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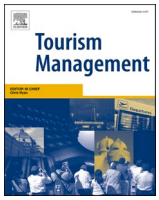

How AI awareness can prompt service performance adaptivity and technologically-environmental mastery

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ABSTRACT

Despite the growing tourism research interest in artificial intelligence (AI) awareness, this research field largely focuses on the effects of AI awareness on employees' work-related outcomes, with few studies considering how AI awareness can prompt their both work- and life-related outcomes. Drawing on the job crafting strategies, we argue that AI awareness can encourage employees to address challenges and opportunities by engaging in different job crafting (prevention-focused vs. promotion-focused pathways), importantly, which can have different implications for subsequent employee service performance adaptivity (work-related) and technologically-environmental mastery (life-related) for navigating the changing technological environment. Meanwhile, high (vs. low) level of servant leadership can strengthen the promotion-focused (prevention-focused) job crafting pathway. Our proposed model was tested with data obtained through a time-lagged three-wave survey (multi-level and multi-source designs) of 325 employees and 56 supervisors across 24 tourism and hospitality companies. This research further offers theoretical implications and practical indications.

1. Introduction

Artificial intelligence (AI) has recently become popular in several service companies, particularly those in the tourism and hospitality industries, with applications ranging from AI chatbots designed to serve guests to AI-driven assistants used for intelligent concierge services (Tussyadiah, 2020). Hotels in the United States, such as the Wynn Las Vegas and Aloft, have installed virtual assistants in rooms to respond to guest requests, e.g. ambient temperature and lighting customization, requests for laundry or airport pick up (Li et al., 2019). Another prominent example of AI usage is the Alibaba Future Hotel in China, an "intelligent hotel" that employs AI technologies to implement crewless operations (Liang et al., 2022). Indeed, AI has introduced reform to streamline operating processes in hotels and restaurants; even, it can surpass humans in various complex tasks through deep learning (Tussyadiah, 2020) and preempt human positions. Past research has shown that 65% of Americans expect robots to perform most of their current jobs in the next 50 years, as well as a 94% chance that AI will replace hotel desk clerks (Lingmont & Alexiou, 2020).

Although AI brings impressive production and performance advantages to the tourism and hospitality industries, it may also affect the future career development of the employees in these industries (Rydzik & Kissoon, 2022a; Segovia-Perez et al., 2023). AI awareness refers to employees becoming increasingly aware of competition from AI, which can potentially replace them (e.g., Brougham & Haar, 2018; Kim & Bodie, 2021). Studies on this topic have specified the positive and negative impacts of AI awareness on employees' work-related outcomes, such as promoting their intrinsic motivation (Liang et al., 2022), hindering their work involvement (Ding, 2021), and increasing turnover intention (Li et al., 2019). Although these findings are insightful, previous empirical studies have largely ignored how tourism employees can avoid such negative effects and promote the positive effects of AI awareness at work and whether this has broader implications for the employees in their daily lives (see the literature review table in Appendix A1). There is limited knowledge regarding how tourism employees deal with a high level of AI awareness and capitalize on this technological and environmental challenge to fuel their workplace performance, life-related perceptions, and feelings (Kong et al., 2023). Especially, low-paid, low-skilled, and low-educated tourism employees (Rydzik & Kissoon, 2022a; 2022b) might find it challenging to respond and adapt to the technological and environmental changes, both at work (e.g., service performance adaptivity; Barclay et al., 2022) and in their

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daily lives (e.g., technologically-environmental mastery; Ryff & Keyes, 1995). Additionally, tourism employees have primarily been observed to comprise youngsters, females, and immigrants, who struggle to balance work and personal life (Rydzik & Kissoon, 2022a).

Job crafting may be an indication that employees respond to AI awareness (He et al., 2023). When facing an evolving technological environment at work, tourism employees may perceive that their jobs are full of uncertainty and complexity (Kong et al., 2021). In this circumstance, they can redesign and reshape their jobs to match their capabilities, demands, and preferences, a process conceptualized as job crafting (Wrzesniewski & Dutton, 2001). The concept of job crafting has been receiving growing attention in light of the importance of employees' responses and adaptability to various workplace changes (Petrou et al., 2018; see Appendix A2 for more details). Lichtenthaler and Fischbach (2019) believe that job crafting motivations are rooted in individuals' needs to match a job's resources and demands to their capabilities and preferences. Two different job crafting strategies exist. Prevention-focused job crafting refers to the strategy where employees avoid risk and failure as their job duties to complete their work, which aligns with decreasing hindering job demands (Petrou et al., 2018). Promotion-focused job crafting entails employees expanding their work content and access to extra work resources, which aligns with increasing job resources and challenging job demands (Bindl et al., 2019). However, the question that needs to be addressed is when faced with AI awareness, do these two different types of job crafting strategies vary employee outcomes at work and in daily life? Previous studies have mainly emphasized that a prevention-focused job crafting strategy has negative effects, such as weakening employees' sense of coherence at work and attenuating their motivation and health perceptions, leading to burnout (Lichtenthaler & Fischbach, 2019). Therefore, when tourism employees cope with AI awareness, will adopting a prevention-focused job crafting strategy necessarily produce negative results, and if not, how and why?

Furthermore, as highlighted by Li et al. (2019) and Liang et al. (2022), further research is needed on how AI awareness impacts employees' psychological and strategical processes for coping with, responding to, and supporting changes in an evolving technological environment, both at work and in their daily lives. Previous tourism studies have mainly focused on the moderating effects of organizational-level (-centered) factors, such as organizational support (Li et al., 2019), and individual-level (-centered) factors, such as employees' future orientation (Liang et al., 2022), on the relationships between AI awareness and employees' work-related outcomes. Studies on the moderating effects of leadership-level (-centered) factors are scarce. Particularly, servant leadership is characterized by helping and serving others (Chon & Zoltan, 2019) and servant leaders exhibiting honesty, fairness, trustworthiness, and care toward employees while also benefitting employees' daily lives. In the context of tourism and hospitality companies—which often face challenges such as high labor-turnover rates, weak organizational commitments, and burnout among employees (e.g., Wong et al., 2019)—servant leadership should play a critical role in connecting the companies and their employees as an essential resource of these companies (Darvishmotevali & Altinay, 2022). Servant leadership pays considerable attention to service and benefits to employees' personal value development (Van Dierendonck & Patterson, 2015), whereas AI awareness, service performance adaptivity, and technologically-environmental mastery are closely aligned with developing employees' knowledge, skills, abilities, and values to cope with the changing technological environment. Therefore, examining how servant leadership moderates these relationships is essential (Darvishmotevali & Altinay, 2022; Ling et al., 2016). Based on the above research gaps, we pose the following research question: How and why do tourism employees cope with AI awareness, which subsequently impacts their service performance adaptivity and technologically-environmental mastery?

