Brown, E. A., 2025).

Employees are key to the hospitality industry. Understanding the link between fear of automation and workers' preferences and behavior is important to predict the societal consequences of future automation waves (Kumi, E., Osei, H. V., Asumah, S., & Yeboah, A., 2024; Heim, I., & Sardar-Drenda, N., 2021). Employees' reactions to automation can range from excitement to concern and even resistance. Indeed, their responses to significant workplace changes are often complex and varied. These responses are reflected in their readiness to adopt new systems and their attitudes toward the implementation process. If employees react negatively-such as being afraid, resisting change, or struggling with the innovative technology-it can hurt the success of the company's investment in that technology. These reactions may hinder the effectiveness of new systems and reduce overall organizational efficiency. Consequently, they can negatively affect both service quality and employee morale (Liang, X., Konar, R., & Ali, F., 2025).

Thus, understanding hospitality employees' responses to automation is particularly important in Sibu, Sarawak, Malaysia, where the hospitality industry is dominated by small- and medium-sized hotels with limited financial and technological resources. The unique local context, which differs from larger cities, highlights the importance of examining employees' acceptance of automation to provide valuable insights for successful technology adoption.

1.2 Rationale of the study

Although Sibu may not be recognized as a major tourist destination with iconic attractions, its strategic geographical location in the central region of Sarawak makes it an important connection point between different parts of the state. In addition, Sibu is located along the Rajang River, the longest river in Malaysia, which contributes to its role as a major gathering and trading center for surrounding rural communities. These characteristics create continuous demand for accommodation and hospitality services, making Sibu a meaningful context for investigating how hospitality employees respond to increasing technological changes, including automation adoption.

A review of previous empirical studies was conducted using academic databases and scholarly platforms, including Google Scholar, Emerald Insight, ScienceDirect, and ResearchGate. The search strategy employed combinations of keywords such as “automation in hospitality,” “hospitality employees,” “readiness for automation,” “hospitality training,” “the influence of organizational culture,” and “demographic factors.” Studies published primarily between 2007 and 2026 were considered to capture recent developments in hospitality automation.

Articles were included if they were empirical studies focusing on employee training, organizational culture, demographic factors, and employees’ acceptance of technological change. Studies that focused only on customer acceptance, training programs without a technology adoption context, or non-hospitality industries were excluded. The review of previous studies revealed that employees’ acceptance of automation is influenced by multiple factors, including perceived usefulness, leadership support, organizational culture, training, digital skills, and demographic characteristics. However, after examining the frequency of these factors and considering their theoretical relevance, comprehensive training, organizational culture, and demographic factors were identified as the key factors for this study.

Previous studies have mainly focused on key issues related to technology. For example, the impact of technology acceptance (Kumi, E., Osei, H. V., Asumah, S., & Yeboah, A., 2024; Kelly, 2025; Ersoy, 2023; Hameed, 2018; Aluri, A., Gupta, R., & Brown, E. A., 2025), organizational and employees attitudes and acceptance of new technology (Heim, I., & Sardar-Drenda, N., 2021; Ivanov, S., Seyitoğlu, F., & Markova, M., 2020; Tae Goo Kim, Jae Hyoung Lee, Rob Law, 2008; Liang, X., Konar, R., & Ali, F., 2025), and Factors on technology acceptance (Oostveen, A.-M., Eimontaite, I., & Fletcher, S., 2025; Fazi, L., Zaniboni, S., & Wang, M., 2025).

However, existing studies reveal several methodological limitations. First, previous research has generally examined technology acceptance or attitudes as isolated outcomes, without jointly testing the influence of employee training, organizational culture, and demographic characteristics within a single research model. Second, although some studies have recognized the importance of training and organizational support in technology adoption, they have primarily focused on adoption intention or acceptance rather than examining broader employee responses, including readiness, attitudes, and perspectives toward automation. Third, demographic factors such as age, education, and job tenure have often been analyzed as descriptive characteristics rather than integrated predictors of employees' responses to automation.

Furthermore, previous studies have mainly focused on large hotel organizations, whereas the challenges faced by small and medium-sized hotels, particularly those located in smaller cities such as Sibu, Sarawak, remain underexplored. By identifying how these factors influence employee responses to automation, this research can help hospitality decision-makers in Sibu develop targeted strategies to facilitate smoother transitions toward automation, enhance operational efficiency, and reduce employee resistance to technological change.

1.3 Statement of the research Problem

Sibu, a modest town in East Malaysia, is characterized by a hospitality sector largely composed of 3- and 4-star hotels that continue to rely on conventional operational models and rudimentary online systems for booking and guest management such as, online reservation systems, semi-automated in-room service request systems, traditional front-desk-based check-in and check-out procedures, and basic electronic key card systems used for room access. In an era where global hospitality trends are rapidly shifting toward automated system, these traditional methods are becoming a significant liability (Heim, I., & Sardar-Drenda, N., 2021; Aggarwal, S., & Mittal, A., 2024). For example, during peak travel seasons or major local events such as the Borneo Cultural Festival (the largest annual event in Sibu). They often experience long queues at the front desk due to manual check-in and check-out procedures. Guests are required to wait for room assignments from front desk staff, leading to delays and dissatisfaction.

Therefore, without advanced technology systems, the service provided by hotels in Sibu may not improve, and guests may be less satisfied. This could affect the long-term success of Sibu's hospitality industry. To remain competitive and enhance service delivery, these establishments must urgently adopt emerging technologies such as automation and artificial intelligence (AI) (Kadagidze, L., & Ugrelidze, E., 2023; Kelly, 2025).

However, the successful adoption of these advanced technologies is not guaranteed by the technology alone. This is because technology is just one piece of the puzzle. Human and organizational factors play a crucial role in making adoption successful (Heim, I., & Sardar-Drenda, N., 2021; Ivanov, S., Seyitoğlu, F., & Markova, M., 2020; Liang, X., Konar, R., & Ali, F., 2025). Hospitality decision-makers should carefully choose technologies that match their operational needs. They need to consider factors such as usability, scalability, system compatibility, and cost. It is not enough to focus only on advanced features that may not be used. In many cases, simpler systems can meet operational needs effectively. Therefore, a careful and systematic evaluation is important before adopting any technology. One of the most critical stages in this process is preparing the existing workforce for the upcoming changes. This is

because successful implementation relies heavily on user adoption and employees' willingness to embrace automated tools. This is profoundly contingent upon the responses of the employees who must interact with them daily.

Currently, there is a critical knowledge gap regarding how factors such as comprehensive training, prevailing organizational culture, and diverse employee demographic characteristics specifically influence hospitality employees' preparation toward automation in Sibu town. Without a clear understanding of these influences, hotels in Sibu, Sarawak, Malaysia may struggle to use innovative technology effectively. This can lead to staff resistance, underutilization of new tools, and a lack of support for employees during the transition. Consequently, this leads to the chronic underutilization of expensive new tools, resulting in a poor return on investment. This study therefore argues that employees' readiness, attitudes, and perspectives toward automation are primarily driven by comprehensive training, supported by organizational culture as a key enabler of acceptance, while demographic factors influence individual differences in responses to technological change.

Research Problem:

(a) It is not clearly understood how comprehensive training affects hospitality employees' readiness to adapt to automation.

(b) There is a lack of clarity regarding the relationship between organizational culture and hospitality employees' attitudes toward the implementation of automation.

(c) There has been insufficient exploration into how key demographic factors, such as age, education level, and job tenure, influence hospitality employees' perspectives toward automation.

1.4 Purpose of the research

Sibu town, located in East Malaysia, covers an area of 129.5 squares kilometers and is home to approximately 254,000 residents. The town boasts a total of 74 hotels and inns. Many of these hotels and inns still rely heavily on traditional human resources and basic online booking systems. However, with the rise of smart technologies, it is essential for these hotels to implement innovative solutions, such as automation tools and artificial intelligence (AI).

This study aims to bridge the gap between technological advancements and employee acceptance within the hospitality industry, focusing on how organizations can better prepare their workforce for successful technology adoption. It aims to leverage research findings to create strategies that assist hotels in preparing their workforce for technological advancement. Thus, the research highlights the importance of not only introducing automation but also ensuring that hospitality decision makers choose technologies that align with current needs and properly prepare employees for their use.

If the research finds that comprehensive training significantly impacts readiness toward automation, hospitality decision makers are encouraged to develop tiered training modules based on employees' existing technological competencies (e.g., beginner, intermediate, and advanced levels). In contrast, if the research finds no committed relationship between comprehensive training and employee readiness toward automation, hospitality decision makers should critically evaluate the effectiveness of their current training approaches. For instance, decision makers might consider reinforcing and adapting training programs to better align with employee needs, or simplifying implementation by choosing user-friendly, intuitive technologies.

If the research reveals a link between organizational culture and employees' attitudes toward automation, it could suggest the need for a well-designed strategy to shift company culture toward technological change. Such a strategy might include promoting employee participation in decision making processes, cultivating open channels of communication, and reinforcing a sense

of job security. On the other hand, if the research reveals a weak or insignificant relationship between organizational culture and employee attitudes toward automation, it may indicate that other variables, such as comprehensive training or the perceived usefulness of technology, play a more influential role in shaping employee readiness, attitudes, and perspectives toward automation.

Moreover, If the research shows that employee's perspective toward automation is influenced by their demographic characteristics (age, education level and job tenure). Hospitality decision makers could use the information to customize their approach to technology adaption. For example, they might tailor the implementation process to diverse groups of employees based on age, education, and job tenure. They could also begin by introducing innovative technologies gradually, while providing hands-on training sessions supported by user-friendly guides or video tutorials, where needed. However, if the research shows that demographic characteristics have little to no influence on employees' perspectives toward automation, it may suggest that organizations should focus on developing inclusive training programs and emphasizing the shared benefits of automation, regardless of age, education level, or job tenure.

Importantly, technologies should be selected to enhance rather than replace employees' roles. To ensure a smooth transition to automation, hospitality decision makers have a responsibility to choose implementation strategies that align with their employees' capabilities and needs, ultimately securing long-term benefits for the organization. After a comprehensive identification and analysis of the research background and problem, this study outlines three main objectives as follows:

Research Objectives:

1. To evaluate how comprehensive training influences hospitality employees' readiness, attitudes, and perspectives toward automation.

2. To examine the relationship between organizational culture and hospitality employees' readiness, attitudes, and perspectives toward automation.

3. To examine how demographic factors (age, education, and job tenure) influence hospitality employees' readiness, attitudes, and perspectives toward automation.

1.5 Research Questions and Hypotheses

Research questions serve as the foundation of a research study by defining the focus, guiding the research objectives, and determining the appropriate methodological approach to address the research problem (Farrugia, P., Petrisor, B. A., Farrokhyar, F., & Bhandari, M., 2010)**.**

The research questions were designed to examine the key factors-comprehensive training, organizational culture, and demographic factors-that influence hospitality employees' readiness, attitudes, and perspectives toward automation. Each research question was formulated to determine whether each independent variable had an overall influence on hospitality employees' responses toward automation. The sub-questions were developed based on theoretical foundations rather than personal judgment. Comprehensive training primarily develops employees' capabilities and confidence, making it conceptually linked to readiness. Organizational culture influences employees' beliefs, values, and feelings toward change, making it closely associated with attitudes. Demographic factors represent individual differences that shape how employees perceive and respond to automation over time and are therefore linked to perspectives. Each pairing reflects a distinct theoretical mechanism through which employees respond to automation. Based on these theoretical relationships, the research questions, sub-questions, hypotheses, and sub-hypotheses were developed as follows:

The omnibus research question 1 (RQ1) and hypothesis 1 (H01)

Research Question 1 (RQ1): How does hospitality employees' comprehensive training (CT) on automation affect their readiness, attitudes, and perspectives toward automation (RAPTA)?

Null hypothesis 1 (H1): There is no significant relationship among hospitality employees' comprehensive training (CT) on automation and their readiness, attitudes, and perspectives toward automation (RAPTA).

The omnibus research sub-question 1a (RSQ1a) and sub-hypothesis 1a (SH1a)

Research Sub-question 1a (RSQ1a): How does hospitality employees' comprehensive training (CT) on automation affect their readiness toward automation (RTA)?

Null Sub-hypothesis 1a (SH1a): There is no significant relationship between hospitality employees' comprehensive training (CT) and readiness toward automation (RTA).

The overall RAPTA analysis established whether the independent variable had a general influence on employees' responses to automation. The dimension specific analysis was then used to identify which aspect (readiness, attitudes, or perspectives) was most strongly influenced.

According to the Technology Acceptance Model (TAM), training helps employees perceive the technology as easier to use (PEOU) and more useful (PU). When employees believe the technology is easy to use and beneficial, they become more ready to adopt it. Therefore, readiness is the most appropriate outcome to examine with comprehensive training.

The omnibus research question 2 (RQ2) and hypothesis 2 (H2)

Research Question 2 (RQ2): What is the relationship between organizational culture (OC) and hospitality employees' readiness, attitudes, and perspectives toward automation (RAPTA)?

Null hypothesis 2 (H2): There is no significant relationship between organizational culture (OC) and hospitality employees' readiness, attitudes, and perspectives toward automation (RAPTA).

The omnibus research sub-question 2a (RSQ2a) and sub-hypothesis 2a (SH2a)

Research Sub-question 2a (RSQ2a): What is the relationship between organizational culture (OC) and hospitality employees' attitudes toward automation (ATA)?

Null Sub-hypothesis 2a (SH2a): There is no significant relationship between organizational culture (OC) and hospitality employees' attitudes toward automation (ATA).

Based on the Technology-Organization-Environment (TOE) framework, organizational factors such as culture play a critical role in creating a supportive environment for technology adoption. To further understand the role of organizational culture, Schein's Model of Organizational Culture was incorporated to explain how organizational practices shape employees' responses toward technological change. Therefore, organizational culture was examined in relation to attitudes toward automation, as attitudes represent employees' psychological evaluation and acceptance of technological change.

The omnibus research question 3 (RQ3) and hypothesis 3 (H3)

Research Question 3 (RQ3): How do demographic factors (DF) (age, education, and job tenure) influence hospitality employees' readiness, attitudes, and perspectives toward automation (RAPTA)?

Null hypothesis 3 (H3): There is no significant relationship among the demographic factors (DF) (age, education, and job tenure) and hospitality employees' readiness, attitudes, and perspectives toward automation (RAPTA).

The omnibus research sub-question 3a-c (RSQ3a-c) and sub-hypothesis 3a-c (SH3a-c)

Research Sub-question 3a (RSQ3a): How do demographic factors of age (AGE) influence hospitality employees' perspectives toward automation (PTA)?

Null Sub-hypothesis 3a (SH3a): There is no significant relationship among the demographic factors of age (AGE) and hospitality employees' perspectives toward automation (PTA).

Research Sub-question 3b (RSQ3b): How do demographic factors of education (EDU) influence hospitality employees' perspectives toward automation (PTA)?

Null Sub-hypothesis 3b (SH3b): There is no significant relationship among the demographic variables of education (EDU) and hospitality employees' perspectives toward automation (PTA).

Research Sub-question 3c (RSQ3c): How do demographic factors of job tenure (JT) influence hospitality employees' perspectives toward automation (PTA)?

Null hypothesis 3c (SH3c): There is no significant relationship among the demographic variables of job tenure (JT) and hospitality employees' perspectives toward automation (PTA).

The theoretical model of Unified Theory of Acceptance and Use of Technology (UTAUT) suggests that actual technology use is determined by behavioral intention. UTAUT identifies individual characteristics, including age, experience, and other personal differences, as important factors that can influence technology acceptance processes. Therefore, demographic factors were examined in relation to employees' perspectives toward automation because they help explain why employees may develop different views and evaluations of automation technology.

1.6 Scope of research

The research will be conducted within the town of Sibu, in the state of Sarawak, Malaysia. It focusses on Sibu is due to its unique as a developing urban center with a significant number of traditional hotels and poised for technological adoption. This research is meant to apply specifically to the hospitality industry within this specific locality and may not be relevant to larger cities like Kuala Lumpur or places with different economic and cultural.

The target population for this research comprises all 100-200 employees working in the 10 registered hotels within Sibu, Sarawak, Malaysia. The research will focus specifically on operational level employees (hotel receptionists, restaurant servers, housekeeping employees,

and administration) as they are most likely to be directly impacted by the implementation of automation. However, senior managers or directors may be excluded unless their role is directly operational.

The research will be conducted over four months, from November 2025 to February 2026 (Appendix C), which coincides with the peak tourist season, including year-end holidays, school breaks, Christmas, and New Year. This timeframe is intentionally selected, allowing for a more realistic assessment of technology utilization and adaptability, as employees are required to operate under intensive workloads, thereby enhancing the practical relevance and ecological validity of the study's findings. However, these findings may not account for future developments in automation technologies or changes in organizational policies beyond this timeframe.

1.7 Significance of the research

The research will provide hotel operators in Sibu, Sarawak, Malaysia with empirical evidence on the factors influencing employee acceptance of automation, enabling them to move beyond guesswork. Specifically, it will offer a practical strategy for implementing new technologies, helping decision makers allocate resources more effectively. This can prevent costly failures in technology implementation and reduce employee turnover during transition periods. In the long term, it will help Sibu's hotels improve guest satisfaction by offering better high-tech services.

Furthermore, these findings can help hotel operators in designing targeted training programs that align with the current skill levels of their employees. For example, if the research reveals that baby boomers (those born between 1946 and 1964) and Generation Y (born between 1979 and 1994) staff lack confidence in using self-service kiosks or digital reservation systems, the hotel can implement hands-on training workshops focused on those specific technologies. In addition to training, understanding the relationship between organizational culture and employees'

attitudes toward automation can help hospitality leaders foster a workplace environment that supports technological adoption among their employees. Furthermore, the findings can guide the adoption of new, accessible, and user-friendly technologies tailored to the demographics of hospitality employees. Consequently, this approach can enhance overall efficiency, reduce resistance to the adoption of innovative technologies, and smooth the transition during automation implementation.

This research will make an important contribution to academic literature by offering a clear and comprehensive understanding of how hospitality employees respond to automation. By providing a detailed case study of a regional town like Sibu, this research will serve as a foundational benchmark for future comparative analyses, both within Malaysia and in similar developing regions globally. In addition, it will provide important baseline data on current employee attitudes toward automation. Future researchers can use this as a starting point for long-term studies to see how these attitudes and levels of readiness change over time as automation becomes more common.

CHAPTER 2: LITERATURE REVIEW

2.1 Review of related literature

Automation is not a matter of 'if,' but 'when.' Organizations that fail to adapt risk falling behind. The question is not whether we need automation, but how we ensure that our employees are ready for it (William Q. Judge, 2012).

The world of the future will be an ever more demanding struggle against limitations of our intelligence, not a comfortable hammock in which we can lie down to be waited upon by our robot slaves.

