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THE IMPACT OF ARTIFICIAL INTELLIGENCE ON HOSPITALITY EMPLOYEES' WORK OUTCOMES

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ABSTRACT

The aim of this systematic literature review is to analyze the existing literature on the impact of artificial intelligence (AI) on employee work outcomes in the hospitality industry context. This paper systematically reviews the association between AI and employee work outcomes through an extensive literature review of published peer-reviewed English articles. Eighteen articles have been found in 12 journals and analyzed through deductive approach. The findings were synthesized into three major themes: enablers or inhibitors of AI adoption, the type of AI-related technique, outcomes of AI adoption. Well-being, turnover intention, and job engagement were identified as the most significant and most commonly studied outcomes of AI adoption.

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INTRODUCTION

The emergence of the latest technology and machines with analytical intelligence has contributed significantly to the fourth industrial revolution (Behl et al., 2021). Industry 4.0 is often characterized by the emergence of AI and robots (Hirschi, 2018). AI technology is among the world's most innovative inventions (Samala et al., 2020), and is increasingly becoming a part of workplaces around the world today (Khaliq et al., 2022). As a matter of fact, the development of digital technologies such as AI, internet of things (IoT) and big data plays an important role in the success of businesses and

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provides them with innovation and sustainable development (Vial, 2019). The hospitality industry has also started using cutting-edge systems based on AI and robot-based applications and services (Nam et al., 2021) because innovation plays a crucial role in the success of the hospitality industry (Úbeda-García et al., 2018).

AI and automated robots have caused many changes in the hospitality organizations (Yang & Chew, 2021). Artificial intelligence and robotics have remarkable effects on job profiles, employee relations in the workplace, working hours and wage patterns (Li et al., 2019). Thus, AI is modifying the manner people work, and influencing jobs and tasks (Braganza et al., 2021). With the emergence of AI, the hospitality sector has been faced with the fear of losing the human element (Saini & Bhalla, 2022), because employees and the human touch are part of the hospitality product (Bowen & Morosan, 2018). Hence, it is essential to seek answers to the query of how AI technologies will affect hospitality employees, as it will provide the opportunity for managers to identify the opportunities and threats that may arise from technology and to guide them in developing competencies suitable for the emerging technology. Although prior research has recently worked on AI outcomes, most of these were predominantly based on the customers' perspective (Prentice et al., 2020; Li et al., 2022). Therefore, drawing on the organizational change theory, this paper seeks to provide a systematic review of existing AI-related studies to synthesize the impacts of AI on the employee work outcomes in the hospitality context.

The contribution of this paper is twofold. First, to the authors' knowledge, the existing paper is a first attempt to investigate systematically the association between AI and employee work outcomes in the hospitality context. This paper contributes to the existing literature by providing a new perspective to understand the factors that enable or inhibit the adoption of AI, the type of AI-related technique, and the impact of AI on employee work outcomes from the organizational change theory perspective. Second, the work outcomes resulting from the adoption of AI in organizations are expected to guide future research. At the same time, the factors that enable or inhibit the adoption of AI presented in the theoretical model can help hospitality managers take the necessary measures to promote the adoption and development of technological innovations. In keeping with the purpose of the research, the following research questions guide our review:

RQ1. What are the factors that enable or inhibit the adoption of AI in the hospitality industry?

RQ2. What type of AI-related technique is used in organizations?

RQ3. What is the impact of AI on the work outcomes of hospitality employees?

LITERATURE REVIEW

AI and Work Outcomes

The term AI was first used by John McCarthy. The use of AI in the business dates back to the 1980s, and emerging technologies have led organizations to implement technologies such as robots, smart systems, and software and hardware (Borges et al., 2021). AI concept has received a lot of attention for its impact on the economy and its power to transform industries (Huang et al., 2022). AI is a category of intelligent technologies that includes sub-fields such as knowledge representation, reasoning, planning, decision making, optimization, machine learning, and meta-heuristic algorithms (Latah & Toker, 2018). There are different approaches to defining AI. As seen in Table 1, different definitions of AI focus on human-like abilities of AI such as thinking, interpreting, and learning. Therefore, AI is expressed as a system that thinks and acts like a human (Tussyadiah, 2020). On the other hand, AI, which enables machines to think and act like humans, has abilities such as intelligence, learning, and reasoning (Kar et al., 2022). Accordingly, intelligence in AI refers to the ability to learning, thinking, solving problems, reasoning, and integrate functions such as planning, perception, and attention. Second, reasoning in AI is based on logic and enables machines to think rationally and apply deductive and inductive approaches. Finally, learning in AI is the ability of an AI program to learn from its data. Moreover, AI provides mechanisms for machines to accumulate and learn information, helping machines obtain information from various sources, process information, and then apply that knowledge (Alansari et al., 2021). Hence, AI not only seeks to follow previously defined processes to simulate human behavior, but also seeks to imitate human learning (Borges et al., 2021).