To answer the research question, we explored the two types of job crafting strategies: prevention- and promotion-focused job crafting strategies (Lichtenthaler & Fischbach, 2019; Zhang & Parker, 2019). We suggest that to cope with the changing technological environment, employees may adopt prevention-focused job crafting (as decreasing hindering job demands) to avoid being replaced by AI. Employees may also adopt promotion-focused job crafting (as increasing challenging job demands); it would help them realize opportunities and gains in the evolving technological environment. We further propose that these two types of job crafting strategies subsequently affect the strength of employees' service performance adaptivity and technologically-environmental mastery (Barclay et al., 2022). Additionally, servant leadership can serve as a critical job resource based on which tourism employees (Lichtenthaler & Fischbach, 2019; Zhang & Parker, 2019) decide to adopt either a prevention- or a promotion-focused job crafting strategy. When servant leadership is at a low level, employees may receive fewer resources (i.e., warmth, trustworthiness, and care; Chon & Zoltan, 2019). We suggest that in such cases, the employees experiencing a high level of AI awareness may be more likely to adopt a prevention-focused job crafting strategy to prevent further loss of resources (Zhang & Parker, 2019). When servant leadership is at a high level, employees with strong AI awareness are more likely to receive sufficient resources (Chon & Zoltan, 2019) to adopt a promotion-focused job crafting strategy to pursue higher goals and achievements. Thus, this study explores the strategical processes (prevention- and promotion-focused job crafting) and the boundary condition (servant leadership) of AI awareness on service performance adaptivity and technologically-environmental mastery.

2. Theoretical foundation and hypothesis development

2.1. Prevention- and promotion-focused job crafting strategies

Job crafting was initially defined as the substantial or cognitive changes an individual makes to work content and relationship boundaries to meet their demands and wishes (Wrzesniewski & Dutton, 2001). The conceptualization of job crafting involves three probable perspectives: increasing job resources (such as seeking the immediate supervisor's support), increasing challenging job demands (such as seeking expanded work relationships), and decreasing hindering job demands (such as avoiding contact with demanding customers; Tims et al., 2013). Bindl et al. (2019) further divided job crafting strategies into prevention- and promotion-focused strategies, which have different underlying motivational principles that link job resource levels and demands to individuals' abilities and preferences. Specifically, in implementing a prevention-focused job crafting strategy, employees focus on potential task-related non-losses, such as opportunities to successfully avoid toilsome task characteristics, and associated losses (Brenninkmeijer & Hekkert-Koning, 2015). Prevention-focused job crafting means that employees may reduce their hindering job demands by changing the boundaries and perceptions of their work roles to avoid losses in health and motivation (Tims et al., 2013). Consequently, their work's meaningfulness may be reduced (Brenninkmeijer & Hekkert-Koning, 2015), and a stronger sense of job burnout may arise (Tims et al., 2015). Overall, the job crafting model (Lichtenthaler & Fischbach, 2019) proposes that prevention-focused job crafting is based on decreasing hindering job demands.

Conversely, in implementing a promotion-focused job crafting strategy, employees focus on potential task-related gains, which include opportunities to obtain motivational task characteristics successfully, as well as associated non-gains, such as instances where they fail to obtain motivational task characteristics (Brenninkmeijer & Hekkert-Koning, 2015). Promotion-focused job crafting means that employees may expand their existing work content and access to work resources to achieve gains in motivation, health, and performance (Bindl et al., 2019). Consequently, promotion-focused job crafting may enable employees to increase work structure and social job resources (Tims et al.,

2013), as well as their work's meaningfulness (Wrzesniewski & Dutton, 2001). Accordingly, the job crafting model (Lichtenthaler & Fischbach, 2019) proposes that promotion-focused job crafting is based on increasing job resources and challenging job demands. These two types of job crafting strategies have different impacts on employee outcomes (e.g., Rudolph et al., 2017; Zhang & Parker, 2019). Management and psychology scholars (e.g., Barclay et al., 2022; Petrou et al., 2018) have increasingly applied the two types of job crafting strategies as their research framework to explore how and why employees experience and respond to the changing workplace environment differently. Thus, these two types of job crafting strategies can be reasonably applied to frame our research model (see Appendix B1 for more details).

2.2. AI awareness and job crafting strategies

According to the two types of job crafting strategies, decreasing hindering job demands is associated with prevention-focused job crafting, while increasing job resources and/or challenging job demands are associated with promotion-focused job crafting (Lichtenthaler & Fischbach, 2019). Since AI awareness may be expressed as hindering and/or challenging job demands, when responding to AI technological environment changes, employees may adapt their work-role boundaries and perceptions in a prevention- or promotion-focused self-regulatory way. More specifically, certain employees' AI awareness may focus on hindering job demands (Liang et al., 2022) that pose possible threats to their future career development. In such a context, these employees may feel pressured (Neeley & Leonardi, 2022) and, thus, implement prevention-focused job crafting to avoid risks (or threats) associated with AI in the workplace (Brougham & Haar, 2018), subsequently impacting how they adapt to the changing technological environment at work (service performance adaptivity) and in life (technologically-environmental mastery). On the other hand, employees' AI awareness may focus on challenging job demands (Liang et al., 2022) that can improve their abilities and gains, subsequently prompting the intrinsic motivation to learn to cope with the changing AI technological environment (LePine et al., 2016). In this case, such employees may tend to manage the challenging job demands proactively (Liang et al., 2022) by adopting a promotion-focused job crafting strategy to expand their work-role boundaries and contents to pursue advanced goals. It may result in greater service performance adaptivity and technologically-environmental mastery.

Furthermore, consistent with job crafting strategies, job demands and job resources can together determine employees' resource status regarding gains and losses (e.g., Duan et al., 2024), which may determine whether they adopt a prevention- or promotion-focused job crafting strategy (Zhang & Parker, 2019). Indeed, job resources can supplement the stimulation of employees' proactive work attitudes, perceptions, and behaviors (Bakker et al., 2012). In the theoretical foundation of this study, servant leadership can serve as a job resource that will interact with AI awareness (as hindering/challenging job demands; Liang et al., 2022) to determine the choice of the prevention- or promotion-focused job crafting strategy. Servant leadership focuses on leaders serving employees (Ling et al., 2016). Servant leaders aim to serve their employees and assist them in growing and learning by enhancing their material and spiritual conditions (Chon & Zoltan, 2019). Therefore, we further discuss and propose the moderating role of servant leadership in terms of how it can serve as an important job resource to interact with AI awareness (Liang et al., 2022) and determine employees' resource status, their choice of job crafting strategy, and their adaptivity toward the evolving AI technological environment (see Appendix B2 for more details).