~ NOBERT WIENER, GOD AND GOLEM, INC.,1964

According to the Malaysian Human Resources Minister, 42,807 individuals lost their jobs between January and 12 June 2026. The minister, citing Talent Corporation Malaysia Berhad (TalentCorp) and the Social Security Organization (PERKESO), also stated that approximately 697,000 jobs could be significantly affected by artificial intelligence (AI), digitalization, and the green economy within the next three to five years if workers do not upskill. In addition, the study identified 120 emerging job roles, highlighting the need for workforce reskilling and upskilling initiatives (Zalani, 2026). Therefore, the challenge of automation is no longer solely technological advancement, but how organizations prepare their workforce to collaborate with emerging technologies.

Automation may increase productivity, decrease burden, and even improve customer service. As hospitality industry increasingly rely on technology to streamline workflows and reduce manual tasks, automation has become a crucial driver of efficiency and growth (Kadagidze, L., & Ugrelidze, E., 2023; Kelly, 2025). New automation trends, like the integration of artificial intelligence into everyday processes will further transform industries. Automation offers businesses opportunities to boost productivity and gain a competitive advantage and is set to shape the future of work (Kumi, E., Osei, H. V., Asumah, S., & Yeboah, A., 2024; Ersoy, 2023; Kelly, 2025; Kadagidze, L., & Ugrelidze, E., 2023).

While automation provides significant opportunities for improving efficiency, it also requires employees to overcome new challenges related to skill development and technological adaptation. It could create a world where employees are still needed, but in more dynamic and intellectually demanding roles-requiring them to constantly adapt and leverage higher-level skills in ways they had not needed to before (Kumi, E., Osei, H. V., Asumah, S., & Yeboah, A., 2024; Ivanov, S., Seyitoğlu, F., & Markova, M., 2020; Hameed, 2018).

(Acemoglu, D., & Johnson, S., 2023) stated in their latest published book “Power and Progress” that improving technology is viewed as the tide lifting all boats because everyone is expected derive some benefits. Nobody is supposed to be completely left behind by technology, let alone be impoverished by it. According to the conventional wisdom, to rectify the rise in inequality and build even more solid foundations for shared prosperity, workers must find a way to acquire more of the skills they need to work alongside new technologies. Therefore, it is crucial for organizational policy makers focus on equipping workers with the skills required to thrive alongside technological innovations (Ersoy, 2023; Aluri, A., Gupta, R., & Brown, E. A., 2025).

Although automation technologies provide significant opportunities for improving operational efficiency, previous studies have emphasized that technology adoption is a socio-technical process involving interactions between technological characteristics, organizational conditions, and human factors (Baker, 2012). In the hospitality industry, employee acceptance and attitudes toward technology are critical determinants of successful technology adoption, as employees are responsible for integrating new systems into daily operations (Guo, Q., Zhu, D., Lin, M.-T. (B.), Li, F., Kim, P. B., Du, D., & Shu, Y., 2022). Without adequate employee acceptance and adaptation, investments in automation may fail to achieve their intended outcomes, as resistance to technological change can hinder effective implementation.

2.1.1 Employees' training on automation

Comprehensive training programs equip employees with essential skills (Gethe, R. K., & Hulage, M. S., 2020; Liang, X., Konar, R., & Ali, F., 2025; Waqanimaravu, M., & Arasanmi, C. N., 2020). In the hospitality industry, training is particularly important because service quality depends heavily on employees' ability to integrate technology with human interaction. Automation technologies such as self-service check-in systems, service robots, and housekeeping management systems require employees to develop both technical competencies and interpersonal skills (Kadagidze, L., & Ugrelidze, E., 2023).

Previous empirical studies have demonstrated that training is a significant factor influencing employees' acceptance and readiness toward emerging technologies. For example, (Gethe, R. K., & Hulage, M. S., 2020) found that training improved employees' technological competence and reduced resistance toward workplace technology adoption. Similarly, (Waqanimaravu, M., & Arasanmi, C. N., 2020) highlighted that effective training enhances employees' confidence and ability to adapt to technological changes. In the hospitality context, (Liang, X., Konar, R., & Ali, F., 2025) suggested that technology-related training is essential for developing employees' capabilities to work alongside automated systems.

Naturally, employees are more likely to support and adopt a new system if they understand that it will make their work easier and more fulfilling. Investing in thorough training shows employees that the company values them and is committed to helping them grow. It also reassures them that their roles are changing but not being replaced. This helps employees get ready for automation and see it as an opportunity to grow rather than a threat (Aluri, A., Gupta, R., & Brown, E. A., 2025; Waqanimaravu, M., & Arasanmi, C. N., 2020). Consequently, it reduces their fear of being replaced and increases the likelihood of successfully adopting new technology.

Although training enhances employees' readiness, hotel decision-makers should evaluate the effectiveness and outcomes of training programs before implementation. Ineffective training may lead to unnecessary costs and limited benefits. This is particularly important in the hospitality industry, where rapid technological changes may quickly make existing training content outdated.

Besides, training alone may not fully explain employees' acceptance of technology. Organizational culture and demographic factors may also influence how employees perceive and respond to automation. Therefore, examining these factors collectively provides a more comprehensive understanding of technology adoption among hospitality employees. Thus, a set of questionnaire items was developed to examine employees' perceptions of automation training, including the availability, adequacy, satisfaction, and future expectations regarding training provided by organizations. The questionnaire items were also developed with reference to the Technology Acceptance Model (TAM), which proposes that employees' acceptance of technology is influenced by their perceptions of its usefulness and ease of use.

2.1.2 Organizational culture and automation

Organizational culture includes a set of shared beliefs, values, norms, and assumptions and indirectly influences how employees perceive and address their tasks. Organizational culture has an impact on "practically all aspects of organizational interaction as well as activities at the top management level" and is the starting point for the design of control systems (Einhorn, 2024).

(William Q. Judge, 2012) argue that it is human nature to resist change, and that organizational changes are even more challenging than individual change. However, this viewpoint is too pessimistic, and both the empirical evidence and common sense suggest that human beings generally want to be part of something that is changing for the better, if there is trustworthy leadership driving that change and if they are involved in helping to decide the nature and pacing of the changes (Potnuru, 2021).

Hospitality is built on care, generosity, and creating memorable experiences. When this positive culture is embraced, it can help employees view technology and automation not as a threat, but as a tool to support their work. With the right mindset, automation becomes a way to reduce routine tasks and free up time for more meaningful human interactions (Aluri, A., Gupta, R., & Brown, E. A., 2025; Liang, X., Konar, R., & Ali, F., 2025; Hameed, 2018).

Effective leadership and communication can reduce resistance toward automation, employees' acceptance of technology also depends on whether they feel secure and supported throughout the transformation process. The introduction of automation may create uncertainty among employees regarding future employment stability. Previous research indicates that job security significantly influences employee attitudes, with higher levels of job security associated with greater job satisfaction and organizational commitment (Hngoi, C. L., Abdullah, N. A., Wan Sulaiman, W. S., & Zaiedy Nor, N. I., 2023).

Although an open and participative organizational culture has frequently been associated with higher employee acceptance of technological change, its effectiveness may vary across cultural contexts (Aluri, A., Gupta, R., & Brown, E. A., 2025). According to (Hofstede, 2001), employee involvement may not produce the same outcomes in cultures characterized by higher power distance, where employees often expect leaders to provide clear direction and make strategic decisions. In such contexts, a well-managed hierarchical culture may facilitate the smoother implementation of automation by providing clear authority and consistent communication. Therefore, there remains a notable gap in the literature regarding how organizational culture influences hospitality employees' acceptance of automation, particularly in small- and medium-sized hotels in Sibu. Which operate within a unique cultural and organizational context.

Therefore, the questionnaire items were primarily developed based on the artifacts and espoused values dimensions of Schein's Organizational Culture Model, as these dimensions represent observable organizational practices and values that can be assessed through employees' perceptions. The questionnaire was also informed by the organizational context of the Technology-Organizational-Environment (TOE) framework. Accordingly, the items examine organizational culture through communication, employee participation, organizational support, and perceived job security in the context of automation adoption.

2.1.3 Employees' demographic factors

Demographic factors, such as age, gender, marital status, education level, and tenure are the major factors which influence turnover intention of the employees. (Subedi, 2024). In the

hospitality sector, while the demographic profile of employees is diverse, factors such as age, educational level, and job tenure have been found to play a pivotal role in shaping employee adaptability to automation. In line with this, previous research, (Amegayibor, 2021) has shown that demographic characteristics like business years, age, and education play a significant and fundamental role in the growth and success of small and medium businesses. (Aisa, R., Cabeza, J., & Martin, J., 2023) stated although automation is freeing workers from repetitive, hard work, older workers feel threatened by new automation advances which generate skill mismatches. Whereas younger employees tend to view automation as an opportunity. Moreover, Prior evidence (van Laar, E., van Deursen, A. J. A. M., van Dijk, J. A. G. M., & de Haan, J., 2022) reveals that employees with stronger digital literacy/higher education are more capable of understanding and adopting workplace technologies because digital competencies influence perceptions of usefulness, ease of use, and intention to use new systems. Differences in cognitive ability, technological experience, and openness to change explain variations among hospitality employees (Fazi, L., Zaniboni, S., & Wang, M., 2025; Oostveen, A.-M., Eimontaite, I., & Fletcher, S., 2025).

However, a one-size-fits-all approach to automation implementation in hospitality may be ineffective because employees from different demographic groups may interpret and respond to technological change differently. The effects of age, education level, and job tenure on employees' acceptance of automation vary across organizational contexts, highlighting the need for further research in the hospitality sector. Based on previous literature, the questionnaire items were developed to assess the relationship between demographic characteristics, including age, education level, and job tenure, and employees' perspectives toward automation. Accordingly, several demographic questions were developed with reference to the Unified Theory of Acceptance and Use of Technology (UTAUT) theory to gather information on employees' age, education level, and job tenure and to examine whether these demographic characteristics influence their perspectives toward automation.

2.1.4 Employees' readiness for automation

Employee readiness toward automation refers to employees' willingness and capability to adopt and support organizational change initiatives (Kumi, E., Osei, H. V., Asumah, S., & Yeboah, A., 2024). It reflects the extent to which employees are psychologically and behaviorally prepared to implement change effectively (Weiner, B. J., 2009). The concept of readiness may have been first introduced by Jacobson (1957). Successfully implementing change inevitably requires encouraging individuals to enact new behaviors so that desired changes are achieved (Holt, D. T., Armenakis, A. A., Feild, H. S., & Harris, S. G., 2007).

Recent research has further emphasized that employee readiness is a critical prerequisite for the successful adoption of automation technologies in the hospitality industry. (Li, C., Ashraf, S. F., Amin, S., & Safdar, M. N., 2023), through a systematic literature review, reported that hospitality employees' readiness to work with service robots is influenced by factors such as technological competence, organizational support, leadership, and perceptions of job security. However, (Kebede, S., & Wang, A., 2022) shown that an organization must adapt to change to succeed in a constantly changing market. Most change efforts fail due to employee resistance to change. Therefore, it is important to state that employee readiness for change must occur before organizational changes.

This research explores strategies for using data to enhance employee readiness during organizational transformation. Data-driven approaches allow organizations to evaluate employees' readiness levels and identify key factors influencing their acceptance of change. One-on-one interviews provide qualitative insights into employees' perceptions, whereas real-time monitoring enables organizations to continuously evaluate progress. Together, these approaches help organizations manage change more effectively.

2.1.5 Employees' attitudes toward automation

Employee attitudes toward automation refer to their overall feelings, beliefs, and emotions about the use of automated technologies in the workplace (Heim, I., & Sardar-Drenda, N., 2021). These attitudes can be both positive and negative, shaped by factors such as job security, efficiency, and the impact on daily tasks.

Employees' responses toward automation can be understood as reactions to organizational change. Previous studies indicate that employees' attitudes for change is influenced by their perceived need for change, confidence in implementation capability, and organizational support (Weiner, B. J., 2009). Employees should be motivated and engaged with an organizational change project; they should enthusiastically support it. The success of any transformation initiative depends on employees' attitudes toward automation. When employees are engaged and supportive, the outcomes of change are more likely to be positive (Albrecht, S. L., Connaughton, S., Foster, K., Furlong, S., & Yeow, C. J. L., 2020).

However, successful implementation of new technology cannot rely solely on positive employee attitudes. Employees also need sufficient competencies, readiness, and perspectives to effectively adapt to automation. Therefore, this research examines these factors to help organizations develop strategies that better support employees throughout the automation transformation process.

2.1.6 Employees' perspective toward automation

Employee perception refers to how individuals interpret and assign meaning to information and experiences within the workplace. Because perception involves individual cognitive processes, employees may interpret the same organizational situation differently based on their experiences, knowledge, and expectations. This process of interpretation and meaning making is consistent with the concept of organizational sensemaking, which suggests that employees actively construct meanings from workplace events and use these interpretations to guide their responses (Weick, K. E., Sutcliffe, K. M., & Obstfeld, D., 2005).

During periods of technological transformation, such as automation implementation, employees may develop different perceptions of the same technology. Some employees may view automation as an opportunity to improve efficiency and develop new skills, whereas others may perceive it as a threat to job security or a challenge to their existing capabilities. (Maitlis, S., & Sonenshein, S., 2010). Peer-reviewed article (Morris, M. G., & Venkatesh, V., 2000) indicates that Employees' perceptions toward automation may vary based on demographic characteristics such as age, education level, and job tenure. Differences in technological familiarity, learning ability, and work experience may influence how employees interpret and respond to new technologies.

Although previous empirical studies have explored factors influencing technology acceptance, demographic characteristics are often examined independently rather than together with organizational factors. This study contributes to the existing literature by integrating employee-related factors (demographic characteristics) and organizational factors (comprehensive training and organizational culture) to develop a more comprehensive understanding of hospitality employees' acceptance of automation.

2.2 Technology Acceptance Model (TAM), Technology-Organizational-Environment (TOE) Framework, Schein's Model of Organizational Culture, and Unified Theory of Acceptance and Use of Technology (UTAUT)

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), developed by Davis (1989), explains how users adopt new technologies based on perceived usefulness (PU) and perceived ease of use (PEOU). According to TAM, these perceptions shape users' attitudes toward using a system, which subsequently influence behavioral intentions and actual usage. Over time, TAM has been extended to incorporate additional factors, such as system quality, social influence, and organizational support, to better predict technology adoption in practical contexts, including hospitality, e-commerce, and healthcare (Li, F., Zhu, D., Lin, M.-T. (B.), & Kim, P. B., 2024; Mihos, I., & Kokkinis, G., 2026; Guo, Q., Zhu, D., Lin, M.-T. (B.), Li, F., Kim, P. B., Du, D., & Shu, Y., 2022).

Previous research by (Hemdi, 2009) demonstrated that hotel service employees' acceptance of front office systems is shaped by their beliefs and attitudes toward technology. When employees perceive technology as useful and easy to manage, they are more likely to develop positive attitudes and accept technological systems in their work environment. Furthermore, a recent TAM-based study in the tourism sector by (Mihos, I., & Kokkinis, G., 2026) found that facilitating conditions were the strongest predictor of technology adoption, highlighting the critical role of organizational and technical support in shaping users' intentions to adopt new technologies.

Thus, the Technology Acceptance Model (TAM) provided a useful theoretical foundation for understanding hospitality employees' acceptance of automation technologies. Specifically, perceived usefulness (PU) was reflected in employees' recognition that automation improved task performance. Perceived ease of use (PEOU) was closely linked to the role of comprehensive training, which enhanced employees' ability to operate automated systems.

Technology-Organizational-Environment (TOE) Framework

The Technology-Organization-Environment (TOE) framework explains that organizational technology adoption is influenced by three contextual dimensions: technological, organizational, and environmental factors. The technological context refers to characteristics of available technologies, including compatibility, complexity, and perceived benefits. The organizational context concerns internal characteristics such as organizational size, structure, culture, management support, and resources. The environmental context represents external influences, including industry conditions, competitive pressure, regulatory requirements, and social factors (Baker, 2012).

Within this framework, the organizational dimension is particularly relevant to the present study, as it focuses on how organizational factors, such as culture, structure, and resources, play a critical role in technology adoption. The findings of this study support this perspective, as organizational culture was found to have a significant positive relationship with employees' attitudes toward automation.

Schein's Model of Organizational Culture

Schein's Model of Organizational Culture has been widely applied to understand how cultural elements influence organizational behaviors and change processes. The model conceptualizes organizational culture through three interconnected levels: artifacts, espoused values, and basic underlying assumptions. Artifacts represent visible organizational practices, while espoused values reflect stated beliefs and principles, and basic underlying assumptions represent deeply embedded beliefs that guide employee behaviors (Dauber, D., Fink, G., & Yolles, M., 2012).

(Hatch, 1993) further emphasized that organizational culture is dynamic and continuously shaped through interactions between visible practices and underlying values. Empirical research has also supported the applicability of Schein's framework by demonstrating that these cultural dimensions can be measured and examined in organizational contexts.

Referring to Schein's Model of Organizational Culture, the questionnaire in this study was developed to assess employees' perceptions of organizational culture in relation to automation. The items focused on organizational practices and values that influence how employees experience technological change, including communication, employee involvement, organizational support, and job security assurance. These elements represent the visible cultural practices and espoused values described in Schein's framework.

Schein's model explains how organizational culture shapes employees' perceptions and responses toward automation, while TOE explains the broader factors influencing organizational technology adoption. Both theories were selected to provide a comprehensive understanding of automation adoption from both employee and organizational perspectives.

Unified Theory of Acceptance and Use of Technology (UTAUT)

The theoretical model of UTAUT suggests that the actual use of technology is determined by behavioral intention. According to (Venkatesh, 2003), behavioral intention is the immediate antecedent of technology use behavior. Behavioral intention is influenced by performance expectancy, effort expectancy, and social influence, while facilitating conditions directly affect use behavior. These relationships are moderated by gender, age, experience, and voluntariness of

use. The Unified Theory of Acceptance and Use of Technology (UTAUT) provided a relevant theoretical framework for understanding the influence of demographic factors on hospitality employees' perspectives toward automation.

In this study, UTAUT provides a theoretical basis for understanding how demographic characteristics influence employees' responses toward automation. The model highlights those individual factors, may shape technology acceptance, supporting the examination of demographic differences in hospitality employees' perspectives toward automation.

2.3 Automation in hospitality industry

Automation in the hospitality industry refers to the use of digital technologies, artificial intelligence (AI), robotics, and software systems to perform operational tasks with minimal human intervention. These technologies are increasingly applied to guest services, reservations, check-in and check-out processes, revenue management, housekeeping coordination, and customer communication to improve operational efficiency and service quality (Hameed, 2018; Ersoy, 2023).

Automation is changing the hospitality industry by using software, AI, and digital technology to improve services and operations. Automation uses software to handle routine tasks that people used to do manually, such as data entry, file management, and scheduling (Aluri, A., Gupta, R., & Brown, E. A., 2025; Hameed, 2018). Meanwhile, AI takes automation further by helping systems learn, respond, and make decisions. AI tools like chatbots and virtual assistants can answer guests' questions and manage bookings (Aggarwal, S., & Mittal, A., 2024; Wang, T., Aw, E. C.-X., Tan, G. W.-H., Sthapit, E., & Li, X., 2025; Ersoy, 2023) Digital systems connect different hotel operations and automate tasks like online booking, self-check-in and check-out, digital keys, and inventory management (Aggarwal, S., & Mittal, A., 2024; Mandić, A., & Ivanović, M, 2023).