It is known that the use of intelligent machines will cause changes in the functioning of organizations and the conduct of activities (Pereira et al., 2023). In other words, technological innovations such as AI and robots are expected to have a significant impact on changing organizational processes and improving organizational capabilities (Budhwar et al., 2022). AI, which requires employees to develop skills in accordance with the emerging technology, provides positive work outcomes by enabling them to work more systematically in organizations (Ruel & Njoku, 2021). Studies have shown that AI and related technologies have positive outcomes, such as

increasing employee job performance (Prentice et al., 2020), productivity (Wirtz et al., 2019), and job satisfaction (Castellacci & Viñas-Bardolet, 2019). According to Nam et al (2021), employees are adopting AI technology because it increases employee productivity, and as a result, hotels place an emphasis on implementing AI. In this sense, organizations aiming to achieve positive work outcomes are more motivated to adopt AI (Yu et al., 2023). Therefore, it is necessary to focus on the interaction and cooperation between AI and human employees through continuous learning in organizations (Wilkens, 2020).

In addition to the positive work outcomes of the adoption of AI in organizations, some negative outcomes are also mentioned. Although most jobs are difficult to automate in industries with high human interaction, such as the hospitality industry (Li et al., 2019), employees may think that their jobs are in danger due to AI applications, which may lead them to leave the organization (Yu et al., 2023). Similarly, negative attitudes and behaviors of employees towards emerging technologies such as AI may cause some negative employee outcomes such as high employee turnover rate, job insecurity, and stress (Brougham & Haar, 2018; Budhwar et al., 2022). Moreover, Wright and Schultz (2018) state that AI and automation may reduce the quality of human interactions, cause a feeling of isolation and disconnection, and ultimately affect the well-being of individuals. Hence, in order to reap the benefits and positive consequences of AI, it is important for authorities or managers to understand and analyze the threats and opportunities that such technologies may pose (Yu et al., 2023).

Table 1. *Definition of key terms*

Key terms/References	Definitions
Artificial intelligence McCarthy (2007)	"Artificial intelligence is the science and engineering of making intelligent machines, especially intelligent computer programs."
Mikalef and Gupta (2021)	"AI is the ability of a system to identify, interpret, make inferences, and learn from data to achieve predetermined organizational and societal goals."
Lee et al. (2019)	"Artificial intelligence is the intelligent systems created to use data, analysis and observations to perform certain tasks without needing to be programmed to do so."
Kopka and Grashof (2022)	"One of the newer trends of this digitalization process is the so called artificial intelligence (AI), which is often seen as a panacea for all kinds of problems."
Raisch and Krakowski (2021)	AI refers to "machines performing cognitive functions usually associated with human minds, such as learning, interacting, and problem solving."
Attitudinal outcomes Fung (2014)	"Attitudinal outcomes are team outcome factors that cover employee satisfaction, commitment and trust in management."
Cohen and Bailey (1997)	"Attitudinal outcomes refer to the affective responses people have towards their work environment, such as organizational commitment and job satisfaction."
Behavioral outcomes Fu and Cheng (2014)	"Behavioral outcomes refer to employees' reactions regarding perceptions of unfulfilled expectations and promises."

Organizational Change Theory

Organizational change theory is based on Lewin's Planned Change Model (Armenakis & Bedeian, 1999). Lewin (1951) theorizes successful organizational change under three phases: unfreezing, change (moving), and refreezing. Lewin (1951) emphasizes that unfreezing is necessary in order to avoid resistance in the process of change (Hassan, 2018). In the unfreezing phase, the current attitudes and perceptions of the organization or individuals need to be unfrozen in order to achieve successful organizational change (Friday & Friday, 2003). In other words, this phase is about the organization or individuals having sufficient motivation to make the change. The moving phase involves individuals developing a new perspective through training, and open communication and encouragement to participate in change are important during this phase (Lee, 2006). The refreezing phase focuses on the sustainability of change and aims to ensure that organizations do not revert to their previous state (Page & Schoder, 2018). Since this phase requires reinforcing the new behaviors and attitudes of individuals, continuous training and procedures and policies within the system should be at the forefront at this phase (Friday & Friday, 2003). Organizational change theory is based on the examination of the factors necessary for organizations to achieve successful organizational change (Al-Haddad & Kotnour, 2015). Hence, this theory was chosen because it focuses on the mechanisms needed to motivate and ultimately implement change in organizations.

METHODOLOGY

This section describes the approach used in the study. A Systematic Literature Review (SLR) was conducted to review and analyze study findings on the effect of AI on employee outcomes in hospitality sector. The method used in the paper follows the protocol defined by Kitchenham (2004). This section consists of four steps: (i) search methods, (ii) inclusion and exclusion criteria, (iii) study relevance and quality assessment, and (iv) analysis and synthesis.