2.3. The mediation of prevention-focused job crafting

AI awareness is positively associated with prevention-focused job crafting in several different ways. First, the emergence of AI awareness may prompt employees to believe that they may be replaced by AI in the future (as hindering job demands), thus stimulating their prevention-focused job crafting. Indeed, employees with high AI awareness may feel the stronger possibility of replacement (Koo et al., 2021), which can motivate them to focus on their work duties (He et al., 2023), as well as avoid AI replacement (Brenninkmeijer & Hekkert-Koning, 2015). In this case, they may adopt prevention-focused job crafting strategy to resist the potential risks (threats) of being replaced by AI.

Second, AI awareness may be regarded as hindering job demands that evoke employees' uncertain feelings and negative emotions, causing them to develop ego defense mechanisms (Bovey & Hede, 2001), which may motivate them to adopt prevention-focused job crafting. With AI adoption in tourism companies, employees are more likely to have strong AI awareness that results from concerns regarding their future career development, leading to job insecurity and potential negative feelings and emotions (Brougham & Haar, 2018). In this case, employees may develop an ego defense mechanism (Bovey & Hede, 2001). This causes employees to further narrow down and change the boundaries and perceptions of their work role(s) through a prevention-orientation focus on avoiding future potential losses (Lichtenthaler & Fischbach, 2019). As a result, this framing may stimulate employees' prevention-focused job crafting.

Third, AI awareness may cause employees to consume massive resources and energy (regarding as hindering job demands), which can stimulate prevention-focused job crafting. When employees face AI threats, they may expend physical and mental energy to emotionally regulate themselves at work, which comes at higher psychological costs (Niven et al., 2013). In particular, with the high work intensity and high working hours, along with the threat of being replaced by AI, tourism and hospitality employees would expend more resources and energy (Tussyadiah, 2020). To avoid this excessive consumption of resources and energy, employees may adopt the prevention-focused job crafting strategy.

Hypothesis 1. AI awareness is positively associated with employees' prevention-focused job crafting.

Service performance adaptivity reflects employee service performance in response to emergency demands in how they can successfully cope with, respond to, and support changes in a dynamic environment (Griffin et al., 2007). Service performance adaptivity refers to the extent to which service employees can work effectively in the changing environment and differs from job crafting, as it refers to how employees adopt self-regulatory actions to alter their work characteristics (Barclay et al., 2022). Petrou et al. (2018) deem job crafting to be a specific way in which employees can capture the organizational changes constantly occurring in their work while simultaneously adapting to the work environment or emergencies (performance adaptivity).

It is argued that AI awareness is positively related to service performance adaptivity (see Appendix B3 for more details). Furthermore, we propose that prevention-focused job crafting may enhance service performance adaptivity. Prevention-focused job crafting encourages employees to narrow the work attentions to prevent losses and focus on critical work issues (Bindl et al., 2019), thereby encouraging them to do things the right way. In this case, service employees with a prevention-focused job crafting strategy may not build new resources nor expand work boundaries, but focus on critical issues and core tasks (Petrou et al., 2018). Thus, prevention-focused job crafting enables employees to address the challenges associated with their core job responsibilities and enhance their adaptivity of service performance in the AI environment.

We further propose that prevention-focused job crafting may mediate the link from AI awareness to service performance adaptivity. Due to AI applications, employees are facing the threats of job replacement, which requires them to consume more energy and resources for self-regulation to focus on and perform their jobs (Li et al., 2019). As such, employees may adjust themselves through

prevention-focused job crafting. The employees may also focus on their core work requirements to avoid the potential AI replacement in order to reduce risks (Lichtenthaler & Fischbach, 2019), and help themselves to adapt to the service performance effectively in the changing AI technological environment. In conclusion, we propose that.

Hypothesis 2a. Prevention-focused job crafting mediates the relationship between AI awareness and service performance adaptivity.

While job crafting tends to motivate employees to adapt to the technological environment changes by taking on opportunities and challenges (Petrou et al., 2018), the current research proposes that the extent to which employees can effectively adapt to such changes has a broader implication on their life-related perceptions and feelings. In this respect, we focus on technologically-environmental mastery as a sub-dimension of psychological well-being, which refers to individuals' positive functioning toward the technological environment (Ryff, 1989). In other words, this sub-dimension describes the extent to which individuals feel in control of their lives and the AI technological environment. For example, employees with strong technologically-environmental mastery hold a strong feeling that they can cope—rather than feel overwhelmed—with such technological environment opportunities and challenges (Ryff, 1989; Ryff & Keyes, 1995). In the context of AI awareness, technologically-environmental mastery is particularly important as it emphasizes individuals' modifications toward the technological environment.

AI awareness may be more complexly related to technologically-environmental mastery (see Appendix B4 for more details). We further argue that prevention-focused job crafting may weaken employees' technologically-environmental mastery. Through prevention-focused job crafting, individuals are narrowing work attention to manage the most critical requirements. This requires them to use resources to cope with the core AI-relevant requirements and changes. The narrowed attention may weaken employees' chances to strengthen their own demands and wishes, thus weakening their feelings in control of the broader technological environment.

We also argue that AI awareness could deteriorate employees' technologically-environmental mastery if they adopt prevention-focused job crafting. Tourism employees might regard AI awareness as hindering job demands (Liang et al., 2022). In this case, they are required to manage these demands with resources and energy (Brenninkmeijer & Hekkert-Koning, 2015), and thus adopt prevention-focused job crafting by becoming more aware of their core job instead of seeking extra opportunities and resources (Petrou et al., 2018). This could further undermine their feelings about controlling the broader technological environment as the employees are narrowing their focuses on a limited set of tasks. In conclusion, we propose that.

Hypothesis 2b. Prevention-focused job crafting mediates the relationship between AI awareness and technologically-environmental mastery.

2.4. The mediation of promotion-focused job crafting

AI awareness is positively associated with promotion-focused job crafting in many ways. First, employees with strong AI awareness may be aware of the AI characteristics (with challenging job demands), such as the auxiliary of AI that can liberate their physical labor force in complex and tedious tasks. This would enable employees to focus on pursuing higher goals and adopt a promotion-focused job crafting. Tourism companies' adoption of AI would also provide their employees with personal resource utility for executives or assistants (Qiu et al., 2022). Particularly, tourism and hospitality frontline employees are faced with massively tedious work on a daily basis (Wong et al., 2019). The application of AI can help them share some repetitive mechanical manual labor and thus reduce their physical consumption. At this point, employees with AI awareness may be aware of the auxiliary of AI, enabling them to have more resources for self-improvement. Thus, they tend to adopt promotion-focused job crafting.