Automation has the potential to enhance efficiency and increase productivity by streamlining repetitive tasks, reducing human error, enabling faster service delivery, supporting data-driven

decision making, and allowing workers to focus on higher value responsibilities (Mandić, A., & Ivanović, M, 2023; Aggarwal, S., & Mittal, A., 2024; Wang, T., Aw, E. C.-X., Tan, G. W.-H., Sthapit, E., & Li, X., 2025).

Hotel automation integrates operational functions such as reservations, pricing, inventory management, billing, revenue management, marketing, and guest communication, enabling hotels to improve operational coordination and support data-driven decision making (Ivanov, S., Seyitoğlu, F., & Markova, M., 2020). Beyond improving internal operational processes, hotel automation also extends to guest-facing services that directly influence customer interactions and service delivery. Hotel automation applications include self-service check-in and check-out kiosks, mobile room keys, AI-powered chatbots, robotic delivery services, digital concierge systems, automated housekeeping coordination, and integrated property management systems. These technologies aim to improve operational efficiency while enhancing guest convenience and service consistency (Kadagidze, L., & Ugrelidze, E., 2023).

However, there are some drawbacks of automation which include Job loss and unemployment, technical difficulties and constraints, decreased consumer experience and personal engagement, Loss of skills and dependency (Hameed, 2018; Mandić, 2023). Employees may have mixed feelings toward automation, ranging from excitement about potential improvement in efficiency to fears about job displacement (Ersoy, 2023; Hameed, 2018).

Daron Acemoglu & Simon Johnson, author of “Power and Progress” (Acemoglu, D., & Johnson, S., 2023), had a distinctive voice in these arguments. In their early work, they emphasized that automation was rapid throughout the twentieth century but did not reduce the demand for workers because it was accompanied by other improvements and reorganizations that produced new activities and tasks for workers.

During periods of technological transition, differing perspectives are inevitable. Therefore, forward-thinking hospitality decision makers must understand how to strategically position their businesses to thrive at such pivotal moments.

2.4 Historical precedents of technology development in hospitality industry

The origins of hospitality trace back to ancient Mesopotamia and Egypt. The concept of hospitality has existed throughout human history, originating from the fundamental practice of welcoming and caring for guests. Hospitality extends beyond providing accommodation and food services; it involves creating positive experiences, demonstrating care, and developing meaningful interactions between hosts and guests. In contemporary society, hospitality encompasses various sectors, including accommodation, food and beverage services, tourism, entertainment, and event management.

Below are the evolution and transformations of technology in the hospitality industry:

The First Industrial Revolution (Late 18th - Mid 19th Century) - The Birth of Mechanization

The industry started to incorporate mechanized systems into its operations. One of the most significant adoptions of mechanization was the hydraulic elevator, which enabled hotels to be built much taller, completely transforming their architectural structure. At the same time, mechanical innovations like steam-powered central heating, gas lighting, steam-powered laundry machine and running hot and cold water enhanced guest comfort and convenience. The introduction of the annunciator system, which allowed guests to pull a cord or press a button to request service, marked one of the earliest forms of automated communication between guests and hospitality staff, opening the door to future innovations in service delivery (Britannica, 2026).

This era was the beginning of the shift from human handwork to machines, where machines started to replace hard human labor. Automation in the hospitality industry was still basic, yet it laid the foundation for the advanced systems used in modern operations.

The Second Industrial Revolution (Late 19th - Early 20th Century) - Mass Production and Electrification.

The Second Industrial Revolution was marked by the advent of electricity. New machines like the internal combustion engine helped hotels provide services on a much larger scale, while electricity became the most important discovery that brought many new conveniences to hotels. For example, past technological progress gave rise to innovations such as the replacement of gaslights with incandescent bulbs, the development of faster and more reliable electric elevators,

the installation of telephones in every room, and the introduction of electric fans, kettles, heaters, and the first hotel refrigerators (Britannica, 2026).

The integration of electric-powered devices marked a shift toward more efficient, automated service delivery in hotels.

The Third Industrial Revolution (Mid-20th Century onwards) - The Digital Revolution

This era, known as the Digital Revolution, was driven by the invention of the transistor and digital computers, which expanded automation from mechanical tasks to cognitive and control functions. It led to the computerization of hotel operations with systems like the Property Management System (PMS), Central Reservation Systems (CRS), and early Customer Relationship Management (CRM) systems that replaced paper-based front desks, as well as innovations such as private computerized networks, electronic key cards, and digital telephone systems. Technology has introduced online booking platforms like Booking.com and Airbnb (Britannica, 2026).

By replacing manual processes with digital systems, hotels improved efficiency and accuracy, consequently laying the groundwork for today's intelligent, automated service environments.

The Fourth Industrial Revolution (Industry 4.0) (Late 20th Century - Present)

The Fourth Industrial Revolution, or Industry 4.0, represents the current era of intelligent and connected automation, characterized by the integration of digital, physical, and biological systems. It emphasizes interconnected systems, real-time data exchange, and autonomous decision-making through advanced technologies such as artificial intelligence (AI), the Internet of Things (IoT), big data analytics, cloud computing, robotics, and cyber-physical systems.

The integration of AI automation has enabled hotels to deliver highly personalized guest experiences. From AI-powered chatbots and self-check-in kiosks to automated revenue management, hospitality operations are becoming more efficient than ever before (Britannica, 2026).

However, the application of automation throughout history has not always been as seamless or universally welcomed as we might assume today. Modern technology is often embraced for its efficiency and convenience. In fact, earlier attempts to introduce automation were frequently met with skepticism and fear. One of the first prominent historical examples of widespread employee anxiety and opposition to automation was the Luddite movement. The Luddite movement began in 1811 during the economic struggles of the Napoleonic Wars. Skilled textile workers protested automated machinery that threatened their jobs by allowing employers to hire cheaper, unskilled labor. The movement spread across England amid high unemployment and inflation. Despite widespread unrest, the government, supported by the middle and upper classes, used military force to suppress the Luddites. As the result, the Luddites organized secretly across England to destroy equipment they saw as harmful to their livelihoods. Their movement, marked by machine-breaking, protests, and violent clashes, reflected broader demands for labor rights, political reform, and resistance against industrial exploitation (Britannica, 2026).

Although there have been controversial historical precedents in the application of new technologies, history also demonstrates that the benefits gained from adapting to innovation have significantly improved human living standards. For example, the invention of the first steam engine in England marked a turning point in the Industrial Revolution, laying the foundation for modern industry and transportation, which transformed societies and raised overall quality of life.

The first steam engine, one of the most important inventions of the eighteenth century, was invented in 1712 by Thomas Newcomen, an ironmonger from Devon, England (Hills, 2000) However, the migration and adoption of steam engine technology gave rise to the American engineer and helped build the intellectual and industrial capacity that enabled the growing United States to achieve economic and technological dominance in later years.

The United States became a major beneficiary of the steam engine not because it invented the technology, but because it fully used and continuously improved upon it. This commitment to adoption, innovation, and perseverance laid the foundation for America’s long-term economic and technological dominance. The American example shows that real benefits from new technologies require dedication. It’s important to take initiative and put in consistent effort. Even

when results aren't immediate, persistence is key to long-term success. Long-term success often requires patience, experimentation, and a spirit of never giving up.

Historical cases such as the Luddite movement highlight the consequences of resistance driven by fear and a lack of support for workers. Therefore, the hospitality industry must learn that successfully integrating new technologies like automation requires adaptability, continuous learning, and cultural openness to change. Meanwhile, the United States' strategic adoption and improvement of the steam engine demonstrate the long-term benefits of persistently embracing the human application of new technology.

2.5 Global automation adoption in hospitality

AI is breaking new ground in the fast-paced world of travel and hospitality, providing sophisticated solutions to classic challenges. The objective is to enhance the guest experience, streamline operational processes, and boost overall convenience.

Today, many hospitality sectors worldwide have adopted AI automation in their daily operations. However, the outcomes gained from this adoption vary significantly across organizations. While some organizations have experienced significant benefits from AI adoption, including improved efficiency, enhanced customer satisfaction, and stronger brand differentiation, others have faced challenges such as high implementation costs, technical difficulties, and employee resistance, leading to more modest or mixed outcomes.

Thus, it is crucial for hospitality organizations to study and understand the experiences of others before adopting AI automation. By learning from both the successes and challenges faced by other hospitality sectors, they can better prepare for potential obstacles, reduce costs, and ensure a smoother implementation process. The following are selected case studies from around the world that illustrate how different hospitality businesses have implemented AI automation and the unique impacts it has had on their operations.

Case study 1:

The Henn-na Hotel in Nagasaki, Japan, opened in 2015 as the world's first robot-staffed hotel. However, many of its 243 robots failed to perform tasks effectively, generated guest complaints, and increased the workload of human employees. Consequently, the hotel removed more than half of its robotic workforce and reintroduced human staff while retaining robots only in functions where they added value. This case demonstrates that although robotics can support hospitality operations, human involvement remains essential for delivering quality service and handling complex guest interactions (Hertzfeld, 2019).

Case Study 2:

Edwardian Hotels London, implemented an AI-powered reputation management solution developed by MARA to address challenges associated with managing a large volume of online guest reviews. The hotel group received approximately 10,000-15,000 online reviews annually across its properties, creating difficulties in maintaining timely and consistent responses. The implementation of AI-assisted review management helped streamline response processes, improve response consistency, and allow employees to focus more on guest-facing activities (GmbH., 2024).

Case Study 3:

Marriott offers digital keys as a secure, contactless, and convenient way for guests to access their rooms and hotel amenities via the Marriott Bonvoy app. While this technology requires a compatible smartphone and sufficient battery life, and may occasionally face technical issues, the benefits outweigh these limitations. Marriott continues to invest in enhancing digital key technology, aiming to improve the guest experience through innovations like biometric authentication, integration with smart devices for room control and services, and expanded use to areas like elevators and fitness centers. These advancements reflect Marriott's commitment to seamless, tech-driven hospitality (Cooper, 2024).

Case study 4:

Aloft Hotels, a brand under Starwood Hotels & Resorts, introduced A.L.O., or Botlr-the hospitality industry's first robotic butler developed with Savioke-to reinforce its tech-forward identity and enhance guest experiences. Botlr handles routine tasks like delivering amenities to guest rooms, boosting operational efficiency by freeing staff to focus on personalized service. The innovation has received positive guest feedback, strengthened brand differentiation, and attracted tech-savvy travelers, positioning Aloft as a leader in technology-driven hospitality (Team DigitalDefynd, 2025).

Case study 5:

Yotel has strengthened its reputation as a tech-driven hotel brand by introducing Yobot, an AI-powered robotic luggage handler at its New York location. This innovative solution automates luggage storage and retrieval through a secure barcode system, enhancing operational efficiency and allowing staff to focus more on guest services. Yobot not only improves convenience and security for guests but also provides a memorable, high-tech experience that reinforces Yotel's commitment to smart, efficient hospitality (Team DigitalDefynd, 2025).

Artificial intelligence (AI) has evolved beyond being a supplementary technology and has become an important driver of innovation in the travel and hospitality industry. AI-enabled technologies, including chatbots, intelligent recommendation systems, and automated service solutions, provide opportunities to improve operational efficiency, personalize customer interactions, and enhance service experiences (Ivanov, S., & Webster, C., 2019).

Chapter 2 has reviewed the existing literature related to automation adoption in the hospitality industry. The following Chapter 3 presents the research methodology adopted in this study.

CHAPTER 3: RESEARCH DESIGN

3.1 Research approach

Based on the scope and objectives of the study, methodological triangulation was considered the most effective approach. Methodological triangulation involves the use of multiple research methods to investigate a single phenomenon. This approach can strengthen research findings by providing confirmation, generating more comprehensive data, improving validity, and enhancing the understanding of complex phenomena (Bekhet, A. K., & Zauszniewski, J. A., 2012). It combines quantitative surveys, qualitative interviews, and observations to obtain a comprehensive understanding of the influence of comprehensive training, organizational culture, and demographic factors on hospitality employees' readiness, attitudes, and perspectives toward automation.

Quantitative survey: To gather data for this action research, both digital and traditional methods were employed. An online questionnaire was administered via Google Forms to facilitate easy distribution and collection of responses. In addition, a printed black-and-white paper version of the same questionnaire was distributed to participants who had limited access to digital platforms. Around 20 questions were used as the primary method to collect data from hospitality employees. This included several cross-sectional questions developed using a correlational research design.

The cross-sectional design was appropriate for this study as it allowed the researcher to examine the relationships among the study variables at a single point in time. However, as data were collected within one period, the findings indicate associations rather than causal relationships and do not capture changes in employees' perceptions toward automation over time. Although a longitudinal design could provide deeper insights into these changes, the cross-sectional approach was considered suitable given the research objectives and available resources.

The sample size consisted of 100-200 hospitality employees aged 18 and above in Sibu. The research questionnaire utilized a Likert scale ranging from "Strongly Disagree," "Disagree," "Neutral," "Agree," to "Strongly Agree." The Likert scale was used in this research because it

allowed the measurement of hospitality employees' readiness, attitudes, and perspectives toward automation in a structured and quantifiable manner. It also captured respondents' perceptions with more nuanced insights compared to simple yes-or-no responses.

Qualitative Interview: One-on-one interviews were conducted using open-ended questionnaires. The participants, including employees from front desk and guest services, housekeeping, food, and beverage departments, as well as management and administration, were asked six main questions along with several supplementary questions. A total of 10-15 participants were interviewed. The main purpose of the interviews was to create a comfortable environment in which participants could openly share their personal opinions, experiences, and perspectives regarding automation in their workplace without external influence.

Observation: Observation was conducted by observing hospitality employees in their natural work environment, such as the front desk, kitchen, cafe, and office, while they carried out their daily routines. Notes were taken on employees' reactions toward automation in the workplace. The frequency of positive and negative comments made while employees engaged with automation tools was also recorded. The purpose of conducting the observation was to gain first-hand, non-intrusive insights into how hospitality employees interacted with automation tools within their natural work environment.

3.2 Population and Sample

In the field of action research, understanding the concepts of population and sample is essential for producing valid and reliable results. In research, a sample population refers to a subset of the larger population that is selected for study. Population data is the total number of measurements taken from every individual within a group. For example, if you are measuring the heights of all humans on Earth, you'd include all 7 billion people in your population data set. Sampling is the process of selecting individuals from a larger population and is used to generate representative information about the population of interest. Due to practical constraints, researchers often select a sample from the target population rather than collecting data from the entire population.

Sampling enables researchers to obtain meaningful information while reducing time and resource requirements (Taherdoost H. , 2016)

The target population for this research comprised hospitality employees working in hotels in Sibu. This group included individuals from different organizational levels and job roles who were directly or indirectly affected by automation in the workplace. The study focused on hospitality employees, including frontline staff such as hotel receptionists, restaurant servers, and housekeeping personnel; management personnel such as supervisors, managers, and department heads; as well as technical staff. All participants were working adults aged 18 years and above who were employed on either a full-time or part-time basis. This group was considered suitable for the study because their diverse perspectives provided a holistic understanding of how comprehensive training, organizational culture, and demographic factors influenced readiness, attitudes, and perspectives toward automation.

The sampling frame for this study consisted of all eligible employees from a selection of 10 hotels located in Sibu, namely: (a) Kingwood Hotel, (b) The Paramount Hotel, (c) Premier Hotel, (d) Starlink Hotel, (e) Kawan Hotel, (f) Tanahmas Hotel, (g) Texas Hotel, (h) OTEL Hotel, (i) Rimbunan Hijau Hotel, and (j) Li Hua Hotel. Access to the employee list was requested from the Human Resources departments after formal institutional approval was obtained. The sampling frame included essential information for stratification, such as employee position category, educational level, and length of service. To obtain a sample that was both representative and statistically reliable, the research employed a stratified random sampling technique. Stratified random sampling involves dividing a population into non-overlapping subgroups (strata) and randomly selecting participants from each subgroup to ensure adequate representation of different groups (Howell, C. R., Su, W., Nassel, A. F., Agne, A. A., & Cherrington, A. L., 2020). The process typically consists of two primary phases:

First, the population was divided into four distinct groups: front desk and guest services, housekeeping, food and beverage, and management and administration, as these groups were hypothesized to have different experiences and perspectives toward automation.

Then, participants were selected from each group using proportional allocation. A simple random sampling method was used to ensure that every individual had an equal and independent chance of being selected.

Below are the sample sizes for each objective and justification for the choices:

Objective 1: To evaluate how comprehensive training influences hospitality employees' readiness, attitudes, and perspectives toward automation.

Sample size: The study targeted 100-200 respondents for the questionnaire and 10-15 participants for the one-on-one interviews.

Justification: To detect a moderate relationship with statistical significance, Pearson correlation and regression analyses required a sufficiently large sample size, typically 85-100 participants for a medium effect size at 80% power and a 5% significance level.

Objective 2: To examine the relationship between organizational culture and hospitality employees' readiness, attitudes, and perspectives toward automation.

Sample size: The study targeted 100-200 respondents for the questionnaire, 10-15 participants for one-on-one interviews, and non-participant observations conducted during regular working hours.

Justification: To address Objective 2, a triangulation methodology was employed. Pearson correlation and regression analyses were conducted on the survey data. In addition, observational analysis was integrated, and interview data were analyzed using NVivo to provide a deeper understanding of the prevailing organizational culture.

Objective 3: To examine how demographic factors (age, education, and job tenure) influence hospitality employees' readiness, attitudes, and perspectives toward automation.

Sample size: The full sample was used. Participants were stratified by role, age, educational level, and job tenure to ensure that each subgroup included enough participants.

Justification: To allow for Pearson correlation, regression analysis, and ANOVA, Question 3 was designed to ensure that each demographic group had an average of around 40 or more participants, where possible.

3.3 Data collection procedure

Before beginning the action research, the questionnaire was pilot tested with a small group of 5-10 hospitality workers who were not part of the final sample. The purpose of the pilot test was to ensure that the questionnaire was coherent and functioned well, as well as to estimate the time required for completion. Feedback from the pilot group was used to improve the final questionnaire.

A formal research proposal summary, including ethical considerations and a consent form, was submitted to obtain permission and cooperation from the hospitality organizations to conduct the employee survey. Informed consent ensured that participants received sufficient information about the research, enabling them to voluntarily decide whether to participate.

An online questionnaire was administered using Google Forms to collect data for the quantitative survey. The online survey remained open for a predetermined period to ensure that employees across various shifts had sufficient time to participate and to encourage higher response rates by giving participants flexibility to respond at their convenience. Printed black-and-white survey forms were also included in the data collection process, as not all employees had easy access to email or online platforms during work hours. The researcher distributed the printed

questionnaires individually during working hours upon receiving permission from the authorized personnel.

Language diversity could pose a challenge during data collection. However, most Chinese participants had sufficient proficiency in either Malay or English, while Malay and Iban participants were generally able to communicate effectively in Malay. To mitigate this limitation, all questionnaires and interview questions were prepared in both Malay and English. This bilingual approach accommodated all participants effectively and ensured clarity and consistency in their responses.