The databases included Web of Science (WoS), Google Scholar, and EBSCO Hospitality and Tourism Complete. Three sets of keywords were searched in databases, using the "advanced search" feature: (i) keywords relating to the AI and associated technologies, (ii) keywords relating to the employee job outcomes, and (iii) keywords relating to the hospitality and tourism field. Consequently, the search terms were a combination of ("Robo*" OR "AI" OR "artificial intelligence" OR "intelligent automation" OR

"intelligent agent" OR "human-agent interaction" OR "computer science" OR "robot-human interaction" OR "semantic web" OR "neural networks" OR "machine learning" OR "industry 4.0" OR "intelligent systems" OR "service automation") AND ("employee outcomes" OR "employee" OR "personnel" OR "workplace" OR "work environment" OR "job" OR "organization" OR "labor") AND ("Tourism" OR "travel" OR "hotel" OR "hotels" OR "visit" OR "hospitality" OR "aviation" OR "tourist" OR "leisure" OR "hospitality management" OR "restaurant"). The initial search yielded a total of 7,618 studies.

In the second step, a set of inclusion and exclusion criteria were utilized to define the limits of the SLR. We limited our research to peer-reviewed articles written in the English language. Our study was based on articles published in leading journals because quality journals greatly aid academic growth (Judge et al., 2007). Studies were included if they were conducted on hotel or restaurant employees in the hospitality context, investigated AI in a hospitality context, examined the impact of AI and related technologies on employee outcomes. We also included articles using both review, conceptual and empirical methods. We did not specify any time limit on data collection for an in-depth and comprehensive view of the topic. After inclusion and exclusion criteria were applied, 249 articles remained for the detailed analysis.

The third step involved assessing the relevance and quality of the studies. Our initial goal was to identify all studies related to AI in the context of hospitality. During this process, the title and abstract were read for each of the 249 identified studies, and 223 were retained after removing duplicates. At the end of this round of the review, 26 studies remained. We included articles that explored AI as the main topic, used a data sample from the hospitality industry, and linked AI to at least one employee outcome. The relevance and quality of these articles were evaluated by reading the entire article. Two co-authors reviewed each study independently and then evaluated their quality against various criteria. Studies were evaluated for rigor, credibility, and relevance. Firstly, rigor refers to whether the research method used is appropriate. Reliability refers to whether the findings are valid and meaningful and whether the study method is reliable. Relevance is whether the findings are relevant to the hospitality industry. Evaluation of the articles in terms of the specified criteria narrowed the final sample to 18 studies (as shown in Figure 1).

The final phase of the research was concerned with data analysis and synthesis. With deductive content analysis, each study was reviewed

independently by two separate authors and data were extracted, including study design, sample, study setting, outcome variables, and implications. A concept matrix was developed to synthesize the findings. Studies were analyzed by considering factors that enabled or hindered AI adoption, the type of AI used, and the impact of AI on hospitality employee outcomes. Figure 1 presents a flowchart of the search process.

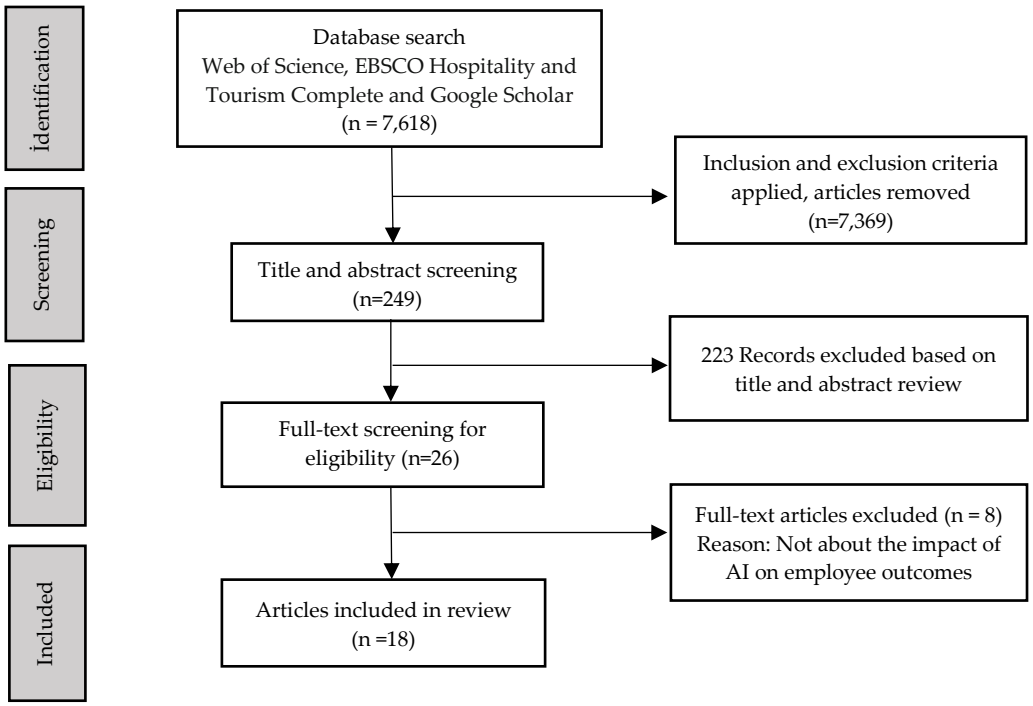

Figure 1. *PRISMA flowchart*

RESULTS

Descriptive analysis

This section provides descriptive information such as the distribution of selected studies by journals, years, and countries, and the study context, participants, method, and purpose of the study.