Second, employees with strong AI awareness may realize that AI can relieve the pressure of memory work (as challenging job demands), which can liberate them from mental labor. This helps the employees to save their psychological resources toward customers while also adopting promotion-focused job crafting. For example, since the complexity of daily work might consume employees' resources and energy, the AI application at work can somewhat relieve the pressure of employees' memory work and improve service efficiency (Qiu et al., 2022). For tourism and hospitality frontline employees who directly connect customers tend to build more psychological resources toward the customers as they realize that AI can help release part of the emotional labor force (Qiu et al., 2022), and thus expand their work boundaries to increase their enthusiasm for interacting with customers. In this case, employees with strong AI awareness may also realize that AI can help them relieve the stress of mental work, leading to promotion-focused job crafting.

Third, AI awareness would be regarded as challenging job demands by tourism employees (Liang et al., 2022), which would encourage them to increase their intrinsic motivation and further adopt promotion-focused job crafting. When AI awareness is perceived as challenging job demands, employees tend to experience incentive effects. Indeed, when treating AI as challenging job demands, employees tend to interact (even compete) with the AI and expand resources and strengths (Liang et al., 2022). This further increases their intrinsic motivation and encourages them to focus on expansion-oriented tasks and possible gains (promotion-focused job crafting).

Hypothesis 3. AI awareness is positively associated with employees' promotion-focused job crafting.

We argue that promotion-focused job crafting can enhance service performance adaptivity. Specifically, to pursue higher goals or expand resources, employees with promotion-focused job crafting will become more focused on opportunities brought about by environmental changes (Barclay et al., 2022), which enables them to adapt to technological-environmental changes. In other words, by increasing resources, acquiring new skills, and gaining opportunities in the jobs, promotion-focused job crafting encourages employees to adapt to the challenges of the changing technological environment (service performance adaptivity) more effectively (Bindl et al., 2019).

We also propose that promotion-focused job crafting may mediate the link from AI awareness to service performance adaptivity. Ding (2021) indicates that when viewing AI as challenging job demands, employees' work engagement and performance improve accordingly by adopting promotion-focused job crafting aligning with greater work meaningfulness. In this case, such employees actively improve their professional skills and core competitiveness and take risks in the technological environment to alleviate the insecurity brought by AI. Promotion-focused job crafting thus promotes employees' service performance through expanding their resources and facilitating flexibility as they interact with customers in the AI technological environment (Kong et al., 2023). This, in turn, can sustain and enhance service performance by adapting to service performance requirements in the changing AI technological environment.

Hypothesis 4a. Promotion-focused job crafting mediates the relationship between AI awareness and service performance adaptivity.

We hypothesize that promotion-focused job crafting may increase individuals' technologically-environmental mastery. Specifically, promotion-focused job crafting can meet individuals' psychological needs by improving their sense of competence (Liang et al., 2022). In addition, promotion-focused job crafting might also align the AI environment with employees' personal demands, enhancing their need satisfactions and thus their positive life-related perceptions in control of such AI changes (Barclay et al., 2022). Promotion-focused job crafting can adapt employees' work boundaries to satisfy their demands, encourage goal achievements, and encourage their feelings in control of the changing AI technological environment, depicting a broader positive

implication for their technologically-environmental mastery.

We also propose that promotion-focused job crafting may mediate the link from AI awareness to technologically-environmental mastery. The application of AI in the workplace can help relieve tourism employees of their physical and mental work (Qiu et al., 2022), thus enabling them to enhance their work engagement. Employees with higher AI awareness may realize AI as challenging job demands, encouraging them to adopt the promotion-focused job crafting (that is, seeking more resources to enhance self-improvement and satisfy their personal demands). Promotion-focused job crafting could align such employees' personal preferences and values with the work environment, encouraging gain approaching in motivation and health, and improving their sense of control toward the changing AI technological environment (Barclay et al., 2022; Kong et al., 2023). In conclusion, employees with AI awareness may develop promotion-focused job crafting, subsequently enhancing their technologically-environmental mastery.

Hypothesis 4b. Promotion-focused job crafting mediates the relationship between AI awareness and technologically-environmental mastery.

2.5. The moderation of servant leadership

Servant leadership is a type of leadership behavior that stems not from the desire to achieve personal power or prestige, but to provide service to others, including organizations and communities (Van Dierendonck & Patterson, 2015). Servant leadership plays a key role in tourism companies (e.g., Chon & Zoltan, 2019). Especially, the hospitality companies are characterized by the unique relationships formed between hosts and guests. The hosts are expected to tend to the guests' needs through caring and pleasurable behavior, with the ultimate goal being guest satisfaction and loyalty. As such, servant leadership can serve as specific job resources for tourism and hospitality employees to better serve the customers (Chon & Zoltan, 2019). Indeed, servant leadership is an effective leadership style in resourcing and affecting tourism employees' attitudinal and behavioral outcomes (Ling et al., 2016). In this study, we focus on the moderating role of servant leadership as an important job resource that would interact with AI awareness (Liang et al., 2022) in determining employees' choice of the prevention- or promotion-focused job crafting strategy and, subsequently, their adaptivity toward the evolving AI technological environment. Previous literature (e.g., Chon & Zoltan, 2019; Ling et al., 2016) has described the value of differences in employee interaction with servant leadership and how they interactively determine employee outcomes.

We argue that different levels of servant leadership would have significant differences in affecting employees' responses to AI awareness through regulatory focus processes (prevention- or promotion-focused). Servant leadership underscores "service" and provides value-added support for their employees to prioritize the fulfillment of their personal needs and interests (Van Dierendonck & Patterson, 2015), which is particularly beneficial for employees' personal growth and development. However, when servant leadership is low, employees lack supportive resources from their leaders for committing to their growth and development, and thus, do not cope with the changing AI technological environment. In this case, employees with high AI awareness are more likely to be aware of the possible replacement influence of AI on their jobs (Cheng et al., 2023), and perceive that they do not have sufficient knowledge, skills, or abilities to cope with this trend. As such, they may assess AI awareness as hindering job demands (Cheng et al., 2023; Liang et al., 2022). Faced with such challenges, they may further adopt a loss-avoiding tactic through decreasing hindering job demands to avoid negative end-states, thus adopting prevention-focused job crafting. Contrarily, when servant leadership is prevalent, employees receive enough supportive resources from the servant leader for the commitment toward their personal growth and development. In this case, employees may realize AI awareness as challenging job demands but have the sufficient resources to adapt and develop themselves to cope with the changing AI technological environment through enhancing their abilities and expanding their work opportunities and boundaries (promotion-focused job crafting).

Furthermore, servant leadership can be characterized by listening, empathy, and healing (Ling et al., 2016). With AI applications at work, employees may be worried about the extent to which AI can likely lead to unemployment, resulting in job insecurity (Brougham & Haar, 2018). When servant leadership is low, employees may feel that the leader fails to listen to them and shows less emotional support (resources) to them. In this case, employees with high AI awareness will be more likely to feel job uncertainty and evoke negative emotions (Glikson & Woolley, 2020), leading to emotional exhaustion (Liang et al., 2022). This may cause employees to develop self-defense mechanisms (Bovey & Hede, 2001) while also motivating them to adopt prevention-focused job crafting. When servant leadership is high, employees may receive enough emotional support, such as better listening and effective communication and feedback, from the servant leader. As such, the employees tend to assess AI awareness as challenging job demands, and then adopt the promotion-focused job crafting.