The one-on-one interviews were conducted during off-peak hours or break times and were kept short and focused, lasting approximately 20-30 minutes. 10-15 participants were selected (based on survey responses or willingness) for semi-structured interviews to gain deeper insights.

Non-participant observation was conducted during the same period to provide valuable insights into workplace behaviors and attitudes toward automation. Non-participant observation helped to provide a deeper understanding of cultural factors.

All data collected from surveys, interviews, and observations were securely stored in both physical and digital formats. Data analysis was conducted after the completion of data collection.

3.4 Confidentiality and ethical considerations

Ethical considerations are fundamental to the research process, ensuring that studies are conducted with integrity, respect for participants, and professional responsibility (Arifin, 2018)**.** Since this study involved hospitality employees and touched on sensitive issues such as their jobs, career views, and reactions to technological changes, a strong ethical framework was followed.

Informed consent was obtained to secure approval from the hospitality organization and to ensure that participants understood the research purpose, methods, risks, and benefits. Participants chose to participate voluntarily, without any pressure.

Google Forms and printed black-and-white questionnaires were used for data collection. The instruments were reviewed by the research dissertation committee and approved by the European International University prior to the commencement of data collection. All potential participants received a clear and detailed information sheet and consent form (Appendix A) before agreeing to take part.

The documents were written in plain, accessible language and clearly explained all key details. Participants were fully informed and provided consent regarding the following: (a) their voluntary participation in the research; (b) their understanding of the study's purpose; and (c) their right to withdraw from the research at any time without consequence.

The primary data collection method was an anonymous survey. No personally identifiable information such as name, employee ID, or email address was collected. To identify the generational group to which participants belonged, data ranges corresponding to each respondent's age, education level, and job tenure were included in the survey. However, the information collected was not linked to participants' identities and could not be used to identify them.

All electronic data collected were stored on a password-protected, encrypted computer. Likewise, all printed black-and-white survey papers were stored in a locked cabinet or secure drawer accessible only to the researcher. The collected data were retained only for the duration of the study and were permanently deleted after the study concluded.

3.5 Data collection

Data collection refers to the systematic process of gathering relevant information from selected sources or participants to address research questions and achieve research objectives. A well-designed data collection process is essential for ensuring that the collected information is accurate, reliable, and appropriate for subsequent analysis, thereby strengthening the validity and credibility of research findings (Taherdoost H. , 2021).

3.5.1 Numerical Data

Numerical data, also referred to as quantitative data, consist of numerical values that represent measurable or countable information. Quantitative data may be discrete, obtained through counting, or continuous, obtained through measurement. Because these data are expressed numerically, they can be analyzed using descriptive and inferential statistical techniques to identify patterns, relationships, and differences among variables (Slater, P., & Hasson, F., 2024).

In this research, numerical data were collected using a Likert scale format, allowing for the quantification of participants' responses related to automation in the hospitality industry. Each section of the questionnaire was designed to examine specific relationships among variables. The use of Likert scale responses enabled statistical analysis to identify correlations and explore potential relationships between the independent and dependent variables in each section.

The questionnaire comprised three parts:

Part A: The relationship between hospitality employees' comprehensive training (CT) and readiness toward automation (RTA)

- Question 1-4: Employees' training on automation (Independent variable)
- Question 5-7: Employees' readiness for automation (dependent variable)

Part B: The relationship between organizational culture (OC) and hospitality employees' attitudes toward automation (ATA).

- Question 8-11: Organization culture and automation (Independent variable)
- Question 12-14: Employees' attitudes toward automation (dependent variable)

Part C: The relationship among the demographic factors (DF) and hospitality employees' perspectives toward automation (PTA)

- Question 15-18: Employees' demographic factors (Independent variable)
- Question 19-21: Employees' perspective toward automation (dependent variable)

Once the survey period had closed, the completed questionnaires from both the online survey platform and the printed paper questionnaires were compiled. The raw anonymous data were then entered into a Microsoft Excel worksheet for data cleaning and preparation before statistical analysis.

3.5.2 Narrative data

Narrative data refers to the detailed stories, experiences, and accounts shared by participants during qualitative research. Such data provides rich contextual insights into individuals' perceptions, behaviors, interactions, and lived experiences. Narrative data is commonly collected through qualitative methods such as interviews, focus groups, and open-ended questions, where participants are encouraged to describe their experiences in their own words. Narrative approaches allow researchers to understand not only what participants experience but also the meanings they attach to those experiences (Anderson, C., & Kirkpatrick, S., 2016).

In this research, narrative data were gathered through six open-ended questions designed to elicit hospitality employees' personal experiences and opinions. By capturing participants' voices in their own words, the study aimed to uncover underlying emotions and perspectives that might not have been evident from the quantitative data alone.

The interview questionnaire comprised three parts:

Part A: The relationship between hospitality employees' comprehensive training (CT) and readiness toward automation (RTA)

- Question 1: How do you perceive the benefits of training toward automation?
- Question 2: What challenges have you faced while getting ready to use automated systems in your role?

The purpose of Question 1 was to understand how the training provided helped employees adapt to automation in the workplace, while Question 2 aimed to identify the barriers or difficulties employees encountered during the transition to using automated systems.

Part B: The relationship between organizational culture (OC) and hospitality employees' attitudes toward automation (ATA).

- Question 3: How would you describe your organization's culture toward change and innovation?
- Question 4: How do you feel about the increasing use of automation in the hospitality industry?

The purpose of Question 3 was to explore employees' personal perspectives toward change and innovation and how these might be influenced by the organizational environment. Meanwhile, Question 4 aimed to understand employees' personal attitudes toward automation and how these might be influenced by the organizational culture in which they worked.

Part C: The relationship among the demographic factors (DF) and hospitality employees' perspectives toward automation (PTA)

- Question 5: Do you feel employees from different backgrounds view automation differently?
- Question 6: What are your thoughts on the long-term impact of automation on the hospitality industry?

The purpose of Question 5 was to explore whether and how demographic factors influenced employees' perceptions of automation. Question 6 aimed to gain insight into employees' future expectations and concerns regarding the role of automation in the hospitality industry.

3.5.3 Workplace Observation

Workplace observation was conducted to cross-validate the findings by observing employees' actual interactions and behaviors with automated systems. A semi-structured, non-participant approach was used, and the observations were recorded through field notes, then thematically analyzed, and triangulated with survey and interview data.

3.6 Data analysis

Data analysis refers to the systematic process of examining, organizing, and interpreting collected data to identify meaningful patterns and generate useful insights. Through analytical techniques, researchers can transform raw data into information that supports evidence-based conclusions and informed decision-making (Provost, 2013).

3.6.1 Pilot testing and Cronbach's Alpha

To ensure the validity and reliability of the research instruments, a series of pre-testing procedures were conducted before the main data collection. These procedures included pilot testing of the questionnaire and reliability analysis using Cronbach's Alpha. Cronbach's alpha coefficient measures the internal consistency, or reliability, of a set of survey items. High Cronbach's alpha values indicate that response values for each participant across a set of questions are consistent. Analysts frequently use 0.7 as a benchmark value for Cronbach's alpha. At this level and higher, the items are sufficiently consistent to indicate the measure is reliable (Tavakol, M., & Dennick, R, 2011).

Cronbach's Alpha for reliability was calculated using the commonly used formula:

$$\alpha = \left(\frac{k}{k-1}\right)\left(\frac{S_y^2 - \sum S_i^2}{s_y^2}\right)$$

3.6.2 Quantitative Data Analysis

Before conducting statistical analysis, the collected survey responses were entered into IBM SPSS Statistics. SPSS is a widely used statistical software package in social science research that enables researchers to manage datasets and perform various statistical analyses, including descriptive statistics, correlation analysis, and regression modelling (Loh, K. Y., Lieng, T. C., & Wong, K. C., 2006). In this research, SPSS was used to perform statistical calculations, ensuring that correlations were computed accurately.

For categorical demographic data (e.g., age, education level, job tenure, and job position), frequencies and percentages were generated to summarize the sample characteristics and provide an overview of the variables. To analyze the categorical demographic variables, the data were first organized and coded systematically to ensure consistency and accuracy. Each category within a variable was assigned a numerical code as shown below:

Age

Code 1: 1997 or later; Code 2: 1981 to 1996; Code 3: 1965 to 1980; Code 4: 1946 to 1964

Education level

Code 1: Secondary; Code 2: Diploma Level

Code 3: Degree; Code 4: Master

Job tenure

Code 1: 0 - 2 years; Code 2: 3 - 5 years; Code 3: 6 - 8 years; Code 4: 9+ years

Job position

Code 1: Front Desk/Guest Services; Code 2: Housekeeping

Code 3: Food & Beverages; Code 4: Management & Administration

The analysis of Likert-scale questionnaire data involved a different but complementary process. Likert-scale responses were considered ordinal data, with response values typically ranging as follows:

Code1:1 = Strongly Disagree; Code 2 = Disagree

Code 3 = Neutral; Code 4 = Agree; Code 5 = Strongly Agree

This coding process facilitated efficient data entry and analysis. The initial analysis was conducted using Microsoft Excel, which was employed to calculate the frequency (n) and percentage (%) of respondents in each category. Following this, the data were further analyzed using SPSS by applying the Frequencies procedure under the Descriptive Statistics menu to confirm results and ensure accuracy. Finally, the results were summarized and presented in a clean tabular format, displaying each demographic variable to provide a clear overview of the sample characteristics. Values were provided for significance testing and summarized the demographic data. The software was used to calculate means, standard deviations, variances, and percentages to understand trends and distributions across different groups.

Correlation analysis was used to investigate the hypothesis regarding the influence of comprehensive training, organizational culture, and demographic factors on hospitality employees' readiness, attitudes, and perspectives toward automation. Pearson correlation was used because the variables were continuous and were expected to have a linear relationship. Once the data were collected, the Pearson correlation coefficient (r) was calculated to measure the strength and direction of the relationship. A value of $r = +1$ indicates a perfect positive linear relationship, $r = -1$ indicates a perfect negative linear relationship, and $r = 0$ indicates no linear relationship. Pearson correlation was suitable for testing hypotheses involving continuous variables such as training, organizational culture, readiness, attitudes, perspectives, age, and job tenure.

Regression analysis was conducted to examine how the dependent variable (employee readiness, attitudes, and perspectives toward automation) changed in response to variations in the independent variables (comprehensive training, perceived organizational culture, and key demographic factors). Coefficient values (β) played a central role in interpreting how each independent variable affected the dependent variable. A positive coefficient indicated that as the independent variable increased, the dependent variable also increased. In contrast, a negative coefficient indicated that as the independent variable increased, the dependent variable decreased. SPSS was used to perform the analysis, utilizing multiple linear regression to explain, quantify, and predict how changes in the independent variables influenced the dependent variable.

ANOVA was conducted to determine whether employees' perspectives toward automation differed significantly across demographic groups, including education level and job tenure. A one-way ANOVA was performed to examine whether significant differences existed among groups based on these categorical demographic variables. In addition, the ANOVA table generated from the regression analysis was used to assess the overall significance of the regression model. The ANOVA results generated by SPSS included descriptive statistics, such as the mean, standard deviation, and sample size for each group, as well as the F-statistic and significance value (p-value), which were used to determine whether the differences between group means were statistically significant.

3.6.3 Qualitative Data Analysis

NVivo was used as the primary tool for managing and analyzing qualitative data. All qualitative data from the one-on-one interviews were organized through systematic coding and theme development, allowing for a structured exploration of hospitality employees' views and experiences.

The narrative data were imported into NVivo, including interview transcripts and open-ended survey responses. Audio recordings were transcribed before analysis. The researcher then created nodes (codes) by highlighting relevant text and assigning descriptive labels. For example, when employees described their experience with self-service kiosks as "easy to use" or "makes my job faster," these responses were coded under themes such as "operational efficiency." After coding all data, similar codes were grouped into broader themes by organizing them under parent nodes. Patterns in the data were then explored through NVivo visualizations such as word clouds and charts.

In this study, thematic analysis was used to identify common themes and patterns in the interview and observation data. Thematic analysis was a flexible approach that allowed for a deeper understanding of complex qualitative data and supported the development of practical recommendations for the hospitality industry.

3.6.4 Observation Data Analysis

To enhance the validity of the data collection and findings, data triangulation was employed. Data from one-on-one interviews were systematically compared with field observation data, which captured employees' interactions with automated systems in their daily work environment. Non-participant observation notes were thematically analyzed to identify patterns in how employees interacted with and responded to automation in the workplace.

An employee might express confidence and enthusiasm about automation during an interview, while field observations revealed instances of frustration when operating automated systems.

Observation data were broken down into field notes; for example, notes describing staff bypassing self-service machines to assist guests were coded as “employee intervention.”

Therefore, data triangulation facilitated the identification of both convergences and divergences, providing a more nuanced understanding of the gap between employees’ perceptions and behaviors. Ultimately, the analysis contributed to practical recommendations for improving staff training, organizational culture, and implementation strategies for automation in the hospitality industry.

3.6.5 Spearman’s rho Sensitivity Analysis

Although demographic variables such as age, education level, and job tenure were originally measured as ordinal categories, they were coded numerically and treated as continuous variables in the Pearson correlation and multiple regression analyses. This approach was adopted to examine the predictive relationships between demographic factors and employees’ readiness, attitudes, and perspectives toward automation. However, recognizing the ordinal nature of these variables, a sensitivity analysis using Spearman’s rho correlation was conducted to assess the robustness and consistency of the Pearson correlation findings. The results from both analyses were compared to determine whether the interpretation of relationships remained consistent.

CHAPTER 4: DATA ANALYSIS

4.1 Data Analysis

Chapter 4 presents the empirical findings of the study based on data collected from 122 survey respondents, 10 one-on-one interviews, and non-participant observations conducted in three- and four-star hotels in Sibu, Sarawak. The chapter begins with the reliability analysis using Cronbach's alpha, followed by an overview of the analysis methods used to address each research question and test the study hypotheses. Next, the demographic characteristics of the respondents and descriptive statistics of the study variables are presented.

The quantitative data are then analyzed using Pearson correlation, multiple regression, and one-way analysis of variance (ANOVA). A sensitivity analysis comparing Pearson correlation and Spearman's rho for the ordinal demographic variables is subsequently presented to assess the robustness of the findings. Finally, the qualitative findings from the interviews and non-participant observations, analyzed using NVivo, are presented.

4.1.1 Cronbach's Alpha Reliability Analysis

Table 1: Reliability Analysis Results Using Cronbach's Alpha for Pilot Test

Construct	Cronbach's Alpha	Interpretation
Comprehensive training (CT)	0.886	Good
Employees' readiness toward automation (RTA)	0.753	Acceptable
Organizational culture (OC)	0.868	Good
Employees' attitudes toward automation (ATA)	0.858	Good
Demographic factors (DF)	0.692	Questionable
Employees' perspectives toward automation (PTA)	0.906	Excellent

The pilot test results indicated that all constructs achieved acceptable internal consistency, with Cronbach's Alpha values ranging from 0.753 to 0.906, exceeding the recommended threshold of 0.70 (Tavakol, M., & Dennick, R, 2011). This suggests that the measurement items are reliable for use in the main study.

The demographic variables recorded a Cronbach's Alpha value of 0.692. However, this result is not interpreted in the same manner as latent constructs, as demographic variables are categorical in nature and do not measure a single underlying construct. Therefore, reliability testing is not strictly applicable to demographic variables.

Table 2: Reliability Analysis Results Using Cronbach's Alpha

Construct	Cronbach's Alpha	Interpretation
Comprehensive training (CT)	0.873	Good reliability
Employees' readiness toward automation (RTA)	0.822	Good reliability
Organizational culture (OC)	0.893	Good/ close to excellent
Employees' attitudes toward automation (ATA)	0.845	Good reliability
Demographic factors (DF)	0.411	Poor reliability
Employees' perspectives toward automation (PTA)	0.860	Good reliability

The measurement instrument demonstrated good internal consistency reliability for all latent constructs, with Cronbach's Alpha values ranging from 0.822 to 0.893, exceeding the recommended threshold of 0.70 (Tavakol, M., & Dennick, R, 2011). These results indicate that the items within each construct are consistently measuring their intended underlying variables.

The demographic variables produced a low Cronbach's Alpha value ($\alpha = 0.411$), indicating poor internal consistency. However, this result is expected, as demographic variables are categorical in nature and do not represent a unified latent construct. Therefore, reliability testing using Cronbach's Alpha is not appropriate for demographic variables.

Table 3: Analysis Methods Used for Each Research Question and Hypothesis.

Research Questions /Sub-question	Hypotheses/Sub-hypotheses	Analysis methods
RQ1	H1	Pearson correlation
RSQ1a	SH1a	Simple linear regression
RQ2	H2	Pearson correlation
RSQ2a	SH2a	Simple linear regression
RQ3	H3	Multi linear regression
RSQ3a	SH3a	Pearson correlation, Simple linear regression
RSQ3b	SH3b	One-way ANOVA
RSQ3c	SH3c	Pearson correlation, Simple linear regression, One-way ANOVA

All the research questions, sub-questions, hypotheses, and sub-hypotheses in this study involve either relationships between continuous variables (e.g., training, organizational culture, demographic factors) or comparisons across more than two groups (e.g., education level). In addition, multiple predictors are examined simultaneously in some analyses, such as assessing the combined influence of age, education, and job tenure on readiness, attitudes, and perspectives toward automation (RAPTA). Pearson correlation, regression analysis, and ANOVA were employed, as these methods are better suited to examining relationships, predictive effects, and differences across multiple groups. t-tests are not employed in this study because they are limited to two-group comparisons and cannot accommodate multiple independent variables simultaneously.

Qualitative data were gathered through in-depth, one-on-one interviews with 10 hospitality employees to explore their personal experiences. The interview transcripts were managed and analyzed using NVivo, applying themes, subthemes, and selected quotes to systematically code and group similar responses. Furthermore, non-participant observations were conducted, where field notes detailed employees' actual interactions and behaviors with the new automated systems. The observation data were thematically analyzed and systematically triangulated with the interview narrative data (Table 18-20).

4.1.2 Description of Participants

A total of 150 informed consent forms were distributed to potential participants from hotels in Sibu, Sarawak, to obtain their voluntary agreement to participate in the survey. Of these, 133 employees provided consent and expressed their willingness to participate. However, only 122 completed questionnaire forms were returned and found to be usable for data analysis. These valid responses formed the final sample size for the study.