Article Distribution across Academic Journals

Table 2 shows the distribution of articles by journals. Of the 18 journal articles, 13 were related to tourism and hospitality journals, while 5 were related to tourism and non-hotel journals. The largest number of AI articles is found in the International Journal of Contemporary Hospitality Management (n=4), followed by International Journal of Hospitality Management (n=2), Tourism Management (n=2) and Technology in Society

(n=2). The rest of the publications are dispersed among different journals. In terms of publishers, 18 peer-reviewed journal articles in the field of AI have been published in well-known academic databases such as Elsevier, Emerald and Taylor & Francis.

Table 2. *Distribution of articles*

Journals	Publishers	Number of articles
International Journal of Contemporary Hospitality Management	Emerald Group Publishing	4
International Journal of Hospitality Management	Elsevier	2
Tourism Management	Elsevier	2
Technology in Society	Elsevier	2
Journal of Hospitality Marketing & Management	Taylor and Francis Online	1
British Journal of Management	John Wiley & Sons, Inc.	1
Current Issues in Tourism	Taylor and Francis Online	1
Frontiers in Psychology	Frontiers Media S.A.	1
Journal of Sustainable Tourism	Taylor and Francis Online	1
Tourism Management Perspectives	Science Direct	1
Journal of Hospitality and Tourism Technology	Emerald Insight	1
Journal of Service Theory and Practice	Emerald Group Publishing	1
Total		18

Overview of Studies

The results indicate that the included articles have been conducted across a range of different countries and diverse hospitality and tourism contexts. All the articles in our sample covered a period of the last two years. The majority of the research related to AI was conducted in China (n=10), followed by USA (n=2), Vietnam (n=1), Pakistan (n=1), Turkey (n=1), and Portugal (n=1). In terms of study context, the vast majority of research was conducted on employees from the accommodation industry (n=15), followed by employees from the restaurant industry (n=1) and a mix of accommodation and restaurant industry (n=2). Further, various research methods have been used in AI research. The findings of this review show that a vast majority of the papers are quantitative (n=11). There were two qualitative studies and three mixed methods. Additionally, there were one conceptual and one-literature review articles, as shown in Table 3.

Table 3. *Overview of studies involved in the SLR*

#	Author (year), country	Study context	Participants	Methodology	Study objective
1	Kong et al. (2021), China	Hospitality industry	Employees (n=432)	Quantitative	To assess the effect of AI on hospitality employees from a career perspective.
2	Prentice et al. (2019), Portugal	Hospitality industry	Employees (n=60 hotels)	Quantitative	To discover the impact of AI and emotional intelligence on performance and employee retention.
3	Li et al. (2019), China	Hospitality industry	Employees (n=468)	Quantitative	To determine the impact of AI and robotic awareness on hotel employees' turnover intention.

4	Ding (2021), USA	Service Industry	Employees (n=190)	Quantitative	To determine the relationship between employees' challenge-hindrance appraisals of smart technology, AI, robotics, and algorithms and individual competitive productivity.
5	Koo et al. (2021), USA	Hospitality	Employees (n=425)	Mixed Methods	To determine the impact of AI on hospitality employees with a pragmatic approach, taking into account job insecurity.
6	Qiu et al. (2020), China	Hospitality	Employees and supervisors (n=342)	Quantitative	To determine how AI empowers hospitality employees physically, mentally, and emotionally.
7	Nguyen and Malik (2021), Vietnam	Hospitality	Employees and managers (n=313)	Quantitative	To explore the effect of AI on employees' perception of AI service and job satisfaction.
8	Zhao et al. (2022), China	Hospitality	Employees (n=358)	Mixed Methods	To explore the impact of AI surveillance on employee engagement.
9	Wang et al. (2022), China	Hospitality	Employees (n=264)	Quantitative	To determine the effect of AI and robotic awareness on employee creativity.
10	Rydzik and Kissoon (2021)	Hospitality and tourism	Employees	Conceptual	To discuss the effects of technological transformations on low-paid and low-skilled tourism employees.
11	Fu et al. (2022), China	Hospitality	Employees (n=19)	Qualitative	To examine the challenges of robots and to determine their effect on hospitality employees.
12	Yu et al. (2022), China	Hospitality	Employees (n=281)	Quantitative	To identify the relationships between employees' technology knowledge, social skills and transformational leadership through service robot risk awareness.
13	Khaliq et al. (2022), Pakistan	Hospitality	Employees and managers (n=330)	Quantitative	To explore the association between turnover intention and AI and robotics awareness.
14	Vatan and Dogan (2021), Turkey	Hospitality	Employees (n=40)	Qualitative	To investigate the perceptions of Turkish hospitality employees towards service robots.
15	Zhong et al. (2022), China	Hospitality	Multiple perspectives including employees (n=142)	Mixed method	To determine the perspectives of urban hotel guests, managers and staff on the effects of service robots.
16	Liang et al. (2022), China	Service Industry	Multiple perspectives including hotel and restaurant employees (n=317)	Quantitative	To reveal the association between service innovative behavior and AI awareness.
17	Wu et al. (2022), China	Hospitality	Employees and managers (n=454)	Quantitative	To shed light on the consequences of technostress on employees.
18	Lu et al. (2020)	Service Industry	Multiple perspectives including employees	Literature Review	To manage a literature review on the effect of robots on employees and customers.