Hypothesis 5a. Servant leadership moderates the relationship between AI awareness and prevention-focused job crafting, such that when servant leadership is low rather than high, AI awareness is more positively related to prevention-focused job crafting.

Hypothesis 5b. Servant leadership moderates the relationship between AI awareness and promotion-focused job crafting, such that when servant leadership is high rather than low, AI awareness is more positively related to promotion-focused job crafting.

Combining the hypotheses above, we further propose the cross-level moderated mediation model. More specifically, for employees with low-level (high-level) servant leadership, when faced with the challenge of AI awareness, they are more likely to adopt prevention-focused (promotion-focused) job crafting, which in turn leads to stronger service performance adaptivity but weaker (and stronger) technologically-environmental mastery. In this regard, we hypothesize.

Hypothesis 6. The indirect relationships between AI awareness and employees' service performance adaptivity (H6a), and technologically-environmental mastery (H6b) via prevention-focused job crafting is moderated by servant leadership, such that the effects are stronger when servant leadership is low than when it is high.

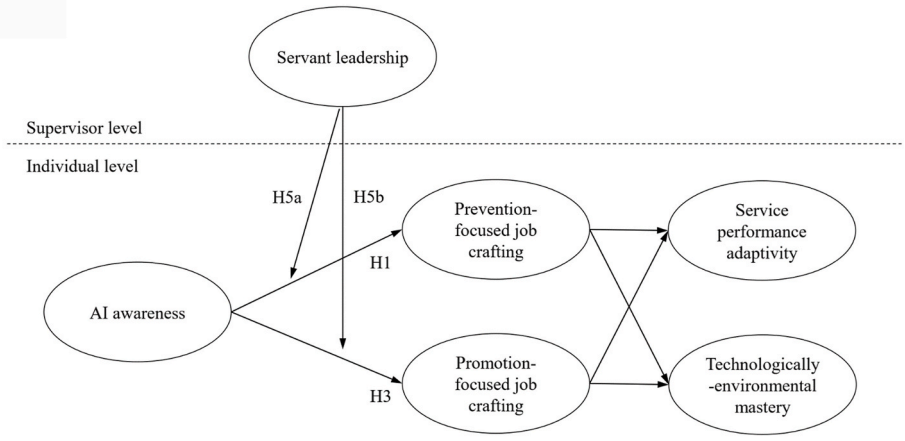
Hypothesis 7. The indirect relationships between AI awareness and employees' service performance adaptivity (H7a), and technologically-environmental mastery (H7b) via promotion-focused job crafting is moderated by servant leadership, such that the effects are stronger when servant leadership is high than when it is low.

Fig. 1 depicts the research framework for this study.

3. Method

3.1. Sampling and procedure

The present study invited 400 companies operating within leisure and hospitality sectors (such as arts, entertainment, recreation, accommodation, and gastronomy) in Guangdong province and Macau SAR, China, of which 24 companies acknowledged and agreed to our invitation. Macau is reputedly known as a global metropolis with highly developed tourism and hospitality industries, whereas Guangdong is depicting a rising large-scale tourism industry (Mo, Liu, Wong, & Wu, 2022). Moreover, evidence (see Appendix C1) has demonstrated that several leisure and hospitality businesses in both Guangdong province and Macau SAR have employed AI as well as human employees to provide services to their customers. Additionally, as this study aims to explore how employees cope with AI awareness and the importance of



Notes:
H2: Prevention-focused job crafting mediates the relationship between AI awareness and service performance adaptivity (H2a), and technologically-environmental mastery (H2b).
H4: Promotion-focused job crafting mediates the relationship between AI awareness and service performance adaptivity (H4a), and technologically-environmental mastery (H4b).
H6: The indirect relationships between AI awareness and employees' service performance adaptivity (H6a), and technologically-environmental mastery (H6b) via prevention-focused job crafting is moderated by servant leadership.
H7: The indirect relationships between AI awareness and employees' service performance adaptivity (H7a), and technologically-environmental mastery (H7b) via promotion- focused job crafting is moderated by servant leadership.

Fig. 1. Research framework.

participants' experience working with AI, the employee tenure with AI (in years) was controlled in the survey. Therefore, to enhance the sample's representativeness, this survey comprised employees who were working with AI in leisure and hospitality companies (see Li et al., 2019; Liang et al., 2022).

3.2. Data collection process

To determine the necessary sample size, we primarily utilized two approaches. Firstly, we employed GPower 3.1 for estimating and confirming this study's required minimum sample size, which came out to be 248. Secondly, following earlier research on related themes, we concluded that a sample size of 300 individuals in 30 teams would be appropriate (Li et al., 2019; Liang et al., 2022). As can be seen from the Methodological Details Appendix, when comprehending the process of data collection, we carefully crafted the survey questionnaires and resorted to procedural remedies suggested by Podsakoff et al. (2003) to prevent common method bias (see Appendix C2).

We collected data in three waves (Times 1, 2 and 3) and from multiple sources (both the focal employees and their matched direct supervisors). At Time 1, the focal employees were sent a survey link containing a questionnaire on AI awareness, servant leadership, controlled prevention-focused and promotion-focused job crafting, and demographics. At Time 1, 478 employees (out of 1214 invitees; response rate = 39.37%) responded. Following a three-week interval, at Time 2, the respondent employees (from Time 1) were provided with another questionnaire link pertaining to prevention-focused and promotion-focused job crafting and controlled technologically-environmental mastery. After obtaining consent via email, another link of questionnaire pertaining to controlled service performance adaptivity and demographic information was delivered to the employees' direct supervisors. The research investigators carefully matched the focal employees and their direct supervisors in accordance with the procedural remedies (see Appendix C2). At Time 2, responses were obtained from 392 employees (out of 478 at Time 1; response rate = 82.01%); and 82 supervisors (out of 237 initially-invitees; response rate = 34.60%). After another three weeks, at Time 3, another questionnaire link regarding technologically-environmental mastery was delivered to the employees (from Time 2), while service performance adaptivity questionnaire was delivered to the supervisors (from Time 2). At Time 3, 338 employees (out of 392 at Time 2; response rate = 86.22%) and 59 supervisors (out of 82 at Time 2; response rate = 71.95%) completed. Three respondent supervisors were omitted from the sample since they provided incomplete responses. Following data cleaning, a dataset consisting of 325 employees and 56 supervisors across 24 organizations was effectively retained for further analysis. The demographic data of the respondents is summarized in Table 1.