Table 4: Summary of Respondents' Demographic Characteristics

Position	**Frequency**	**Percent %**	**Cumulative Percent%**
Front Desk/Guest Services	47	38.5	38.5
Housekeeping	21	17.2	55.7
Food & Beverages	24	19.7	75.4
Management and Administration	30	24.6	100.0
Total:	**122**	**100.0**	**100.0**
Age (AGE)	**Frequency**	**Percent %**	**Cumulative Percent %**
1997 or later	34	27.9	27.9
1981 to 1996	39	32.0	59.8
1965 to 1980	31	25.4	85.2
1946 to 1964	18	14.8	100.0
Total:	**122**	**100.0**	**100.0**
Education level (EDU)	**Frequency**	**Percent %**	**Cumulative Percent %**
Secondary	47	38.5	38.5
Diploma	52	42.6	81.1
Degree	16	13.1	94.3
Master	7	5.7	100.0
Total:	**122**	**100.0**	

Job tenure (JT)	Frequency	Percent %	Cumulative Percent %
0-2 years	27	22.1	22.1
3-5 years	24	19.7	41.8
6-8 years	22	18.0	59.8
9 years and above	49	40.2	100.0
Total:	**122**	**100.0**	

Table 4 presents the demographic characteristics of the respondents. The largest proportion of respondents is from the Front Desk/Guest Services department (38.5%, n = 47), which is consistent with the presence of front-line employees who play a critical role in shaping guest experiences. The Management and Administration department accounts for 24.6% (n = 30) of the respondents, representing nearly one-quarter of the sample. Employees from the Food and Beverages department comprise 19.7% (n = 24) of the sample, while those from the housekeeping department represent 17.2% (n = 21).

For hospitality employees' age group, there are 1997 or later (≤ 29 years), 1981 to 1996 (Millennials), 1965 to 1980 (Gen X), 1946 to 1964 (Baby Boomers). The sample is youth-leaning, with a combined 59.8% (n=73) under 45 years old (Millennials and Gen Z). However, only 14.8% are from the Baby Boomer (≥ 62 years old) generation. The observation suggests that younger employees may show higher levels of interest in responding to the questions.

Most respondents, 81.1% (n = 99), possess secondary-level (38.5%, n = 47) or diploma-level education (42.6%, n = 52), suggesting that most employees come from mid-level technical or operational backgrounds. In contrast, only 18.9% (n = 23) hold tertiary qualifications (Degree or master's level).

A notable 40.2% (n = 49) have been employed for nine years or more, indicating a relatively experienced workforce in the hospitality sector in Sibu, Sarawak, Malaysia. Meanwhile, newer employees (0-2 years) make up 22.1% (n = 27), suggesting a balanced mix of long-tenured and fresh staff.

The demographic profile indicates a diverse hospitality workforce with predominantly younger, moderately educated employees and a balance between experienced and new staff.

4.1.3 Descriptive Statistics

Table 5: Descriptive Statistics for Age, Education Level, and Job Tenure

	N	Mean	Std. Deviation
Age	122	2.2705	1.02882
Education level	122	1.8607	0.85586
Job tenure	122	2.7623	1.19954

Descriptive statistics were computed by SPSS to summarize respondents' demographic characteristics. The results show that the sample consisted of 122 hospitality employees in Sibu, Sarawak, Malaysia. The average age was 2.27 (SD = 1.03), reflecting that most employees were born in 1981 to 1996 (30 - 45 years old). The mean education level was 1.86 (SD = 0.86), showing that the majority held secondary to diploma education qualification. The mean job tenure is 2.76 (SD = 1.20), showing that employees generally had more than 5 years' experience in the hospitality sector.

4.2 Survey Results & Findings

Survey results refer to the data collected from respondents through a structured set of questions. These responses provide information regarding participants' opinions, behaviors, attitudes, and characteristics. Survey data may be analyzed quantitatively through numerical measurements, such as frequencies and percentages, or qualitatively through themes identified from open-ended responses. Findings represent the interpretation and conclusions developed after analyzing the

collected data, allowing researchers to explain patterns, relationships, and meanings within the research context (Singer, 2017) The survey results and findings of this study will be analyzed based on the research questions and hypotheses established earlier.

4.2.1 Research question 1 (RQ1) and hypothesis 1 (H1)

Research Question 1 (RQ1): How does hospitality employees' comprehensive training (CT) on automation affect their readiness, attitudes, and perspectives toward automation (RAPTA)?

Null hypothesis 1 (H1): There is no significant relationship among hospitality employees' comprehensive training (CT) on automation and their readiness, attitudes and perspectives toward automation (RAPTA).

Pearson correlation was selected as the primary analysis method for Research question 1 (RQ1) and Null hypothesis 1 (H1) to investigate the relationship between hospitality employees' comprehensive training (CT) on automation and their readiness, attitudes, and perspectives toward automation (RAPTA). The Pearson correlation method is specifically designed to assess the strength and direction of linear relationships between two quantitative variables. Using Pearson correlation helps figure out whether increases in comprehensive training (CT) are associated with changes in employees' overall readiness, attitudes, and perspectives toward automation (RAPTA).

Table 6: Correlational Analysis of Comprehensive Training (CT) and Employee Readiness, Attitudes, and Perspectives Toward Automation (RAPTA)

		CT	RTA	ATA	PTA
CT	Pearson Correlation	1	0.723	0.628	0.497
	P-value		0.000	0.000	0.000
	N	122	122	122	122
RTA	Pearson Correlation	0.723	1	0.609	0.435
	P-value	0.000	0.000	0.000	0.000
	N	122	122	122	122
ATA	Pearson Correlation	0.628	0.609	1	0.672
	P-value	0.000	0.000		0.000
	N	122	122	122	122
PTA	Pearson Correlation	0.497	0.435	0.672	1
	P-value	0.000	0.000	0.000	
	N	122	122	122	122

The results indicate a strong positive correlation between comprehensive training (CT) and readiness toward automation (RTA) ($r = 0.723$), a moderate-to-strong positive correlation with attitudes toward automation (ATA) ($r = 0.628$), and a moderate positive correlation with perspectives toward automation (PTA) ($r = 0.497$). All correlations were statistically significant at $p < 0.05$. These findings show that comprehensive training (CT) is significantly and positively associated with employees' readiness, attitudes, and perspectives toward automation (RAPTA).

Based on these results, rejected null hypothesis 1 (H1)

4.2.1.1 Research Sub-question 1a (RSQ1a) and Sub-hypothesis 1a (SH1a)

Research Sub-question 1a (RSQ1a): How does hospitality employees' comprehensive training (CT) on automation affect their readiness toward automation (RTA)?

Null Sub-hypothesis 1a (SH1a): There is no significant relationship between hospitality employees' comprehensive training (CT) and readiness toward automation (RTA).

Research Sub-question 1a (RSQ1a) and Null Sub-hypothesis 1a (SH1a) examine the relationship between hospitality employees' comprehensive training (CT) and their readiness toward automation (RTA). Simple linear regression was conducted to further examine how changes in comprehensive training (independent variable) (CT) influence hospitality employees' readiness for automation (dependent variable) (RTA). This method figures out whether CT significantly predicts changes in RTA and measures the magnitude of this influence.

Table 7: Regression Analysis of Comprehensive Training (CT) and Employee Readiness Toward Automation (RTA)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4.034	0.619		6.516	0.000
CT	0.526	0.046	0.723	11.458	0.000

Dependent Variable: RTA

The regression analysis shows that comprehensive training (CT) has a substantial influence of readiness toward automation (RTA) ($\beta = 0.723$, $t = 11.458$, $p < 0.05$). Thus, the regression model indicated that for every unit increase in comprehensive training (CT), readiness toward automation (RTA) increases by 0.526 units.

Based on these results, rejected null sub-hypothesis 1a (SH1a).

4.2.2 Research question 2 (RQ2) and hypothesis 2 (H2)

Research Question 2 (RQ2): What is the relationship between organizational culture (OC) and hospitality employees' readiness, attitudes, and perspectives toward automation (RAPTA)?

Null hypothesis 2 (H2): There is no significant relationship between organizational culture (OC) and hospitality employees' readiness, attitudes, and perspectives toward automation (RAPTA).

For question 2 (RQ2) and the Null hypothesis 2 (H2), which investigate the relationship between organizational culture (OC) and hospitality employees' readiness, attitudes, and perspectives toward automation (RAPTA), Pearson correlation was selected to assess the linear relationship between the two continuous variables. This method is suitable for figuring out the strength and direction of the association between organizational culture (OC) and employees' readiness, attitudes, and perspectives toward automation (RAPTA).

Table 8: Correlation Analysis of Organizational Culture (OC) and Employee Readiness, Attitudes, and Perspectives Toward Automation (RAPTA)

		OC	RTA	ATA	PTA
OC	Pearson Correlation	1	0.586	0.704	0.487
	P-value		0.000	0.000	0.000
	N	122	122	122	122
RTA	Pearson Correlation	0.586	1	0.609	0.435
	P-value	0.000		0.000	0.000
	N	122	122	122	122
ATA	Pearson Correlation	0.704	0.609	1	0.672
	P-value	0.000	0.000		0.000
	N	122	122	122	122
PTA	Pearson Correlation	0.487	0.435	0.672	1
	P-value	0.000	0.000	0.000	
	N	122	122	122	122

The results show that organizational culture (OC) has a moderate positive relationship with employees' readiness toward automation (RTA) ($r = 0.586$), the strongest relationship with attitudes toward automation (ATA) ($r = 0.704$), and a moderate relationship with perspectives toward automation (PTA) ($r = 0.487$). All correlations between OC and the RAPTA components were statistically significant at $p < 0.05$. These findings show that organizational culture (OC) has a significant and positive relationship with hospitality employees' readiness, attitudes, and perspectives toward automation (RAPTA).

Based on these results, rejected null hypothesis 2 (H2).

4.2.2.1 Research sub-question 2a (RSQ2a) and sub-hypothesis 2a (SH2a)

Research Sub-question 2a (RSQ2a): What is the relationship between organizational culture (OC) and hospitality employees' attitudes toward automation (ATA)?

Null Sub-hypothesis 2a (SH2a): There is no significant relationship between organizational culture (OC) and hospitality employees' attitudes toward automation (ATA).

For Research sub-question 2a (RSQ2a) and the null sub-hypothesis 2a (SH2a), which investigate the relationship between organizational culture (OC) and hospitality employees' attitudes toward automation (ATA). Simple linear regression was conducted to examine the predictive influence of organizational culture on employees' attitudes toward automation. Regression analysis allows the researcher to figure out whether changes in OC significantly explain variations in ATA and to quantify the extent of this effect.

Table 9: Regression Analysis of Organizational Culture (OC) and Employees' Attitudes Toward Automation (ATA).

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4.082	0.585		6.974	0.000
OC	0.480	0.044	0.704	10.861	0.000

Dependent variable: ATA

The regression analysis further showed that organizational culture (OC) significantly predicted employees' attitudes toward automation (ATA) ($\beta = 0.704$, $t = 10.861$, $p < 0.05$). The regression model showed that for every unit increase in organizational culture (OC), attitudes toward automation (ATA) increases by 0.480 units These findings confirm that hospitality organizational culture has a strong, positive, and statistically significant influence on employees' attitudes toward automation (ATA).

Based on these results, rejected null sub-hypothesis 2a (SH2a).

4.2.3 Research question 3 (RQ3) and hypothesis 3 (H3)

Research Question 3 (RQ3): How do demographic factors (DF) (age, education, and job tenure) influence hospitality employees' readiness, attitudes, and perspectives toward automation (RAPTA)?

Null hypothesis 3 (H3): There is no significant relationship among the demographic factors (DF) (age, education, and job tenure) and hospitality employees' readiness, attitudes, and perspectives toward automation (RAPTA).

To examine Research Question (RS3) and the Null hypothesis 3 (H3), multiple regression analysis was employed. This method is suitable because it allows for the simultaneous assessment of the predictive effects of multiple independent variables (age, education, and job tenure) on a continuous dependent variable (hospitality employees' readiness, attitudes, and perspectives toward automation) (RAPTA).

Table 10: Multiple Regression Analysis of Demographic Factors (DF) (Age, Education, and Job Tenure) and Employees' Readiness, Attitudes, and Perspectives Toward Automation (RAPTA)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	12.203	0.868		14.056	0.000
AGE	-1.117	0.312	-0.373	-3.581	0.000
EDU	0.523	0.310	0.147	1.716	0.089
JT	0.042	0.269	0.016	0.155	0.877
Dependent Variable: RTA					
Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	11.346	0.819		13.850	0.000
AGE	-0.699	0.294	-0.258	-2.373	0.019
EDU	0.216	0.292	0.066	0.738	0.462
JT	-0.011	0.254	-0.005	-0.043	0.966
Dependent Variable: ATA					
Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**			
(Constant)	11.242	0.897		12.532	0.000
AGE	-0.525	0.322	-0.180	-1.629	0.106
EDU	0.205	0.320	0.058	0.641	0.523
JT	-0.073	0.278	-0.029	-0.263	0.793
Dependent Variable: PTA					

A multi regression analysis was conducted to examine the influence of demographic factors (age, education level, and job tenure) on hospitality employees' readiness, attitudes, and perspectives toward automation.

For readiness (RTA), the regression analysis showed that age was a significant negative predictor ($\beta = -0.373$, $p < 0.05$), showing that older employees reported lower readiness toward automation. However, education level (EDU) ($p = 0.089$) and job tenure (JT) ($p = 0.877$) were not significant predictors, as their p-values exceeded the 0.05 significance threshold.

For attitudes toward automation (ATA), the regression analysis showed that age is the only significant predictor ($\beta = -0.258$, $p = 0.019$). In contrast, education level (EDU) ($p = 0.462$) and job tenure (JT) ($p = 0.966$) showed no significant effects on employees' attitudes toward automation, as their p-values exceeded the 0.05 threshold.

For perspectives toward automation, the regression analysis revealed that none of the demographic variables significantly predicted employees' perspectives. Age showed a weak negative relationship with perspectives toward automation ($\beta = -0.180$, $p = 0.106$), but the effect was not statistically significant. Likewise, education level ($p = 0.523$) and job tenure ($p = 0.793$) did not significantly influence employees' perspectives toward automation.

Conclusion, age shows significant effects on readiness and attitudes, but not on perspectives. Education and job tenure do not significantly influence hospitality employees' readiness, attitudes, and perspectives toward automation (RAPTA).

Based on these results, accepted null sub-hypothesis 3 (H3)

4.2.3.1 Research sub-question 3a(RSQ3a) and sub-hypothesis 3a (SH3a)

Research Sub-question 3a (RSQ3a): How do demographic factors of age (AGE) influence hospitality employees' perspectives toward automation (PTA)?

Null Sub-hypothesis 3a (SH3a): There is no significant relationship among the demographic factors of age (AGE) and hospitality employees' perspectives toward automation (PTA).

For Research Sub-question 3a (RSQ3a) and the Null Sub-hypothesis 3a (SH3a), which examine the relationship between employees' age (AGE) and their perspectives toward automation (PTA), both Pearson correlation and simple linear regression were employed. Pearson correlation was used to assess the strength and direction of the linear association between AGE and PTA. Simple linear regression was conducted to examine how employees' perspectives toward automation (PTA) change as age (AGE) changes.

Table 11: Correlation Analysis of Demographic Factors of Age (AGE) and Employee Perspectives Toward Automation (PTA)

		AGE	PTA
AGE	Pearson Correlation	1	-0.191
	P-value		0.035
	N	122	122
PTA	Pearson Correlation	-0.191	1
	P-value	0.035	
	N	122	122

Table 12: Regression Analysis of Demographic Factors of Age (AGE) and Employee Perspectives Toward Automation (PTA)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	11.498	0.653		17.613	0.000
AGE	-0.559	0.262	-0.191	-2.132	0.035

A Pearson correlation analysis was conducted to examine the relationship between age and hospitality employees' perspectives toward automation (PTA). The results revealed a weak negative relationship ($r = -0.191$), which was statistically significant ($p = 0.035 < 0.05$). This suggests that older employees tend to hold slightly less favorable perspectives toward automation.

A regression analysis was conducted to figure out whether age significantly predicts hospitality employees' perspectives toward automation (PTA). The results show that age is a significant negative predictor of PTA (B = -0.559, SE = 0.262, β = -0.191, t = -2.132, p = 0.035 < 0.05). This suggests that older employees tend to hold slightly less favorable perspectives toward automation.

Based on these results, rejected null sub-hypothesis 3a (SH3a)

4.2.3.2 Research sub-question 3b (RSQ3b) and sub-hypothesis 3b (SH3b)

Research Sub-question 3b (RSQ3b): How do demographic factors of education (EDU) influence hospitality employees' perspectives toward automation (PTA)?

Null Sub-hypothesis 3b (SH3b): There is no significant relationship among the demographic variables of education (EDU) and hospitality employees' perspectives toward automation (PTA).

Analysis of Variance (ANOVA) was employed to examine Research Sub-question 3b (RSQ3b) and to test the Null Sub-hypothesis 3b (SH3b). This method allows for the comparison of mean differences in employees' perspectives toward automation (PTA) across multiple groups based on the demographic factor of education (EDU). Since education is a categorical variable with more than two levels (e.g., secondary, diploma, degree, and master's), ANOVA is proper for determining whether there are statistically significant differences in PTA among these educational groups.

Table 13: ANOVA Analysis of Demographic Factors of Education (EDU) and Employee Perspectives Toward Automation (PTA)

		Sum of Squares	df	Mean Square	F	Sig.
Education level	Between Groups	8.323	3	2.774	0.301	0.825
	Within Groups	1087.251	118	9.214		
	Total	1095.574	121			

A one-way ANOVA was conducted to examine whether hospitality employees' perspectives toward automation (PTA) differed across education level. Table shows the results of significant differences amount the group. The F statistic (F = 0.301) is ridiculously small, showing that the variance between education groups is minimal compared to variance within the groups. The p-value is 0.825 > 0.05. This shows that education level (EDU) does not have a statistically significant effect on hospitality employees' perspectives toward automation (PTA).

Based on these results, accepted null sub-hypothesis 3b (SH3b)

4.2.3.3 Research sub-question 3c (RSQ3c) and sub-hypothesis 3c (SH3c)

Research Sub-question 3c (RSQ3c): How do demographic factors of job tenure (JT) influence hospitality employees' perspectives toward automation (PTA)?

Null hypothesis 3c (SH3c): There is no significant relationship among the demographic variables of job tenure (JT) and hospitality employees' perspectives toward automation (PTA).

To examine Research Sub-question 3c (RSQ3c) and the Null Hypothesis 3c (H3c), a combination of Pearson correlation, simple linear regression, and Analysis of Variance (ANOVA) was employed. Pearson correlation was used to assess the strength and direction of the linear relationship between job tenure (JT) and employees' perspectives toward automation (PTA). Simple linear regression was conducted to evaluate whether variations in job tenure (JT) significantly predict changes in perspectives toward automation (PTA). ANOVA was applied to compare the mean differences in PTA between and within job-tenure groups. Assessing relationship strength, predictive ability, and group mean differences within a single analytical framework can show a more comprehensive understanding of how JT relates to PTA.