Deductive Content Analysis

This section shows the deductive content analysis based on our SLR. Deductive content analysis is often based on previous work such as theories and literature reviews, and a structured analysis matrix can be used for the purpose of the study (Kyngäs & Vanhanen, 1999). Three major themes were

identified during the analysis process: (i) enablers or inhibitors of AI adoption (factors that enable or inhibit the employ of AI technologies in the workplace); (ii) the type of AI-related technique (what type of AI technology is used in organizations); (iii) outcomes of AI adoption (employees' work outcomes of using AI in the workplace). This discussion generates knowledge and understanding of how hospitality industry use AI, the enablers or inhibitors of AI adoption, and the impact of AI on employees' work outcomes. Table 4 presents the themes identified as a result of the analysis process.

Table 4. *Summary of the findings*

#	Enablers or inhibitors of AI adoption	The type of AI-related technique	Outcomes	Main findings and implications
1	Top management support	AI in general	Job burnout, Low organizational commitment	AI awareness is linked to high job burnout. In addition, AI awareness negatively affects the organizational commitment of hospitality employees. Managers should provide support to employees and motivate them to collaborate with AI to overcome the negative effects of AI on employees.
2	N/A	AI in general	High job performance	While AI plays an important role in job performance, it negatively impacts employee job efficiency and customer satisfaction. This points out that AI acts as a buffer on job performance.
3	Top management support, Knowledge about AI	AI in general, Robots	Turnover intention	AI and robotic awareness are linked to employee turnover intention. Organizational support weakens employees' intention to leave. Hotels should develop regularly planned and long-term training programs to keep employees up-to-date on new practices and develop new skills.
4	Top management support, Knowledge about AI,	AI in general, robots	Low job engagement, Low organizational Commitment	STARA awareness hinders employees' organizational commitment and engagement. Managers should provide support and training so that employees can adapt to the changing working environment, work with developing technologies, and adopt these technologies. Thus, employees can learn new skills and develop competencies to work in harmony with emerging technology.
5	Top management support, Knowledge about AI	AI in general, Robots	Low job engagement, Turnover intention	AI technologies activate employees' perceptions of job insecurity. And perceived job insecurity significantly reduces employee engagement and indirectly influences turnover intention. In today's technology world, hospitality workers must acquire skills in line with the emerging technology and the hospitality industry should continue to support employees.
6	Top management support	AI in general, Robots	High well-being	Service attributes associated with AI importantly reduce employee physical and mental fatigue and increase their positive emotions. Hospitality businesses can create a supportive work environment for employees by taking into account their well-being and helping them maintain their good feelings.
7	N/A	AI in general	High job satisfaction	The service quality perception of the AI application affects hospitality employees' job satisfaction.

8	Top management support, Knowledge about AI	AI in general	Job engagement	AI surveillance affects job engagement. Supervisor and coworker support has a stronger impact on employees when AI surveillance is low.
9	Knowledge about AI, Readiness to use AI,	AI in general, Robots	Employee creativity	AI and Robotics Awareness (AIRA) positively influences employee creativity. Before adopting AI and robotics, organizations should be ready for change, explain the changes brought by the emerging technology to their employees. Further, trainings should be prepared to help employees develop themselves and acquire new knowledge and skills.
10	Readiness to use AI, Knowledge about AI	Intelligent automation	Low well-being	The expansion of smart automation in tourism industry can increase inequalities among employees, cause job losses, make them insecure, and consequently negatively affect their well-being.
11	Knowledge about AI	Robot (service robot)	Burnout (emotional exhaustion)	Excessive workload of service robots causes exhaustion in employees. Employees need to develop some skills to avoid the negative effect of emerging technologies.
12	Knowledge about AI	Robot (service robot)	Turnover intention	Service robot risk awareness is positively associated with turnover intention. Employees with high technological and interpersonal skills have less risk awareness towards service robots.
13	Knowledge about AI	AI in general, Robots	Turnover intention	AI and robotics awareness positively affects employees' turnover intention. To take advantage of AI and emerging technology, employees need to develop their skills and be trained regularly.
14	N/A	Robot (service robot)	Low job satisfaction, Low organizational commitment	Employees' attitudes towards service robots are that it causes unemployment, low organizational commitment and low job satisfaction.
15	Knowledge about AI	Robot (service robot)	High well-being	From an employee perspective, robots benefit employees and increase their well-being. As employees increase their skills, their resistance to the adoption of AI and robots decreases.
16	Top management support, Knowledge about AI	AI in general	Burnout (emotional exhaustion)	AI awareness causes emotional exhaustion that can hinder employees' innovative service behaviors. An environment should be created that will enable employees to adapt their skills according to the emerging technology and training programs should be organized.
17	Top management support, Knowledge about AI	AI in general, Big data analytics	Low job performance, Low employee engagement and Well-being	Technostress reduces employee performance, engagement and well-being. In order for employees to have technology-related skills, managers must provide them with the necessary training and support.
18	Knowledge about AI	Robots (Service robots)	High job satisfaction	Although service robots cause a number of negative psychological consequences such as job insecurity and loss of autonomy, they also provide benefits such as increased productivity and job satisfaction. Organizations should equip their employees with robotic skills in order to adapt to emerging technology.