3.3. Measures

All the measures were translated from English to Chinese via a back-translation approach (Brislin, 1980). With respect to the measures, we assessed all proposed variables on the seven-point Likert scale (i.e., 1 = *strongly disagree*; 7 = *strongly agree*). See Table 2 for the factor loadings, composite reliability, and average variance extracted; see Appendix Questionnaire for the complete list of items.

AI awareness. At Time 1, the employee rated their AI awareness via a four-item scale (Brougham & Haar, 2018) ($\alpha = 0.93$). A sample item is "*I am personally worried that what I do now in my job will be able to be done by the intelligent machines*".

Servant leadership. At Time 1, the servant leadership was measured using a seven-item scale extracted from the study conducted by Liden et al. (2014) ($\alpha = 0.82$). A sample item is "*My manager makes my career development a priority*". The data was then aggregated at the group level, and the statistics support the appropriateness of data aggregation of this scale at the group level ($r_{wg} = 0.95$; $ICC_{[1]} = 0.50$; $ICC_{[2]} = 0.89$; $F_{[55, 269]} = 8.76$, $p < 0.001$; LeBreton & Senter, 2008).

Prevention- and promotion-focused job crafting. We measured both prevention-focused (a sample item is "*I try to simplify some of the tasks that I worked on*") and promotion-focused job crafting (a sample item is "*I try to learn new things at work that go beyond my core skills*") at Time 1 (as a control) and Time 2 using the 12-item and 16-item scale developed by Bindl et al. (2019). The items demonstrated a high level of reliability ($\alpha = 0.82$ for controlled prevention-focused job crafting [T1]; $\alpha = 0.95$ for prevention-focused job crafting [T2]; $\alpha = 0.88$ for controlled promotion-focused job crafting [T1]; $\alpha = 0.96$ for promotion-focused job crafting [T2]).

Service performance adaptivity. Service performance adaptivity was measured at Time 2 (as a control) and Time 3 using the 3-item scale developed by Griffin et al. (2007), which depicted high reliability ($\alpha =$

Table 1
Demographic information.

Demographic	Category	Proportion (%)	Demographic	Category	Proportion (%)
Team type	Front-line	58.46	Employee gender	Male	56.31
	Food and beverage service	5.85		Female	43.69
	Club service	23.38	Supervisor gender	Male	73.85
	Housekeeping	8.92		Female	26.15
	Others	3.38			
Demographic	**Range**	**Mean (SD)**	**Demographic**	**Range**	**Mean (SD)**
Employee age (years)	17~41	30.35 (5.10)	Employee organizational tenure (years)	0.5~16	5.90 (4.51)
Employee education (years)	4~26	15.07 (2.49)	Supervisor organizational tenure (years)	5~23	10.34 (3.29)
Supervisor age (years)	35~48	39.11 (2.49)	Employee tenure with current supervisor (years)	0.5~15	3.22 (2.04)
Supervisor education (years)	15~18	16.92 (1.09)	Employee tenure with AI (years)	0.5~4	2.07 (0.98)
			Supervisor tenure with AI (years)	4~6	5.11 (0.84)

Note: N = 325 employees and 56 supervisors across 24 organizations.

0.88 [T2]; α = 0.89 [T3]) for supervisor-reported questionnaire. A sample item is "*At [the employee's] service work, she/he has adapted well to changes in core tasks*".

Technologically-environmental mastery. The content of the items was slightly modified to cater to the technologically-related hypotheses. Employees reported technologically-environmental mastery at Time 2 (as a control) and Time 3 using the 3-item scale (Ryff et al., 2010) (α = 0.84 [T2]; α = 0.83 [T3]). A sample item is "*I feel I am in charge of the technology-related situation in which I live*".

Control variables. To further isolate our proposed effects, as well as account for potential contaminants, several theoretically and empirically relevant factors were controlled (see Appendix C3 for more details), even though the results and conclusions remained unchanged with all controls removed.

4. Results

Analysis strategy. We employed the Mplus software, version 7.4 (Muthén et al., 2017), to conduct a multilevel path analysis, a statistical technique dealing with the data nested within multiple levels (e.g., organizational-, supervisor-, group-, and employee-level) in an omnibus model. Individuals nested within a higher level (i.e., macro level) system are not independent, as they experience the same social influence from the embedding context, which violates the independence assumption from conventional statistical approaches (Heck & Thomas, 2020). Compared to traditional statistical techniques (such as single-level regression) that seldom consider hierarchical data structures, the multilevel analysis technique considers the nested nature of the data and maintains appropriate levels of analysis for predictors to achieve more accurate results (e.g., Lin et al., 2017; Wong, 2017). The multilevel analysis of our model helped us understand how the characteristics of the employees with each supervisor and how the supervisor's characteristics can affect the proportion of employees coping within an evolving technological environment (Mo, Liu, Wong, & Wu, 2022; Mo, Liu, and Wu, 2022). This multilevel analysis method estimated the supervisor-specific effect and the proportion of the total residual variance due to differences between supervisors and employee-level variability, supporting the advantage of introducing more variation to the analysis (see Appendix D1 for more details on introducing and explaining the advantages of multilevel analysis employed for data analysis).

Thus, we followed the procedure outlined by Bauer et al. (2006) to model relationships among hypothesized variables with random slopes. We specified servant leadership (moderator) at Level 2 and AI awareness (i.e., independent variable), prevention- and promotion-focused job crafting (mediators), and service performance adaptivity and technologically-environmental mastery (dependent variables) at Level 1. We also specified the cross-level moderating effect of servant leadership on the relationship between AI awareness and prevention- and promotion-focused job crafting (Heck & Thomas, 2020). To test conditional indirect effects, we followed the suggestions of Preacher et al. (2010) and employed the Monte Carlo method, with 20,000 re-samplings and 95% confidence intervals (CIs). Moderation was supported when the CIs for the difference between indirect effects at high (+1 standard deviation [SD]) and low (−1 SD) levels of servant leadership (moderator) excluded 0.

Data diagnostics. In order to minimize common-method variance (Podsakoff et al., 2003), we carefully designed the survey questionnaire, applied procedural remedies during data collection, and collected data from multiple sources and in three waves during the study period. Furthermore, we diagnosed the common method bias (Podsakoff et al., 2003) through conducting confirmatory factor analysis and evaluating measurement reliability and validity. Based on the single-factor method (Podsakoff et al., 2003), the χ^2/df value was 9.55, which is greater than the cutoff value of 2.0.