Table 14: Correlation Analysis of Demographic Factors of Job Tenure (JT) and Employee Perspectives Toward Automation (PTA)

		JT	PTA
JT	Pearson Correlation	1	-0.124
	P-value		0.172
	N	122	122
PTA	Pearson Correlation	-0.124	
	P-value	0.172	
	N	122	122

Table 15: Regression Analysis of Demographic Factors of Job Tenure (JT) and Employee Perspectives Toward Automation (PTA)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	11.092	0.684		16.200	0.000
JT	-0.312	0.227	-0.124	-1.374	0.172

Dependent Variable: PTA

Table 16: ANOVA Analysis of Demographic Factors of Job Tenure (JT) and Employee Perspectives Toward Automation (PTA)

		Sum of Squares	df	Mean Square	F	Sig.
Job Tenure	Between Groups	19.5	3	6.500	0.713	0.546
	Within Groups	1076.073	118	9.119		
	Total	1095.574	121			

The correlation between job tenure (JT) and hospitality employees' perspectives toward automation (PTA) is weak and negative (-0.124). However, $p = 0.172 > 0.05$, so this relationship is not statistically significant. Regression analysis further revealed that job tenure did not significantly predict perspectives toward automation. For 1 unit increase in job tenure, PTA decreases by 0.312 units (B = -0.312), but this change is not significantly since $p = 0.172 > 0.05$. ANOVA results supported these findings, showing no significant differences in PTA scores across job tenure groups, $F(3,118) = 0.713$, $p = 0.546 > 0.05$. Thus, job tenure does not significantly influence hospitality employees' perspectives toward automation.

Based on these results, accepted null sub-hypothesis 3c (SH3c)

4.3 Sensitivity Analysis Comparing Pearson Correlation and Spearman's rho for Ordinal Demographic Variables

The Spearman's rho sensitivity analysis was conducted to assess whether the results remained consistent when ordinal demographic variables were treated as ordinal rather than approximately continuous measures.

Table 17: Sensitivity Analysis Comparing Pearson Correlation and Spearman's rho for Ordinal Demographic Variables

		Readiness	Attitudes	Perspectives	Interpretation
AGE	Pearson Correlation	-0.350	-0.254	-0.191	Consistent
	P-value	0.000	0.005	0.035	
	Spearman's rho	-0.300	-0.241	-0.178	
	P-value	0.000	0.008	0.049	

		Readiness	Attitudes	Perspectives	Interpretation
EDU	Pearson Correlation	0.116	0.042	0.039	Consistent
	P-value	0.203	0.643	0.673	
	Spearman's rho	0.099	0.051	0.050	
	P-value	0.278	0.573	0.587	
JT	Pearson Correlation	-0.178	-0.144	-0.124	Consistent
	P-value	0.050	0.114	0.172	
	Spearman's rho	-0.136	-0.148	-0.105	
	P-value	0.135	0.103	0.251	

The findings demonstrated similar patterns to the Pearson correlation results, supporting the robustness of the original analysis.

4.4 Interview and Observation Results

A total of 10 hospitality employees from different job-position categories (front desk, housekeeping, food and beverage, management, and administration) voluntarily participated in one-on-one interviews. The interviewees were recruited from different hotels in Sibu, Sarawak, as participation in the interview was entirely voluntary. Consequently, the participants represented a diverse range of hotels.

Table 18: Triangulation Table for Comprehensive Training (CT) and Employee Readiness Toward Automation (RTA)

Part A: Relationship Between Hospitality Employees' Comprehensive Training (CT) and Readiness Toward Automation (RTA)				
Question 1: "How do you perceive the benefits of training toward automation?"				
Theme	**Subtheme**	**Selected Quote**	**Observation Data**	**Triangulation Notes**
Benefit of training	Efficiency increase	"Training will improve efficiency of output." "Training increase my performance."	Employees completing tasks more smoothly during practice sessions.	Observation confirms that training improves efficiency.
	Reduced cost and time	"Employees complete tasks more easily. Consequently, training will reduce both cost and time." "Training make me complete task faster."	Observed employees finished tasks quickly.	Training appears to reduce time and may indirectly reduce operational costs.
	Change awareness	"Training leads employees to understand the urgency for change."	Employees are aware of the urgency for change.	Observation supports change awareness reported in interviews.

	Training perception	"Employees' perceptions of training benefits influence their performance."	Not observed	Only reported in interviews; highlights that employees' perceptions influence their performance.
Question 2: "What challenges have you faced while getting ready to use automated systems in your role?"				
Theme	**Subtheme**	**Selected Quote**	**Observation Data**	**Triangulation Notes**
Challenges faced	Compatibility issues	"The team encountered compatibility issues when integrating the updated application." "We had problems when updating the application."	Some minor system interface issues were noticed during tasks, but no major disruptions occurred.	Observation partially confirms compatibility concerns; interviews highlight perceived challenges.
	Problem-solving	"We are struggling because the technicians lack problem-solving skills."	No significant technician problems observed; employees collaboratively solved minor issues.	Observation did not confirm this challenge, likely due to the short observation period;

	Lack of automation	"Our organization lacks automation and still relies heavily on human labor." "We do not use much automation and depend mainly on human labor."	The hotel depends heavily on human labor.	Both interview data and observation show that some hotels have a low level of automation.
	Employee adaptability	"Organizations require employees to adapt quickly to new technologies."	Some employees showed some hesitation while using automated systems	Observation partially confirms low familiarity.
	New training style	"Conventional training methods (classroom-based) are being replaced by e-learning and virtual tools."	Not observed	The observation data showed limited evidence of e-learning.

Table 19: Triangulation Table for Organizational Culture (OC) and Employee Attitudes Toward Automation (ATA)

Part B: Relationship Between Organizational Culture (OC) and Hospitality Employees' Attitudes Toward Automation (ATA)				
Question 3: "How would you describe your organization's culture toward change and innovation."				
Theme	**Subtheme**	**Selected Quote**	**Observation data**	**Triangulation Note**
Organization's culture	Supportive leadership	"We have a supportive leadership culture and always ready to help." "Our leaders are always willing to help."	Supervisors were observed actively guiding employees.	Observation confirms the leaders provide practical support.
	Slow adaptation	"I think my organization has slow adaptation, especially to new technology."	Not observed	Triangulation findings suggest weak support for this theme.
	Communication gap	"The organization does not communicate or discuss AI automation with employees."	No observed	Only the interview indicated a lack of communication regarding AI and automation.

Question 4: "How do you feel about the increasing use of automation in the hospitality industry?"				
Theme	**Subtheme**	**Selected Quote**	**Observation data**	**Triangulation Note**
Attitudes	Customer experience improved	"For sure, automation will improve customers experience." "Automation will make customer experience better."	Staff observed using automated systems to serve customers faster or more accurately.	Observed behavior supports interview claims that automation improves efficiency.
	Efficiency increase	"Automation will definitely increase work efficiency." "Automation will help workers do tasks faster and better."	Employees completed tasks faster or more accurately using automated tools.	
	Cost increasing	"Automation will increase the cost of operation in the hospitality industry."	Not observed	Only supported by interview data; observation did not capture behaviors related to cost concerns.

	Firm resources	"Firm size and financial resources affect the ability to implement AI technologies."	Many hotels are still not using automation technology.	Triangulation confirms that some hotels are not yet using automation technology.
	Automation replacement limit	"I believe automation cannot fully replace humans, especially in emotional interactions and personalized customer service"	Findings suggest automation has limitations in fully replacing humans.	Observations align with interview claims that automation replacement is limited.
	Unemployment	"I am concerned about losing my job." "I think I may be laid off."	Not observed	Only supported by interview data; observation did not capture behaviors indicating fear of unemployment.

Table 20: Triangulation Table for Demographic Factors (DF) and Employee Perspectives Toward Automation (PTA)

Part C: Relationship Between Demographic Factors (DF) and Hospitality Employees' Perspectives Toward Automation (PTA)				
Question 5: "Do you feel employees from different backgrounds view automation differently?"				
Theme	**Subtheme**	**Selected Quote**	**Observation data**	**Triangulation Note**
Employees' background	Role-based acceptance	"Supervisory employees demonstrate a higher level of acceptance of new technology compared to non-supervisory employees."	Supervisory staff were observed using the new system confidently and independently.	Interview and observation data indicates consistency in findings
	Experiential differences	"Employees with different experiences and tenure will have different points of view."	Not observed	Only reported in interviews; highlights perceived influence of experience on attitudes.
	Older employee resistance	"Many elderly employees see automation as a risk."	Observed hesitation among older employees during system use.	Observation partially supports the interview claim.

	Youth technological adaptability	"I think younger employees can adapt to automation more easily." "Young employees find it easier to adapt to automation."	Younger employees appeared confident and engaged with new systems.	Observation confirms interview claim about younger employees' adaptability.
Question 6: "What are your thoughts on the long-term impact of automation on the hospitality industry?"				
Theme	**Subtheme**	**Selected Quote**	**Observation data**	**Triangulation Note**
Long term impact	Increase customer experience	"Automation will enhance customer experience and satisfaction."	Customers showed satisfaction with the service.	Observation supports improved service and efficiency.
	Increased efficiency	"Automation is expected to enhance efficiency." "Automation is expected to make work better."	Employees completed tasks faster using automation.	Observation confirms efficiency gains.
	Budget constraints	"The hotel adopts automation gradually due to high implementation costs."	Some selected departments were seen using the automated system.	Triangulation of interview and observation data shows convergence, showing that automation is implemented gradually

	Automation limits	"Automation does not fully replace human workers, as some customers still require human interaction in service delivery."	Not observed	Reported only in interviews and reflects the view that automation has limitations.
	AI- Human balance	"Hotel should balance AI-human collaboration instead of full automation."	Observed interaction between AI and humans	Observation confirms that human interaction remains essential
	Unemployment risk	"I think automation will cause a risk of unemployment."	Not observed	Only supported by interview data; reflects perceived long-term risks.

While Chapter 4 focused on reporting and interpreting empirical findings. Chapter 5 will summarize the main conclusions of the study. It will also explain the practical implications, suggest ways organizations can improve, and offer ideas for future research.

CHAPTER 5: CONCLUSION

5.1 Discussion / Implications

The study obtained 122 usable responses. According to (Roscoe's Rules, 2023) rule of thumb, sample sizes between 30 and 500 are generally considered appropriate for most behavioral and social science research. Furthermore, sample size adequacy should be evaluated based on the research objectives, analytical techniques, and methodological requirements (Lakens, 2022). Therefore, the obtained sample of 122 respondents was considered sufficient for conducting descriptive statistics, correlation analysis, regression analysis, and hypothesis testing.

The respondents' demographic profile reveals a predominantly younger workforce, as 59.9% of participants fall within the Gen Z and Millennial cohorts (aged 44 and below). The mean age score of 2.27 (SD = 1.03) further supports that the average employee belongs to the Millennial cohort. This indicates that the study's trends are particularly relevant to this demographic. The relatively low representation of Baby Boomers (14.8%) may limit retention of long-term institutional knowledge. This demographic composition may be partly attributed to the nature of frontline hospitality positions, which often require less prior experience and attract younger employees who are at earlier stages of their careers. While this demographic profile reflects the actual workforce structure, it limits insights into older employees' perspectives and long-term institutional knowledge retention.

Moreover, 81.1% of respondents own secondary or diploma level qualifications (mean education level = 1.86), and only 18.8% hold degree or master's-level qualifications. These findings suggest that highly skilled or professionally trained cohorts are underrepresented in the sample. As a result, the findings may primarily reflect perspectives from operational-level staff rather than those involved in strategic or policy-level functions. This demographic pattern may be influenced by local labor market characteristics in Sibu, Sarawak, Malaysia. In recent years, Sibu has experienced outward migration of highly educated individuals to larger urban centers due to the limited availability of high-growth or high-skilled industries. Consequently, the hospitality workforce in Sibu is largely composed of individuals with mid-level educational backgrounds,

including employees who have migrated from surrounding rural areas in search of employment opportunities.

The data show a relatively experienced workforce. While the mean job tenure was 2.76 (SD = 1.2), corresponding approximately to the "6-8 years" category, a substantial proportion of employees (40.2%) have nine or more years of tenure, and 22.1% are relatively new (0-2 years). This indicates a mix of long-tenured veterans and newer staff. The presence of a large, experienced cohort highlights the success of current retention efforts but also the risk of knowledge loss if this group retires. This demographic composition may limit the generalizability of the findings. One probable reason is that Sibu has a less diversified industrial base compared to major urban centers. The scarcity of high-growth or professional industries may encourage employees to remain in stable hospitality jobs. In addition, employees may prioritize job security and a steady income over frequent job changes, particularly in a smaller town where employment options are limited. As a result, many employees may have entered the workforce at an early age and accumulated substantial industry experience over time.

Meanwhile, the sample was distributed across hospitality operational departments. Furthermore, the varying departmental participation rates show that front desk/guest services and management and administration employees were more actively engaged (63.1%), while housekeeping and food and beverages employees showed lower participation (36.9%). These differences may be attributed to several factors. Employees in front desk/guest services and management and administration roles typically have greater exposure to administrative tasks and documentation, making them more familiar and comfortable with participating in research activities. In addition, their work schedules may be less physically demanding, allowing more time and flexibility to complete research questionnaires. In contrast, housekeeping and food and beverages employees often operate under tight schedules, shift-based work, and high physical workloads, which may limit their availability and willingness to participate in research surveys.

5.1.1 Relationship Between Comprehensive Training (CT) and Employees' Readiness, Attitudes, and Perspectives Toward Automation (RAPTA)

The findings provide strong empirical evidence that comprehensive training plays a critical role as a strategic tool for successful automation adoption. Pearson correlation analysis revealed a strong positive relationship between comprehensive training and readiness for automation ($r = 0.723$, $p < 0.05$). Regression analysis further confirmed this relationship, indicating that a one-unit increase in comprehensive training leads to a 0.526-unit increase in hospitality employees' readiness for automation. These results support the justification for allocating resources to training programs. Hospitality organizations that invest in employee training are therefore more likely to experience higher acceptance of automation.

Furthermore, the analysis provides a more nuanced theoretical framework by differentiating the impact of comprehensive training (CT) across three dimensions of employee response (RAPTA). The results show that comprehensive training has the strongest influence on practical readiness ($r = 0.723$), a moderately strong effect on attitudes ($r = 0.628$), and a moderate effect on perspectives ($r = 0.497$). This pattern suggests that training has the strongest and most immediate impact on employee preparedness, while changes in attitudes and perspectives tend to occur later. The findings align with prior research, which emphasizes that workplace training strategies expand following AI adoption and help firms prepare a capable workforce for automation-driven changes (Mühlemann, 2025).

The strong relationship between comprehensive training and employee readiness, attitudes, and perspectives toward automation provides support for the Technology Acceptance Model (TAM). Specifically, TAM proposes that perceived usefulness and perceived ease of use are key determinants of technology acceptance. This study suggests that comprehensive training may enhance employees' perceived usefulness by helping them understand how automation can support work performance and improve operational efficiency. Furthermore, training may increase perceived ease of use by providing employees with practical skills, knowledge, and confidence in operating automated systems.

5.1.2 Relationship Between Organizational Culture (OC) and Hospitality Employees' Readiness, Attitudes, and Perspectives Toward Automation (RAPTA)

Organizational culture (OC) showed moderate to strong correlations with employees' readiness (r = 0.586), attitudes (r = 0.704), and perspectives (r = 0.487) toward automation. This pattern suggests that a positive organizational culture is most strongly associated with employees' attitudes toward automation, while its influence on readiness and perspectives, although statistically significant, is comparatively less pronounced. This study extends the literature by empirically confirming that improvements in organizational culture are positively associated with higher readiness, attitudes, and perspectives toward automation (RAPTA) among hospitality employees. For hospitality decision-makers, these findings carry direct and actionable implications. Rather than focusing solely on the technical aspects of automation implementation, management should prioritize cultivating an organizational culture that promotes open communication, transparency, and job security. The findings align with empirical research (Marocco, S., Bellini, D., Barbieri, B., Presaghi, F., Grossi, E., & Talamo, A., 2025), supporting the view that organizational culture shapes employee attitudes toward technological change. Technology implementation success depends not only on the availability of technological infrastructure but also on the organizational environment in which employees operate.

The findings for Research sub-question 2a (RSQ2a) reveal a strong and positive relationship between organizational culture (OC) and hospitality employees' attitudes toward automation (ATA), as well as their broader readiness, attitudes, and perspectives toward automation (RAPTA). The Pearson correlation analysis shows a robust linear association between OC and ATA ($r = 0.704$, $p < 0.05$). Consistent with this result, the simple linear regression analysis further shows that organizational culture is a significant predictor of employees' attitudes toward automation ($\beta = 0.704$, $t = 10.861$, $p < 0.05$), indicating that improvements in organizational culture are associated with more positive attitudes toward automation among hospitality employees.

These findings support both the Technology-Organization-Environment (TOE) framework (Baker, 2012) and Schein's Model of Organizational Culture. The TOE framework explains that

successful technology adoption depends not only on the technology itself but also on organizational factors, such as management support and organizational readiness. In this study, the positive relationship between organizational culture and employees' responses toward automation suggests that a supportive organizational environment can help employees become more prepared for and accepting of automation.

Schein's Model of Organizational Culture provides a deeper explanation of how organizational culture influences employees' thoughts and behaviors during technological change. Organizations that encourage communication, provide training support, and demonstrate concern for employees' job security may help employees develop more positive attitudes toward automation. Therefore, organizational culture is not simply a background condition; it actively shapes how employees understand, accept, and adapt to automation technologies.

5.1.3 Relationship Between Demographic Factors (Age, Education, and Job Tenure) and Hospitality Employees' Readiness, Attitudes, and Perspectives Toward Automation (RAPTA)

The multiple regression analysis for RQ3 provided a partial basis for rejecting the null hypothesis H3 (H3), which stated that there is no significant relationship between demographic factors and readiness, attitudes, and perspectives toward automation (RAPTA). The analysis revealed that age is a significant negative predictor of readiness toward automation (RTA) ($\beta = -0.373$, $p < 0.05$) and attitudes toward automation (ATA) ($\beta = -0.258$, $p = 0.019$), but not perspectives toward automation (PTA) ($\beta = -0.180$, $p = 0.106$). The findings suggest that age plays a role in shaping employees' readiness and attitudes toward automation, with older employees tending to report lower levels of readiness and less favorable attitudes compared with younger employees. However, age did not significantly predict perspectives toward automation, indicating that employees' broader views and expectations regarding automation may remain positive regardless of age. This suggests that although older employees may experience challenges in adapting to automation or perceive lower usefulness and confidence in using new technologies, they may still recognize the potential benefits and value of automation in the workplace.

In contrast, education level and job tenure showed no significant effects across all RAPTA dimensions ($p > 0.05$). These findings differ from prior literature suggesting that employees with higher education levels or longer work experience may demonstrate greater confidence when facing technological change. One possible explanation is that automation technologies in the hospitality sector are becoming increasingly user-friendly and standardized, thereby reducing the influence of formal education or accumulated job experience on employees' responses toward automation. These findings suggest that hospitality decision makers should develop age-sensitive training and support programs to enhance employees' adaptation to automation. Organizations should therefore focus on fostering a culture of continuous learning rather than relying on educational background or years of service as indicators of employees' adaptability.

Relationship Between Age (AGE) and Employees' Perspectives Toward Automation (PTA)

Although the multiple linear regression analysis showed that demographic factors as a group (Age, education level, and job tenure) did not significantly predict employees' perspectives toward automation (PTA), both Pearson correlation and simple linear regression analyses for RSQ3a indicated that age has a statistically significant but weak influence on hospitality employees' perspectives toward automation. The significant correlation coefficient ($r = -0.191$, $p = 0.035$) suggests that although relationship is not strong, age remains a relevant demographic factor in shaping employees' perspectives on automation. As age increases, employees' perspectives toward automation (PTA) decrease slightly. The regression results further support this conclusion ($B = -0.559$, $SE = 0.262$, $\beta = -0.191$, $t = -2.132$, $p = 0.035$), showing that for every one-unit increase in age, the PTA score decreases by 0.559 units. This suggests that older employees tend to hold fewer positive perspectives toward automation.