Enablers or Inhibitors of AI Adoption

The factors suggested in the literature that may enable or inhibit AI adoption are divided into three distinct categories including readiness to

use AI, knowledge about AI and top management support. This section discusses in detail the factors that enable or inhibit the AI adoption.

Readiness to use AI: It's about being ready to use the applications and changes that AI brings to organizations (Alsheibani et al., 2018). If organizations are not ready to use emerging technologies such as AI and robotics, employees will feel constrained by new technologies and the benefits of technology will not be noticed by them (Chatterjee et al., 2021). Iacovou et al. (1995) defines organizational readiness as the availability of organizational resources necessary for the adoption of change. Organizational readiness includes technological and financial resources, culture and lack of skills, and the human factor in general (Dasgupta & Wendler, 2019). Thus, higher readiness for innovation increases the success of innovation while reducing the risk of failure (Snyder-Halpern, 2001).

Knowledge about AI: Emerging technologies like AI requires employees to develop certain skills to ensure organizational effectiveness (Behl et al., 2021). Developing skills related to AI technologies is also crucial to helping employees get employed in the future (Jaiswal et al., 2022). Softer intuitive and empathetic skills benefit service employees to adapt to emerging technologies such as AI (Huang & Rust, 2018). Therefore, organizations are recommended to organize training for their front-line service employees to develop AI skills (Fountaine et al., 2019).

Top management support: This is about top management recognizing the importance of adopting technology (Garcia-Morales et al, 2014). Alsheibani et al. (2020) state that management support is a key driver for AI adoption. On the other hand, lack of support causes organizations not only to fail to adopt innovation but also to lose a competitive advantage (Wade & Hulland, 2004).

The Type of AI-Related Technique

This section demonstrates a review and integration of the type of AI that selected articles focus on. Published literature presented in this paper show can be evaluated in four categories: AI (general), robot, big data analytics and intelligent automation.

AI (general): According to Huang and Rust (2018), there are four types of artificial intelligence namely mechanical, analytical, intuitive and empathetic. Mechanical AI is about performing routine and repetitive tasks automatically and is based on observation. Analytical AI is about processing information to find solutions to problems and learn from past

experiences. Intuitive AI is about creative thinking and the ability to adapt effectively to new situations and includes skills that require insight and creative problem solving. Finally, empathic AI often involves emotionally responsive machines that recognize and understand emotions like a human (e.g. Robot Sophia).

Robot: A robot is defined as "an autonomous system which exists in the physical world, can sense its environment, and can act on it to achieve some goals" (Matarić, 2007, p.2). Robots are divided into two as service robots and industrial robots. Industrial robots perform tasks such as welding and palletizing in manufacturing and production, while service robots are used to assist and serve humans (Ivanov et al., 2017). Service robots, supported by AI technologies and able to communicate with humans, are mostly used in room service, entertainment and front office operations of hospitality industry (Lukanova & Ilieva, 2019).

Big data analytics: This refers to the techniques utilized to analyze big data and derive intelligence from it (Gandomi & Haider, 2015). It aims to provide new insights that complement traditional statistics, archival data sources and surveys in meaningful and often real time (Xiang et al., 2015). Big data on tourism and hospitality is divided into three: UGC data generated by users, device data, and transaction data (Li et al., 2018).

Intelligent automation: This refers to the application of emerging technologies, including AI, robotics and the internet of things, to provide services without the need for humans in tourism environments (Tussyadiah, 2020). Some hotels implement intelligent automation for customer-based services, while others work almost entirely with robots. For example, an AI robot named Connie has been implemented by the Hilton group. The robot can interact with customers and provide tourist information (Konstantinova, 2019).

Outcomes of AI Adoption

Based on the findings on the impact of AI on employees' work outcomes, two major categories of employee outcomes were identified, including attitudinal and behavioral outcomes. The variables in the first category are well-being, turnover intention, job engagement, organizational commitment, burnout, and job satisfaction, whereas the variables in the second category consist of job performance and creativity (see Table 3 and Figure 2).

Attitudinal Outcomes. This section provides a review and discussion of the five attitudinal outcomes determined in this study: well-being, turnover intention, organizational commitment, burnout, job satisfaction, and job engagement.