An additional diagnostic procedure was conducted by including a marker variable. Following Lindell and Whitney's (2001) correlational marker technique, we used the place of birth (1 = *The capital area*; 2 = *Other areas*), which is not theoretically associated with other variables in our study, as a marker variable. We found low and nonsignificant correlations between the marker variable (i.e., the place of birth) and other individual-level and supervisor-level variables (correlations with the marker variable ranged from −0.004 to 0.08) with potential common method variances. These results support the discriminant validity between the study variables and the marker variable. Furthermore, as the proposed relationships did not differ after controlling for the marker variable, the results indicate that the potential common method bias could be significantly minimized. Furthermore, as shown in Appendix D2, the detailed outputs confirmed that this study was not limited by multicollinearity, as well as social desirability is not an issue.

Confirmatory factor analyses. To evaluate the discriminant validity, a set of multi-level confirmatory factor analyses (CFAs) were executed, as shown in Table 3. The output demonstrated that the six-factor base model presented a significantly superior fit to the data (χ^2 = 1498.19, *df* = 663, CFI = 0.90, TLI = 0.89, RMSEA = 0.06, $SRMR_{within}$ = 0.05, $SRMR_{between}$ = 0.06) compared to the competing models ($\Delta\chi^2$s/Δdfs ≥ 29.59, *p*s < 0.001). Overall, the results of CFA confirmed the conceptual distinction between the measurements of variables in this study.

Descriptive analysis. Means and standard deviations are presented in Table 4. The outputs of the correlation analyses were in line with the hypotheses presented.

Hypotheses-testing result. The path estimations are presented in Table 5. As shown in Model 1, AI awareness was positively associated with employees' service performance adaptivity (γ = 0.88, p < 0.001) and technologically-environmental mastery (γ = 0.55, p < 0.001). As showed in Model 2, AI awareness was marginal and positively associated with employees' prevention-focused job crafting (γ = 0.12, p = 0.056), which supports H1. Prevention-focused job crafting was positively associated with service performance adaptivity (γ = 7.71, p < 0.05); however, it was statistically non-significantly associated with

Table 2
First-order confirmatory factor analysis (CFA).

Scale item		Factor loading	CR	AVE	Cronbach alpha
AI awareness					
Aware1	I am personally worried about my future in my industry due to artificial intelligence replacing employees	0.77	0.93	0.77	0.93
Aware2	I am personally worried about my future in my organization due to artificial intelligence replacing employees	0.85			
Aware3	I am personally worried that what I do now in my job will be able to be replaced by artificial intelligence	0.96			
Aware4	I think artificial intelligence could replace my job	0.92			
Prevention-focused job crafting (T2)					
Prevention1	I minimized my interactions with people at work that I did not get along with.	0.73	0.94	0.59	0.95
Prevention2	I changed my work so that I only interacted with people that I felt good about working with.	0.70			
Prevention3	I tried to avoid situations at work where I had to meet new people.	0.69			
Prevention4	I channeled my efforts at work towards maintaining a specific area of expertise.	0.73			
Prevention5	I sought to develop those skills in my job that helped prevent negative work outcomes.	0.74			
Prevention6	I made sure I stayed on top of knowledge in core areas of my job.	0.80			
Prevention7	I actively reduced the scope of tasks I worked on.	0.79			
Prevention8	I tried to simplify some of the tasks that I worked on.	0.79			
Prevention9	I sought to make some of my work mentally less intense.	0.83			
Prevention10	I focused my mind on the best parts of my job, while trying to ignore those parts I didn't like.	0.79			
Prevention11	I assessed the different elements of my job to determine which parts were most meaningful.	0.81			
Prevention12	I tried to think of my job as a set of separate tasks, rather than as a 'whole.'	0.78			
Promotion-focused job crafting (T2)					
Promotion1	I actively sought to meet new people at work.	0.70	0.96	0.58	0.96
Promotion2	I made efforts to get to know other people at work better.	0.79			
Promotion3	I sought to interact with other people at work, regardless of how well I knew them.	0.77			
Promotion4	I tried to spend more time with a wide variety of people at work.	0.74			
Promotion5	I actively tried to develop wider capabilities in my job.	0.78			
Promotion6	I tried to learn new things at work that went beyond my core skills.	0.74			
Promotion7	I actively explored new skills to do my overall job.	0.73			
Promotion8	I sought out opportunities for extending my overall skills at work.	0.77			
Promotion9	I actively took on more tasks in my work.	0.81			
Promotion10	I added complexity to my tasks by changing their structure or sequence.	0.75			
Promotion11	I changed my tasks so that they were more challenging.	0.70			
Promotion12	I increased the number of difficult decisions I made in my work.	0.72			
Promotion13	I tried to think of my job as a whole, rather than as separate tasks.	0.80			
Promotion14	I thought about how my job contributed to the organization's goals.	0.79			
Promotion15	I thought about new ways of viewing my overall job.	0.81			
Promotion16	I thought about ways in which my job as a whole contributed to society.	0.78			
Service performance adaptivity (T3)					
Adapt1	At [the employee's] service work, she/he has adapted well to changes in core tasks	0.87	0.89	0.73	0.89
Adapt2	At [the employee's] service work, she/he coped with changes to the way she/he has to do her/his core tasks	0.87			
Adapt3	At [the employee's] service work, she/he dealt effectively with changes affecting her/his core tasks	0.82			
Technologically-environmental mastery (T3)					
Mastery1	I felt I was in charge of the technology-related situation in which I live	0.79	0.83	0.63	0.83
Mastery2	The technology-related demands of everyday life never got me down	0.86			
Mastery3	I was good at managing the technology-related	0.72			

(*continued on next page*)

Table 2 (*continued*)

Scale item		Factor loading	CR	AVE	Cronbach alpha
	responsibilities of daily life				
Servant leadership					
Servant1	My manager can tell if something work-related is going wrong	0.88	0.93	0.66	0.82
Servant2	My manager makes my career development a priority	0.77			
Servant3	I would seek help from my manager if I had a personal problem	0.90			
Servant4	My manager emphasizes the importance of giving back to the community	0.65			
Servant5	My manager puts my best interests ahead of his/her own	0.79			
Servant6	My manager gives me the freedom to handle difficult situations in the way that I feel is best	0.87			
Servant7	My manager would not compromise ethical principles in order to achieve success	0.78			

Note: N = 325 employees and 56 supervisors across 24 organizations.
CR = Composite reliability; AVE = Average variance extracted.

technologically-environmental mastery ($\gamma = 4.97$, $p = 0.09$). The results confirmed a significant indirect effect of prevention-focused job crafting on the link from AI awareness to service performance adaptivity ($\rho = 0.93$, 95% CI [0.0006, 2.34]), but a non-significant indirect effect of prevention-focused job crafting on the relationship between AI awareness and technologically-environmental mastery ($\rho = 0.60$, 95% CI [-0.32, 0.86]). These results support H2a but not H2b.