This apparent discrepancy can be explained by methodological differences. When age was examined independently, it showed a weak but statistically significant association with employees' perspectives toward automation (PTA). However, when education level and job tenure were included simultaneously in the multiple regression model, the unique contribution of age diminished and became non-significant. This suggests that the relationship between age and PTA may overlap with other demographic characteristics, such as education level and job tenure.

Furthermore, the weak effect size indicates that age alone explains only a small proportion of the variation in employees' perspectives. The stronger relationships observed for comprehensive training and organizational culture suggest that organizational factors may play a more influential role than demographic characteristics in shaping employees' perspectives toward automation. In addition, unmeasured factors, such as employees' job roles or their level of exposure to automation technologies, may also have contributed to the observed relationship, although these variables were not examined in the present study. Therefore, although the effect size was modest, the rejection of null sub-hypothesis SH3a indicates that age remains a statistically significant factor when considered independently, but its influence should be interpreted alongside other demographic and organizational factors.

The findings align with hospitality research (Park, M., Andress, D. A., Chang, J. H., Lee, A., & Lee, C. H., 2025), which indicates that employee perceptions and attitudes toward service robots and technology vary by age, with younger generations showing more positive acceptance, while older individuals require more evidence before trusting such technology.

Relationship Between Education (EDU) and Employees' Perspectives Toward Automation (PTA)

The result of the ANOVA for research RSQ3b reveals no statistically significant differences between education (EDU) and hospitality employees' perspectives toward automation (PTA). The F-value of 0.301 and p-value of 0.825 > 0.05, indicate that PTA does not differ significantly among employees with varying educational backgrounds, such as secondary, diploma, degree, or master's level. Thus, the finding supports the acceptance of the null hypothesis 3b (H3b). From a practical standpoint, it suggests that when hospitality decision makers design the implementation of new automation technologies, they should avoid segmenting employees based solely on their educational background. Instead, organizations may benefit from focusing on other factors, such as comprehensive training and organizational culture, which could more directly influence employees' acceptance of automation.

Relationship Between Job Tenure (JT) and Employees' Perspectives Toward Automation (PTA)

The findings for Research Sub-question RSQ3c indicate that job tenure does not have a statistically significant impact on hospitality employees' perspectives toward automation. Pearson correlation analysis revealed a weak and non-significant relationship between job tenure and perspectives toward automation ($r = -0.124$, $p > 0.05$), suggesting that employees with longer job tenure are neither significantly more nor less likely to hold particular views on automation compared to newer employees. These findings were consistently supported by simple linear regression analysis, which showed that a one-unit increase in job tenure predicted only a modest 0.312-unit decrease in PTA scores, with job tenure explaining a negligible proportion of variance in employees' perspectives. Furthermore, one-way ANOVA confirmed no statistically significant differences in PTA scores across job tenure groups, $F(3,118) = 0.713$, $p = 0.546 > 0.05$.

This finding contrasts with the initial assumption that employees with longer job tenure would have different views toward automation compared to newer employees, due to their familiarity with existing work processes or perceived job security. One possible explanation is that hospitality work is highly standardized. Clear operating procedures and frequent system updates mean that employees do not rely heavily on experience alone.

The findings can be interpreted through the Unified Theory of Acceptance and Use of Technology (UTAUT), which proposes that demographic characteristics, such as age and experience, may moderate individuals' technology acceptance behaviors (Venkatesh, 2003). In this study, age was found to significantly influence employees' readiness and attitudes toward automation, supporting the UTAUT proposition that demographic factors can shape employees' responses to technological change. However, education level and job tenure did not significantly predict employees' perspectives toward automation, suggesting that demographic characteristics alone may not be sufficient to explain variations in technology-related perceptions.

These findings further extend the UTAUT framework by highlighting that the influence of demographic moderators may vary depending on the occupational and industry context. While

(Venkatesh, 2003) identified age and experience as important moderators of technology acceptance, their effects may become less prominent in some industries such as hospitality, where employees' technology adoption is also shaped by interpersonal service requirements. Therefore, employees' responses toward automation may be shaped not only by individual demographic characteristics but also by their perceptions of the practical value of automation, including its ability to improve operational efficiency and support job responsibilities within a highly personalized hospitality environment. Therefore, hospitality decision-makers should consider contextual factors, including training support, organizational culture, and perceived organizational readiness.

5.1.4 Interview and Observation Results

The qualitative phase, involving one-on-one interviews and non-participant observations, offers deeper insights into the previously analyzed quantitative findings. While the quantitative results identified significant relationships, qualitative triangulation explains how these relationships operate in daily practices within the Sibu hospitality sector.

Part A: Relationship Between Hospitality Employees' Comprehensive Training (CT) and Readiness Toward Automation (RTA)

Interviewees consistently highlighted *"increased efficiency"* and *"reduced cost and time"* as the hallmark benefits of training. These perceptions were largely supported by observational data, which showed smoother task completion and faster workflows. Triangulation results indicated that employees who completed organizational training programs were able to handle the hotel's updated automation systems more efficiently. Consequently, their skills improved, and they completed tasks faster.

The findings also highlighted the importance of training in fostering awareness of organizational change. Interviewees remarked that *"training leads employees to understand the urgency for change.*" This finding suggests that comprehensive training can facilitate employees' psychological readiness for automation. A notable finding, "*employees' perceptions of training*

benefits influence their performance," was reported only in the interviews and was not directly observed. Nevertheless, it highlights the importance of how employees perceive the training they receive in shaping their performance and readiness toward automation.

Besides, the interview findings revealed several challenges faced by hospitality employees in their readiness for automated systems. One of the most often mentioned challenges was "*compatibility issues*" and "*a lack of problem-solving skills*." Observational data partially support these findings, as minor system interface issues were observed during work tasks. However, the findings also highlighted the limited adoption of automation in some hotels. Some interviewees commented, "*Our organization lacks automation and still relies heavily on human labor*." This perception is supported by observational evidence in some hotels, where many operational tasks still depend on manual labor.

Employee adaptability emerged as another important challenge, as interviewees noted that "*organizations require employees to adapt quickly to new technologies.*" Furthermore, some interviewees explained that "*conventional training methods (classroom-based) are being replaced by e-learning and virtual tools.*" Observations also showed that employees were gradually adapting to these new training formats, supporting the interview findings. This suggests that although digital learning can be difficult at first, employees are slowly getting used to modern training methods that support automation.

This finding aligns with the Technology Acceptance Model (TAM) proposed by Davis (1989), which suggests that perceived usefulness and perceived ease of use are key determinants of users' acceptance of technology. Overall, the findings show that training plays a key role in employees' readiness toward automation. However, challenges still exist. Despite initial difficulties, employees are gradually adapting to new systems. Therefore, continuous guidance and reassurance are essential during periods of technological change.

Part B: Relationship Between Organizational Culture (OC) and Hospitality Employees' Attitudes Toward Automation (ATA)

Organizational culture (OC) significantly influences employees' attitudes toward automation (ATA). The findings revealed mixed perceptions regarding organizational culture. A positive aspect highlighted by the interviewees was that "*we have a supportive leadership culture and are always ready to help*." This perception was supported by observational data, where leaders were observed actively guiding employees.

Besides, the interview findings revealed that hospitality employees generally held mixed attitudes toward the increasing use of automation in the hospitality industry. Several interviewees believed that automated technologies "*increase efficiency*," thereby "*improving customer experience*." This perception was supported by observational data, which showed employees utilizing automated systems to serve customers more efficiently.

Despite these positive perceptions, a particularly notable finding was the contrasting perceptions of organizational culture among employees. Some interviewees commented that "I think my organization is slow to adapt, especially to new technology." Others reported limited communication, stating that "the organization does not communicate or discuss AI automation with employees." This issue was not directly observed during the observation period.

However, some interviewees expressed concerns about the financial implications of automation. They believed that implementing automation technologies could "increase operational costs." This concern was not evident in the observational data, as cost-related issues could not be directly observed.

Several interviewees highlighted the importance of "*firm resources*," particularly firm size and financial capability, in influencing the implementation of automation systems. This perception was supported by observations indicating that some hotels in Sibu had not yet adopted automation technologies, suggesting limitations in organizational resources that may hinder automation adoption.

Furthermore, interviewees generally believed that "*automation has limitations and cannot fully replace human workers*". They emphasized that hospitality services require emotional interaction, which is difficult for automated systems to replicate. Despite this, some interviewees also expressed concerns regarding potential "*unemployment*" resulting from increased automation. Observational data only supported the view that many customer interactions still relied heavily on human employees, despite the presence of automated systems in some hotels.

The variation in employees' perceptions may reflect differences in organizational size, resources, and stages of automation adoption among hotels in Sibu, Sarawak. Larger or more technologically advanced hotels may have established communication channels and structured approaches to technology implementation. In contrast, smaller or less-resourced hotels may still be in the preliminary stages of automation implementation and may not yet have formal channels of communication regarding AI and automation initiatives.

Overall, the findings indicate that hospitality employees generally recognize the benefits of automation while simultaneously expressing concerns about implementation costs, the full replacement of human workers, and job security.

Part C: Relationship Between Demographic Factors (DF) and Hospitality Employees' Perspectives Toward Automation (PTA)

Demographic factors (DF) distinctly influence perspectives toward automation (PTA), with interviewees emphasizing that "*supervisory employees demonstrate a higher level of acceptance of new technology compared to non-supervisory employees*." This perception was supported by observational data.

Another theme identified was that "*employees with different levels of experience and tenure tend to have different points of view*." Several interviewees also reported that older employees tend to exhibit greater resistance to technological change, with one participant stating that "*many elderly employees see automation as a risk*." In contrast, "*younger employees were generally perceived*

as more adaptable to automation." These perceptions were partially supported by observational data, where some older employees showed hesitation when using automated systems, while younger employees appeared more confident and comfortable interacting with the technology.

Regarding the long-term impact of automation on the hospitality industry, the interview findings revealed several key themes. A dominant view among interviewees was that "*automation will enhance customer experience and satisfaction*," while other interviewees emphasized that "*automation is expected to enhance efficiency*."

However, interviewees also noted that "*hotels adopt automation gradually due to high implementation costs*." Observational evidence supported this finding, as only some hotels in Sibu were utilizing automated systems, and their use was limited to selected departments.

In addition, some interviewees emphasized that "*automation does not fully replace human workers, as some guests will still require human interaction in service delivery*," and that "*hotels should balance AI-human collaboration instead of full automation*." This suggests that hospitality employees in Sibu believe human interaction remains essential in the long-term impact of automation on the hospitality industry.

Overall, the findings suggest that demographic factors, such as age, education level, and job tenure, may affect employees' perspectives toward automation. However, these effects are also influenced by organizational factors and the workplace conditions. This interpretation aligns with the Unified Theory of Acceptance and Use of Technology (UTAUT), which proposes that demographic characteristics, such as age and experience, can moderate individuals' technology acceptance behaviors (Venkatesh, 2003). Nevertheless, the findings indicate that demographic characteristics alone may not fully explain variations in employees' perspectives toward automation. Therefore, demographic factors may function as contextual moderators rather than direct determinants of automation acceptance.

5.2 Evaluation: Strengths/ Limitations

Strengths

One of the key strengths of this study is that it focuses on mid-tier hotels in Sibu, Sarawak, Malaysia. This focus helps provide insights that are relevant only to local patterns. The research reflects the real working conditions of the Sibu hospitality sector, shaped by a smaller labor market and local employment patterns. For example. the findings show a unique workforce profile, in which employees are generally younger but have long job tenure (nine years or more). This finding challenges the common belief that younger employees are more likely to change jobs. Instead, many younger workers also stay for prolonged periods.

Another key strength of this study lies in its ability to provide nuanced insights into the factors that influence hospitality employees' readiness, attitudes, and perspectives toward automation (RAPTA). The findings clearly demonstrate that comprehensive training and a supportive organizational culture have a stronger impact than demographic characteristics such as education level or job tenure. This finding challenges the pre-existing assumption that employees with higher education adapt more easily to automation, while employees with longer job tenure are less likely to adapt to innovative technologies. While age showed a weak but statistically significant influence, education and job tenure were largely non-significant, indicating that demographic variables alone are insufficient to explain employees' attitudes toward technological change in the hospitality sector. The study gives insights specific to Sibu's hospitality sector, showing its practical value for decision makers.

The study uses a mixed-methods approach, combining qualitative insights from interviews and observations with quantitative analysis using Pearson correlation, regression analysis, and ANOVA. The qualitative data were analyzed using NVivo, allowing systematic identification of key themes and patterns. This combination of methods strengthens the validity of the findings through methodological triangulation. Furthermore, the study incorporated pilot testing and reliability analysis using Cronbach's Alpha to evaluate the internal consistency of the research instruments before the main data collection. In addition, a sensitivity analysis was conducted by comparing Pearson correlation results with Spearman's rho correlation for ordinal demographic

variables. This additional analysis enhanced the robustness of the findings by examining whether the relationships remained consistent when alternative statistical approaches were applied. Therefore, the integration of mixed methods, reliability assessment, and sensitivity analysis improves the credibility of the study.

Furthermore, the study demonstrated theoretical robustness through well-established frameworks, such as the Technology Acceptance Model (TAM), Technology-Organization-Environment (TOE), Unified Theory of Acceptance and Use of Technology (UTAUT), and Schein's Model of Organizational Culture. This multi-theoretical approach provides a more holistic explanation of automation adoption within the hospitality context, where successful implementation depends not only on technological capabilities but also on employee acceptance and organizational support.

Limitation

Despite its strengths, this study is subject to several limitations that should be considered when interpreting the findings. First, the study focuses on Sibu's mid-tier hotel sector. The hotels researched are limited to 3- and 4-star hotels categories only. Therefore, the findings may not represent the views of most hotels in Malaysia or in other parts of the world. Additionally, the results may be influenced by local culture, labor market structure, and the level of technological maturity.

A methodological limitation should be acknowledged when interpreting the demographic regression results. The demographic variables, including age, education level, and job tenure, were measured as ordinal categories but were coded numerically and treated as continuous predictors in the regression analysis. This approach assumes equal distances between categories, which may not fully reflect the actual differences among demographic groups. Therefore, although the sensitivity analysis comparing Pearson correlation and Spearman's rho for ordinal demographic variables demonstrated consistent results, the findings should still be interpreted with caution.

Another limitation is the variation in the level of automation adoption among the selected hotels in Sibu, Sarawak. The participating hotels were at dissimilar stages of technological development, with some hotels implementing advanced automated systems, while others still relied heavily on manual processes. This inconsistency in automation levels may have influenced employees' experiences and perspectives toward automation. Employees working in technologically advanced hotels may have contributed to more positive attitudes and higher levels of readiness. In contrast, employees in less automated hotels may have different perceptions of the benefits of automation.

A further limitation of this study is that it focuses exclusively on employees' readiness, attitudes, and perspectives toward automation. While employees are key stakeholders in the successful implementation of automation technologies, the adoption of automation in the hospitality industry cannot be fully understood from the employee perspective alone. Customers also play a critical role in determining the success of automation. Since this study did not examine customers' perceptions, the findings provide only a partial understanding of automation adoption within the hotel sector. Future research should adopt a more comprehensive approach by incorporating both employee and customer perspectives to better evaluate the overall acceptance and effectiveness of automation technologies in hospitality operations.

Furthermore, the observational component of this study was limited to short-term (a few hours), task-based settings, focusing primarily on front-line hospitality services. As a result, certain concerns raised during interviews were not directly observable. For example, some employees expressed worries about employment insecurity, potential role replacement, and long-term career prospects. These concerns are inherently internal and subjective, making them difficult to capture. Additionally, the short duration of observation may have restricted the ability to detect patterns of behavior that emerge over longer periods.

5.3 Recommendations for improvement

Practical recommendations for the hospitality industry

Based on the empirical findings from the quantitative survey, supported by interview and observational data, several practical and strategic recommendations are proposed. the recommendations are structured into three implementation phases: the beginning phase, implementation phase, and sustaining phase. This phased approach enables hospitality organizations, particularly small and medium-sized hotels in Sibu, Sarawak, to gradually prepare employees, integrate automation technologies effectively, and maintain long-term workforce adaptability.

Phase 1: Beginning Phase - Preparing Employees and Organizational Readiness

Timeline: Before automation implementation (0-6 months)

Priority: Highest

Cost level: Low to Moderate

Objective: To enhance employee capabilities and strengthen organizational support.

Strategic investment in comprehensive training

A strong positive correlation was shown between comprehensive training (CT) and readiness toward automation (RTA) ($r = 0.723$), confirming that training is a highly effective lever for successful automation adoption. As some employees continue to struggle with innovative technologies, hospitality decision-makers are recommended to implement a multi-phase, contextualized training model. The training program should be role-specific and task-oriented, ensuring that employees understand how automation technologies directly support their daily responsibilities. For example, training for restaurant service staff using self-ordering systems should focus on system supervision, customer assistance, and service recovery procedures, rather than solely on technical system operation. Similarly, training for front desk employees adopting automated check-in technologies should emphasize guest interaction management and personalized service delivery supported by digital tools. This model should incorporate flexible small-group or in-person training sessions that allow for repeated practice and personalized instruction, thereby reducing uncertainty and enhancing employee confidence.

Cultivating a supportive organizational culture

A strong positive relationship was identified between organizational culture (OC) and attitudes toward automation (ATA) ($r = 0.704$, $p < 0.05$), emphasizing the necessity of establishing a supportive organizational culture, particularly during periods of technological transition. The interview findings revealed concerns regarding increased operational costs and potential unemployment risks. These cognitive fears represent key cultural barriers to automation acceptance. To address these issues, hospitality leadership and decision-makers must clearly communicate the purpose and objectives of automation initiatives. A supportive organizational culture is essential for mitigating fears of job loss and fostering positive attitudes toward automation. Furthermore, hospitality organizations can show their commitment to employees by focusing on internal redeployment and upskilling for new roles, rather than reducing staff numbers. Where workforce reduction is unavoidable, organizations should ensure that termination processes comply fully with labor regulations and that affected employees are informed well in advance and provided with fair and transparent compensation. Such practices reinforce organizational trust, reduce employee anxiety, and support a more positive cultural climate during automation-driven transitions.

Phase 2: Implementation Phase - Integrating Automation into Daily Operations

Timeline: During automation adoption (6-12 months)

Priority: High

Cost level: Moderate

Objective: To ensure smooth technology integration while minimizing operational disruption.

Enhancing Automation Integration Through Pilot Testing

Hospitality decision-makers are encouraged to implement pilot testing when introducing new automated daily work routines. By using realistic simulation environments, such as mock-up automated kiosks or test service counters, employees can practice and familiarize themselves with automated tasks without the pressure of live service delivery. Pilot testing allows employees to build confidence, identify operational challenges, and provide feedback prior to full-scale implementation, thereby reducing errors, minimizing service disruptions, and supporting smoother transitions to automation-enhanced work environments.