Well-being: Well-being was the most frequently researched outcome (n=4). Half of the articles in this subgroup (n=2) state that AI causes low employee well-being, while the other half argues that it increases employee well-being (n=2). With the emergence of new technologies, changes in organizations may affect the well-being of employees by changing processes, tasks and structures in the organization (Nazareno & Schiff, 2021). Employment is an important part of an individual's overall sense of security and well-being (Yan et al., 2022). Considering that AI applications in organizations may lead to a perception of job insecurity among employees (Koo et al., 2021), it is possible to say that job insecurity may negatively affect the well-being of employees (Lingmont & Alexiou, 2020).

Turnover intention: Another most frequently examined employee outcome was employees' intention to leave their work (n=4). Although AI is part of innovation in the hospitality sector, it can threaten people's jobs due to its ability to copy the human thought process (Koo et al., 2021). Emerging technologies have led to turnover intention and employment uncertainty among hospitality employees (Khaliq et al., 2022). Moreover, Li et al. (2019) determined that the changes caused by new technologies such as AI create a perception of job insecurity and, as a result, have an effect on employee turnover intention.

Job engagement: AI impacts on job engagement was examined in four of the studies. AI has a great opportunity and the ability to create change in employee engagement (Agarwal et al., 2021). However, Ding (2021) found a significant negative association between employee' STARA awareness and their job engagement. Another study in the sample (Koo et al., 2021) discovered that perceived job insecurity resulting from AI technologies reduces job engagement. The study by Wu et al. (2022) found that technostress caused by the use of emerging technologies negatively affects job engagement. Zhao et al. (2022) revealed that AI surveillance has a moderating role in the association between social support and job engagement.

Organizational commitment: Of the 18 empirical studies reviewed, 3 measure the impact of AI on organizational commitment. These studies conclude that AI and robotic technologies negatively affect employee organizational commitment. The human touch is important in services,

especially in the hospitality industry (Saini & Bhalla, 2022). Thus, AI integration can disrupt the relationship between employees and organizations (Kong et al., 2021), cause psychological damage to employees, and negatively affect their sense of belonging and commitment to the workplace (Li et al., 2019).

Burnout: AI impact on burnout was examined in three empirical studies in the sample and a negative relationship was found. Although some tasks in organizations, such as employee orientation and training, are still the responsibility of humans, AI systems perform many activities such as recruitment, training, evaluation and monitoring and control (Tschang & Almirall, 2021). Supervisor robots also have the authority to give negative feedback to human employees. Human employees are also likely to perceive these feedbacks as offensive and abusive (Yam et al., 2022). Therefore, employees with a high awareness of AI may perceive uncertainty about their careers, which can lead to burnout (Kong et al., 2021).

Job satisfaction: The findings from three studies demonstrated that AI was associated with job satisfaction. An empirical study found that high-quality AI service was positively associated with job satisfaction of hospitality employees (Nguyen & Malik, 2021). On the other hand, Vatan and Dogan (2021) found that service robots may cause unemployment and low job satisfaction. Specifically, a robot can learn the characteristics of employees that cause work efficiency differences throughout the workday and help facilitate that employee's tasks (Bowen & Morosan, 2018). Collaboration between employees and robots can drive service improvement by increasing employees' satisfaction levels (Qiu et al., 2020).

Behavioral Outcomes. This section provides a general overview of two behavioral outcomes: job performance and creativity.

Job performance: The effect of AI on job performance was highlighted in the results of 2 of the 18 studies. AI and robotic technology may help the hospitality industry to strengthen service quality and improve job performance (Ivanov et al., 2017). The study of Prentice et al. (2019) also points out that providing services using AI positively affects job performance of hospitality employees. However, one study in the sample revealed that role overload caused by AI technologies can increase technostress among employees and weaken their job performance (Wu et al., 2022).

Creativity: A very few articles (n=1) linked AI and employee creativity. Employees' creativity in the hospitality industry has become a

competitive advantage. In general, creativity in the hospitality industry focuses on using creative ideas to ensure customer satisfaction and improve service quality (Li et al., 2018). AI enhances employee skills by enhancing their job learning, allows them to engage in creativity and innovation in their work by preventing them from wasting time on mundane tasks (Malik et al., 2022). As Wang et al. (2022) reveal, hospitality employees' awareness of AI and robotics benefits their creativity.