Strategic Role Redesign for Human-Automation Integration

The interview findings indicated that some employees have already demonstrated readiness to adapt to new working environments. Since automation represents a technical upgrade, hospitality decision makers are recommended to redesign the work environment and reallocate job roles in alignment with the specific automation technologies implemented. Role redesign should be accompanied by clear skill pathways and career development opportunities to reduce employee anxiety and resistance. For example, restaurant service staff working alongside self-ordering systems may be redesignated as restaurant system controllers, with job responsibilities reallocated toward customer engagement, system monitoring, and service recovery. Similarly, front desk staff can transition from manual check-in tasks to guest experience coordinators, focusing on personalized service, problem resolution, and the management of customer feedback. With a clear understanding of job responsibilities, hospitality employees can adapt to new working environments with higher performance and confidence, consequently facilitating smoother automation integration during technological transitions.

Phase 3: Sustaining Phase - Developing Long-term Capability and Adaptability

Timeline: Continuous improvement (12 months onwards)
Priority: Continuous
Cost level: Moderate to High
Objective: To maintain employee capability and ensure sustainable automation adoption.

Enhancing Long-Term Critical Thinking Skills and Technical Competencies

The study's interview data highlighted a perceived lack of technical skills and problem-solving capabilities among technicians. Thus, training initiatives should address not only technical skills but also problem-solving ability, adaptability, and digital confidence. For example, hospitality organizations can collaborate with automation system suppliers to provide long-term and consistent training on system maintenance and real-time problem resolution, thereby enhancing employees' technical competencies. Guided practice sessions can reduce uncertainty and enhance perceived ease of use, consistent with the Technology Acceptance Model (TAM), which

emphasizes that users are more likely to accept and adopt innovative technologies when they perceive them as easy to use and useful in supporting job performance.

Recommendations for future researchers

(a) Expansion of Geographic Scope and Sample Size

While the current study has provided foundational insights into the factors influencing hospitality employees' readiness, attitudes, and perspectives toward automation, it was based on a sample of 122 employees working in mid-tier hotels in Sibu, Sarawak, Malaysia. Consequently, the findings may reflect the socio-economic conditions and organizational culture of a small-town hospitality environment in East Malaysia. Future researchers are encouraged to expand both the geographical coverage and sample size by including participants from multiple cities, regions, or countries, as well as different hospitality segments such as luxury hotels, resort properties, and international hotel chains. This approach would enable comparative analyses across diverse hospitality contexts and provide a more comprehensive understanding of how comprehensive training, organizational culture, and demographic factors influence employees' readiness, attitudes, and perspectives toward automation.

(b) Longitudinal Research Design

The study utilized a cross-sectional design, which captures data at a single point in time (2025-2026), reflecting post-implementation observations of automation adoption in Sibu, Sarawak, Malaysia. While this design provides useful insights, it does not capture changes over time, especially employee feedback after implementation. Future researchers could adopt a longitudinal research design to track how employees' acceptance of automation evolves across various stages of automation implementation. For example, data could be collected before automation implementation and after full integration to examine changes in employees' perceptions of automated systems over time. Such a design could explore whether initial fears or resistance diminish after repeated exposure to automation technologies, and how comprehensive training or organizational culture initiatives affect long-term adaptation.

(c) Investigating Organizational Performance Outcomes

While this study focused primarily on employees' readiness, attitudes, and perspectives toward automation, the downstream impacts of automation adoption on organizational performance metrics, such as cost savings, revenue growth, operational efficiency, and customer satisfaction, are equally important. The successful integration of automation technologies not only depends on employee acceptance but also directly affects key organizational outcomes. Thus, future research should examine how employees' acceptance and readiness for automation translate into tangible organizational benefits and identify the conditions under which automation adoption maximizes performance outcomes.

(d) Further Investigation of Age Differences in Automation Acceptance

Although this study found that age significantly influenced employees' readiness and attitudes toward automation, it did not significantly predict their perspectives toward automation. This suggests that while older employees may be less prepared or less confident in adopting automation technologies, they may still recognize the potential benefits and value of automation in the hospitality industry. Future researchers are encouraged to further investigate this apparent age-related paradox.

5.4 Future research question

Although this study provides strong evidence on how training, organizational culture, and demographic factors affect hospitality employees' readiness, attitudes, and perspectives toward automation, some limitations and emerging research questions suggest directions for future researchers.

(a) Expanding the geographical

The study focuses on Sibu's mid-tier hotel sector, which may be limited by the local culture, labor market structure, and level of technological maturity. Future researchers should expand the geographic scope to include major tourism hubs such as Thailand, China, Japan, or Singapore, where hospitality operations are more technologically advanced. In addition, international hotel chains in these regions often follow standardized global operating procedures. Future research

may examine how the drivers of automation readiness differ between mid-tier hotels and international hotel chains.

Question: "*How do the drivers of automation readiness differ between mid-tier hotels in smaller cities and international hotel chains in major tourism hubs?"*

"*How do differences in labor market structures influence automation adoption strategies between mid-tier local hotels and international hotel chains in technologically advanced tourism markets?"*

(b) Longitudinal research design

The study captured employees' perceptions at a single point in time (pre-implementation only). Future research should adopt a longitudinal design to track changes over extended periods. Such longitudinal studies are recommended to examine the pre-implementation, implementation, and post-implementation phases of automation adoption. This would allow researchers to assess how the effects of training effectiveness, organizational culture, and demographic factors fluctuate over time.

Question: "*How do hospitality employees' attitudes toward automation change over the post-implementation period?"*

"*How does the effectiveness of training programs influence employees' automation readiness over the pre-implementation, implementation, and post-implementation phases?"*

(c) Age paradox

The study showed that age has a statistically significant but weak influence on hospitality employees' perspectives toward automation. This is a fascinating nuance that requires deeper investigation into the age-related paradox. Future research is recommended to explore the cognitive and emotional obstacles that prevent older hospitality employees from turning neutral attitudes into active readiness for automation. Researchers could employ Qualitative Comparative Analysis (QCA) to examine which combinations of factors contribute to technology resistance. For example, configurations such as high age + low education versus high age + high training, or high age + low education versus high age + high training + high organizational support, may lead to differing levels of technology resistance.

Question: "*What cognitive and emotional barriers hinder older employees' readiness for automation?"*

"*How do training and organizational support moderate the relationship between age and technology resistance?"*

(d) Assessing Organizational Performance

The strategic value of automation ultimately lies in its measurable impact on financial and operational outcomes. Equally important is understanding how employee acceptance translates into tangible organizational benefits, including cost reduction, revenue growth, operational efficiency, and customer satisfaction. Future research should examine how employee acceptance of automation translates into measurable organizational outcomes.

Question: "*What differences exist in organizational performance before and after the implementation of automation systems?"*

"*What is the impact of employee acceptance of automation on key performance metrics such as cost savings, revenue growth, operational efficiency, and customer satisfaction?"*

5.5 Conclusion

In recent years, advances in areas such as machine learning, generative AI, robotics, and data analytics have accelerated dramatically. Technologies that once took years to develop and commercialize can now evolve within weeks sometimes even days. The current wave of industrial transformation driven by artificial intelligence (AI) will be stronger than the first three industrial revolutions combined. These innovative technologies will not only accelerate economic growth but also reshape many existing social and workplace structures. Based on current trends, most repetitive physical and cognitive tasks are likely to be replaced first by artificial intelligence and automation.

While these technological advancements are transforming the nature of work, their successful adoption ultimately depends on how organizations and employees respond to these changes. The results of the research show that comprehensive training and organizational culture are the two

most critical determinants of employees' readiness, attitudes, and perspectives toward automation. Therefore, investment in comprehensive and continuous training should be prioritized as a strategic imperative. Demographic factors exert a comparatively weaker influence. Companies should consider age differences when managing technological change. While training can help everyone, older employees may need extra support and time to adjust. Education level and job tenure do not significantly predict employees' acceptance of automation. This indicates that technology acceptance is becoming increasingly standardized across different workforce groups. Ultimately, the success of automation initiatives in the hospitality sector depends far more on organizational strategies and human resource practices than on employees' inherent demographic characteristics.

The qualitative findings further support the quantitative results by showing how these relationships appear in practice. Training was shown not only to improve operational efficiency but also to foster psychological readiness for change among hospitality employees. However, organizational culture varied across hotels. Employees generally recognized the benefits of automation while simultaneously expressing concerns about implementation costs, job insecurity, and the limitations of automation in replacing human interaction. Younger cohorts and supervisory personnel inherently exhibit greater technological agility. Conversely, older frontline operational staff display pronounced hesitation.

From a theoretical perspective, this study extends the Technology Acceptance Model (TAM), the Technology–Organization–Environment (TOE) framework, the Unified Theory of Acceptance and Use of Technology (UTAUT), and Schein's Model of Organizational Culture by enhancing the understanding of employees' responses toward automation. While these theories emphasize the importance of perceived usefulness, facilitating conditions, organizational support, and individual factors in technology adoption, this study further demonstrates that employee training and organizational culture serve as critical mechanisms that strengthen employees' readiness and attitudes toward automation.

Ultimately, this study provides actionable evidence that the 'human factor' remains the most critical determinant of successful automation adoption. It highlights that while AI and

automation may redefine the boundaries of what is possible, it cannot replace the human touch that makes guests feel valued and welcomed. As Sibu navigates this transition, the success of its hospitality sector will be decided not only by the sophistication of its algorithms, but also by the resilience and adaptability of its employees.

By investing in comprehensive employee training and encouraging openness toward digital technologies, hospitality organizations in Sibu can transform potential resistance into a competitive advantage. By combining technological innovation with authentic local values, Sibu's hospitality sector can become "digital-first" while remaining firmly "human-centric." Technology should be adopted as a strategic foundation to improve efficiency and streamline operations. However, it must not replace the personal warmth and cultural identity that define the local hospitality experience. Instead, AI and automation should function as supportive infrastructure that enables employees to focus more on meaningful customer interactions.

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APPENDICES

Appendix A: Informed consent



Consent Form

Topic: The Influence of Comprehensive Training, Organizational Culture, and Demographic Factors on Hospitality Employees' Readiness, Attitudes, and Perspectives Toward Automation

I confirm that I am over 18 years of age, currently employed in the hospitality industry in Sibu, Sarawak, Malaysia, and wish to participate in a research study being conducted by Ho Tze Ching through the European International University.

The purpose of this action research is to investigate The Influence of Comprehensive Training, Organizational Culture, and Demographic Factors on Hospitality Employees' Readiness, Attitudes, and Perspectives Toward Automation.

The data collection procedures involve participant completion of a questionnaire that includes Likert scale items and some interview questions. It is estimated that the packet should take no more than 5 minutes to complete.

All information collected in this study is confidential. I understand that the data I provide will be used for reporting and presentation, and that my name will not be used. This consent form will be stored separately to protect my identity. There are no known risks associated with this study.

Yet I am aware that I am free to ask questions or decline my participation at any time.

If you have any questions about your rights as a research participant, or would like further information about the research, please contact: +***601119382688 (Ho Tze Ching)***

Name of Participant: _____

Signature of Participant: _____

Date: _____

Email Address: _____

Appendix B: Questionnaire form (English version and Bahasa Malaysia version)

English version (Goggle form)

RESEARCH TOPIC: THE INFLUENCE OF COMPREHENSIVE TRAINING, ORGANIZATIONAL CULTURE, AND DEMOGRAPHIC FACTORS ON HOSPITALITY EMPLOYEES' READINESS, ATTITUDES AND PERSPECTIVES TOWARD AUTOMATION

Part A: The relationship between hospitality employees' comprehensive training (CT) and readiness toward automation (RTA)

Employees' training on automation (Independent variable)

1. The organizational provides training to help employees adapt to automation.
   - o Strongly Disagree
   - o Disagree
   - o Neutral
   - o Agree
   - o Strongly Agree

2. I have received training adequately for working with automated systems.
   - o Strongly Disagree
   - o Disagree
   - o Neutral
   - o Agree
   - o Strongly Agree

3. I am satisfied with the training I received on automation.
   - o Strongly Disagree
   - o Disagree
   - o Neutral
   - o Agree
   - o Strongly Agree

4. I expect to receive more training on automation in the future.

- o Strongly Disagree
- o Disagree
- o Neutral
- o Agree
- o Strongly Agree

Employees' readiness for automation (dependent variable)

5. The organization's training programs help me understand how to use automated system.

- o Strongly Disagree
- o Disagree
- o Neutral
- o Agree
- o Strongly Agree

6. I am ready to work with automated system.

- o Strongly Disagree
- o Disagree
- o Neutral
- o Agree
- o Strongly Agree

7. I am ready to adapt change in my organization.

- o Strongly Disagree
- o Disagree
- o Neutral
- o Agree
- o Strongly Agree

Part B: The relationship between organizational culture (OC) and hospitality employees' attitudes toward automation (ATA).

Organizational culture and automation (Independent variable)

8. My organization share information about upcoming automation.

- o Strongly Disagree
- o Disagree
- o Neutral
- o Agree
- o Strongly Agree

9. Employees are involved in decisions regarding automation within the organization.

- o Strongly Disagree
- o Disagree
- o Neutral
- o Agree
- o Strongly Agree

10. The organization provides support to help me adapt to automation.

- o Strongly Disagree
- o Disagree
- o Neutral
- o Agree
- o Strongly Agree

11. The organization has communicated to ensuring job security.

- o Strongly Disagree
- o Disagree
- o Neutral
- o Agree
- o Strongly Agree

Employees' attitudes toward automation (dependent variable)

12. I trust that the organization supports employees during automation change.

- o Strongly Disagree
- o Disagree
- o Neutral
- o Agree
- o Strongly Agree

13. I am open to automation because the organization provides continues support.

- o Strongly Disagree
- o Disagree
- o Neutral
- o Agree
- o Strongly Agree

14. I feel secure in my job despite the growing use of automation.

- o Strongly Disagree
- o Disagree
- o Neutral
- o Agree
- o Strongly Agree

Part C: The relationship among the demographic factors (DF) and hospitality employees' perspectives toward automation (PTA)

Employees' demographic factors (Independent variable)

15. In what year were you born?

- o 1997 to later
- o 1981 to 1996
- o 1965 to 1980
- o 1946 to 1964

16. What is your education level?

- o Associated Level
- o Bachelor's Level
- o Master's Level
- o Doctoral Level

17. How long have you worked at hospitality field?

- o 0 - 2 years
- o 3 - 5 years
- o 6 - 8 years
- o 9+ years

18. What is your position category?

- o Front Desk/Guest Services
- o Housekeeping
- o Food & Beverages
- o Management & Administration

Employees' perspectives toward automation (dependent variable)

19. I believe automation will improve the overall efficiency of my workplace.

- o Strongly Disagree
- o Disagree
- o Neutral
- o Agree
- o Strongly Agree

20. I think automation can enhance the guest experience.

- o Strongly Disagree
- o Disagree
- o Neutral
- o Agree
- o Strongly Agree

21. I believe automation will create new roles rather than replace existing ones.

- o Strongly Disagree
- o Disagree
- o Neutral
- o Agree
- o Strongly Agree

Pengaruh Latihan Komprehensif, Budaya Organisasi dan Faktor Demografik terhadap Kesiapsiagaan, Sikap dan Perspektif Pekerja Hospitaliti terhadap Automasi

Bahagian A: Penilaian Sikap dan Kesiapsiagaan Pekerja

Sila tandakan (✓) pada pilihan yang paling menggambarkan pendapat anda.

Bil	Pernyataan	Sangat Tidak Bersetuju	Tidak Bersetuju	Neutral	Bersetuju	Sangat Bersetuju
1	Organisasi menyediakan latihan untuk membantu pekerja menyesuaikan diri dengan automasi.	☐	☐	☐	☐	☐
2	Saya telah menerima latihan yang mencukupi untuk bekerja dengan sistem automasi.	☐	☐	☐	☐	☐
3	Saya berpuas hati dengan latihan yang saya terima berkaitan automasi.	☐	☐	☐	☐	☐
4	Saya menjangkakan akan menerima lebih banyak latihan berkaitan automasi pada masa hadapan.	☐	☐	☐	☐	☐
5	Program latihan organisasi membantu saya memahami cara menggunakan sistem automasi.	☐	☐	☐	☐	☐
6	Saya bersedia untuk bekerja dengan sistem automasi.	☐	☐	☐	☐	☐
7	Saya bersedia untuk menyesuaikan diri dengan perubahan dalam organisasi saya.	☐	☐	☐	☐	☐
8	Organisasi saya berkongsi maklumat tentang automasi yang akan datang.	☐	☐	☐	☐	☐
9	Pekerja terlibat dalam membuat keputusan berkaitan automasi dalam organisasi.	☐	☐	☐	☐	☐

10	Organisasi memberikan sokongan untuk membantu saya menyesuaikan diri dengan automasi.	☐	☐	☐	☐	☐
11	Organisasi telah memberi jaminan tentang pekerjaan.	☐	☐	☐	☐	☐
12	Saya percaya bahawa organisasi menyokong pekerja semasa perubahan automasi.	☐	☐	☐	☐	☐
13	Saya bersikap terbuka terhadap automasi kerana organisasi memberikan sokongan berterusan.	☐	☐	☐	☐	☐
14	Saya berasa selamat dalam pekerjaan saya walaupun penggunaan automasi semakin meningkat.	☐	☐	☐	☐	☐
15	Saya percaya bahawa automasi akan meningkatkan kecekapan keseluruhan di tempat kerja saya.	☐	☐	☐	☐	☐
16	Saya fikir automasi boleh meningkatkan pengalaman tetamu.	☐	☐	☐	☐	☐
17	Saya percaya automasi akan mewujudkan peranan baharu dan bukan menggantikan peranan yang sedia ada.	☐	☐	☐	☐	☐

Bahagian B: Maklumat Demografi

1.Tahun berapa anda dilahirkan?

☐ 1997 dan ke atas

☐ 1981 hingga 1996

☐ 1965 hingga 1980

☐ 1946 hingga 1964

2.Apakah tahap pendidikan anda?

☐ Tahap Diploma/Setara

☐ Ijazah Sarjana Muda

☐ Ijazah Sarjana

☐ Ijazah Kedoktoran

3.Berapa lama anda telah bekerja dalam bidang hospitaliti?

☐ 0 - 2 tahun

☐ 3 - 5 tahun

☐ 6 - 8 tahun

☐ 9 tahun ke atas

4.Apakah kategori jawatan anda?

☐ Kaunter Hadapan/Perkhidmatan Tetamu

☐ Pembersihan/Housekeeping

☐ Makanan & Minuman

☐ Pengurusan & Pentadbiran

Appendix C:

Timeline for data collection, analysis, and report:

Phase	***Duration***	***Timeline***
Pilot test	One week	1 November 2025– 7 November 2025
Informed consent	One week	8 November 2025 – 15 November 2025
Data collection	2 months	16 November 2026 – 15 January 2026
(Questionnaire survey, interview, and observation)		
Data analysis	two weeks	16 January 2026 – 30 January 2026
(Correlation, Regression, ANOVA, NVivo)		
Reporting	1 month	1 February 2026 – 28 February 2026