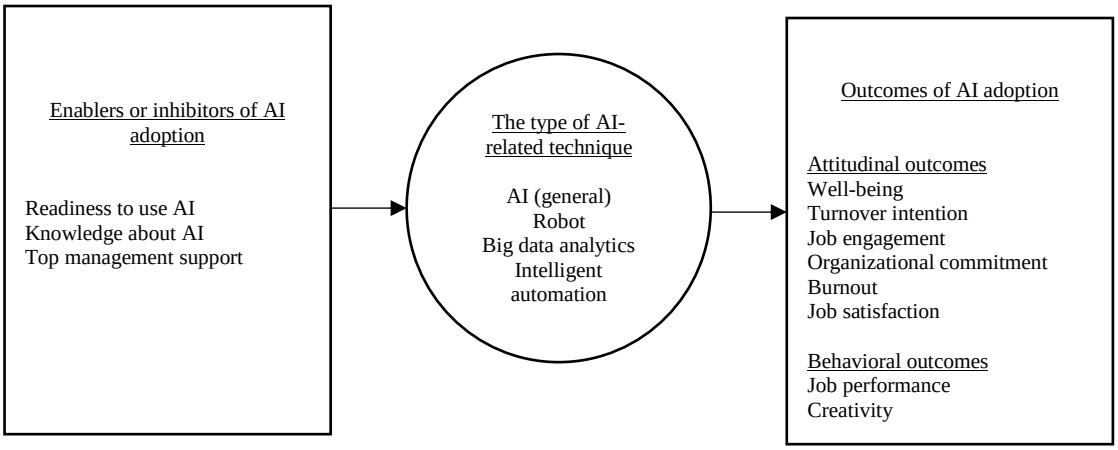

Figure 2. *The conceptual framework of AI adoption*

DISCUSSION AND CONCLUSION

The current paper systematically synthesized the relationship between AI and employee work outcomes in the hospitality context. The results of our review consist of three parts (see Fig. 2). First, some enablers and inhibitors of AI adoption are discovered. The antecedents of AI adoption include readiness to use AI, knowledge about AI, and top management support. Agarwal et al. (2021) states that change is an inevitable part of organizations and organizations should be ready to use technological innovations in order to gain competitive advantage and sustainability. Our review also indicates that the adoption and successful implementation of AI in organizations requires certain skills. These findings are also compatible with organizational change theory, which argues that some preparations such as explaining the necessity of change to employees, mobilizing them to support change, developing skills suitable for change and creating a culture that supports change will enable organizations to achieve positive results (Battilana et al., 2010). On the other hand, as with every change, the changes caused by emerging technologies also encounter resistance (Agarwal et al. 2021). At this point, our review has shown that top management support plays an important role in the adoption of emerging technologies such as

AI. This finding is consistent with the view advocating that leaders should use effective communication and develop a vision that will increase employee motivation in the face of resistance to change (Page & Schoder, 2018). Second, AI-related techniques and applications have been evaluated in four categories in the published literature: AI, robotics, big data analytics and intelligent automation. Finally, the impacts of AI on employee work outcomes were categorized as behavioral and attitudinal outcomes, highlighted eight outcomes that were consistently investigated: well-being, turnover intention, job engagement, organizational commitment, burnout, job satisfaction, job performance and creativity. Furthermore, our review presents significant theoretical and practical implications, as follows.

Theoretical Implications

Providing a novel conceptual framework of AI adoption (Fig. 2), this research makes some contributions to the hospitality literature by drawing attention to the antecedents of AI adoption and employee work outcomes. First, to the best of our knowledge, this paper is the first systematic review to investigate the effect of AI on employee outcomes in the hospitality industry. The majority of prior and existing research has evaluated AI from the customer's perspective (Prentice et al., 2020; Li et al., 2022). Second, we used deductive content analysis along the logic of "enablers or inhibitors of AI adoption, type of AI-related technique and outcomes" that allows us to highlight the process of AI impacts in the workplace. Our analysis results reveal the antecedents affecting AI adoption in the workplace and the positive or negative employee outcomes of AI implementation. Thus, these results provide a solid basis for future research in the hospitality field examining the adoption or effects of AI in the workplace.

Practical Implications

Our SLR provides highlights some managerial implications for hospitality practitioners. This study shows that the impact of AI on employee work outcomes can be influenced through various antecedents. First, this review highlights the role of readiness to use AI in driving positive employee business outcomes. Therefore, developing strategies and preparations for technology adoption and implementation can help organizations successfully manage the process. As a matter of fact, organizational change theory states that being ready for organizational change has a critical importance in the success of change initiatives (Choi & Ruona, 2011). Second, this review reveals the importance of knowledge about AI. Given that employees need to develop skills appropriate to AI and robotics

technologies (Behl et al., 2021), it is critical for organizations to organize training for new skills at all levels. Lastly, this review emphasizes that the influence of top management support in this process. From the employee perspective, a supportive approach should be adopted about the opportunities that emerging technologies such as AI will offer to employees, and an innovative culture should be created that encourages them to take risks and embrace change. AI-powered technologies require employees to think systems-oriented, design-oriented, enhancing creativity, and make decisions based on data (Jaiswal et al., 2022). Hence, management support is critical in encouraging employees to develop skills for AI-powered technologies.

Limitations and Future Research

This SLR has several limitations. First, this review only focused on peer-reviewed English articles published in high-quality journals. There are academic studies in other languages that contain rich contextual information. Future review studies can further research the consequences of AI by including studies published in different languages. Second, this SLR do not include non-indexed journals, dissertations, or conference papers as they did not meet our predefined inclusion criteria. Therefore, more studies can be conducted that include other types of studies and that can discuss or enrich the existing findings on the effect of AI on employee work outcomes.

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