Furthermore, as shown in Model 3 in Table 5, AI awareness was positively related to employees' promotion-focused job crafting ($\gamma = 0.48$, $p < 0.05$), which supports H3. Promotion-focused job crafting was positively associated with service performance adaptivity ($\gamma = 1.16$, $p < 0.001$) and technologically-environmental mastery ($\gamma = 0.55$, $p < 0.05$). By utilizing the Monte Carlo method with 20,000 re-samplings and 95% CIs, we confirmed a significant indirect effect of promotion-focused job crafting on the link from AI awareness to service performance adaptivity ($\rho = 0.56$, 95% CI [0.06, 1.38]), as well as on the relationship between AI awareness and technologically-environmental mastery ($\rho = 0.26$, 95% CI [0.003, 0.82]). These results support both H4a and H4b.

The results also illustrated the significant moderating role of servant leadership. Servant leadership negatively moderated the relationship between AI awareness and prevention-focused job crafting ($\gamma = -0.26$, $p < 0.01$) and positively moderated the link from AI awareness to promotion-focused job crafting ($\gamma = 0.14$, $p < 0.01$). Furthermore, planned comparisons depicted that when servant leadership was low, AI awareness was stronger in relation to prevention-focused job crafting (*simple slope* = 0.34, $p < 0.001$) than when the servant leadership was high (*simple slope* = −0.10, $p = 0.27$; Fig. 2a). However, as shown in Fig. 2b, when servant leadership was high, AI awareness was stronger in relation to promotion-focused job crafting (*simple slope* = 0.60, $p < 0.01$) compared to when servant leadership was low (*simple slope* = 0.36, $p = 0.08$). Further, as shown in Fig. 3, we employed the Johnson-Neyman technique and conducted a floodlight analysis to visualize the moderating effects of servant leadership (Hayes & Matthes, 2009). The results thus further supported H5a and H5b. The results of the path coefficient for the hypothesized model are shown in Fig. 4.

As shown in Table 6, the indirect effect of AI awareness on service performance adaptivity through prevention-focused job crafting was observed to be 9.87 (95% CI [1.43, 19.56]) when servant leadership was low, versus −11.43 (95% CI [−26.25, −1.09]) when servant leadership was high (difference between the indirect effects = −21.30, 95% CI [−46.10, −2.51]). The indirect effect of AI awareness on technologically-environmental mastery through prevention-focused job crafting was found to be statistically non-significant (−7.37, 95% CI [−19.41, 0.91] when servant leadership was high compared to 6.37, 95% CI [−1.08, 14.45] when servant leadership was low (difference between the indirect effects = −13.74, 95% CI [−34.55, 1.79]). Thus, H6a was supported, but H6b was not supported by these results.

The indirect effect of AI awareness on service performance adaptivity through promotion-focused job crafting was 1.55 (95% CI [0.41, 3.19]) when servant leadership was high, versus −0.16 (95% CI [-0.75, 0.56]) when servant leadership was low (difference between the indirect effects = 1.70, 95% CI [0.40, 3.50]). The indirect effect of AI awareness on technologically-environmental mastery through promotion-focused job crafting was found to be 0.73 (95% CI [0.03, 1.87]) when servant leadership was high, versus −0.07 (95% CI [-0.34, 0.33]) when servant leadership was low (difference between the indirect effects = 0.80, 95% CI [0.02, 1.97]). Considered together, both H7a and H7b were supported by these results.

Supplementary analyses. In order to provide a comprehensive and reliable means of testing the robustness of our model, we further employed the partial least squares structural equation modeling (PLS-SEM) approach to re-examine the gathered data. The findings from the PLS-SEM approach constructively replicate the findings from the multilevel path analysis (see Appendix D3 for more details).[1]

5. Conclusions and implications

This research examines the mediation of employees' self-regulatory focused job crafting on the relationships between AI awareness and service performance adaptivity and technologically-environmental mastery, along with the moderating role of servant leadership on these relationships. The findings support most of the research hypotheses.

Particularly, the findings show that AI awareness may develop employees' prevention-focused job crafting (supporting H1), further enhancing their service performance adaptivity (supporting H2a). However, it statistically non-significantly decreases technologically-environmental mastery (not supporting H2b). These results are consistent with and further extend Liang et al.'s (2022) view that AI awareness may be regarded as hindering stress by employees, which impacts their work-related outcomes. Hence, the results confirm that AI awareness may be assessed as a hindering job demand, evoking employee prevention-focused job crafting. Furthermore, our results extend this previous research, pointing out that prevention-focused job crafting for coping with AI awareness may not always lead to negative employee outcomes. Prevention-focused job crafting, along with AI awareness, may help employees effectively adapt to the changing AI technological environment by narrowing their work-role boundaries and saving resources to focus on the core duties and responsibilities of their jobs. Additionally, our results demonstrate that prevention-focused job crafting is statistically non-significantly (but marginally significantly

[1] We again found that: *Beta* $_{\text{AI awareness} \rightarrow \text{prevention-focused job crafting}} = 0.18$, $t = 3.10$, $p < 0.01$; *Beta* $_{\text{prevention-focused job crafting} \rightarrow \text{service performance adaptivity}} = 0.10$, $t = 1.93$, $p < 0.10$; *Beta* $_{\text{prevention-focused job crafting} \rightarrow \text{technologically-environmental mastery}} = -0.05$, $t = 0.84$, $p = 0.40$; *Beta* $_{\text{AI awareness} \rightarrow \text{promotion-focused job crafting}} = 0.08$, $t = 1.50$, $p = 0.13$ (near-marginal significant); *Beta* $_{\text{promotion-focused job crafting} \rightarrow \text{service performance adaptivity}} = 0.12$, $t = 2.01$, $p < 0.05$; *Beta* $_{\text{promotion-focused job crafting} \rightarrow \text{technologically-environmental mastery}} = 0.12$, $t = 2.08$, $p < 0.05$; *Beta* $_{\text{AI awareness x servant leadership} \rightarrow \text{prevention-focused job crafting}} = -0.29$, $t = 4.21$, $p < 0.01$; *Beta* $_{\text{AI awareness x servant leadership} \rightarrow \text{promotion-focused job crafting}} = 0.14$, $t = 2.35$, $p < 0.05$.

Table 3
The results of confirmatory factor analyses (CFA).

Model	χ^2	*df*	$\Delta\chi^2$ (Δdf)	RMSEA	CFI	TLI	$SRMR_{within}$	$SRMR_{between}$
Base model (Six-factor model)	1498.19	663	–	0.06	0.90	0.89	0.05	0.06
Five-factor model (combining AI awareness and Servant leadership)	2800.10	707	1301.91 (44)	0.10	0.75	0.73	0.10	0.27
Five-factor model (combining Prevention-focused job crafting and Promotion-focused job crafting)	3956.46	673	2458.27 (10)	0.12	0.60	0.57	0.17	0.07
Five-factor model (combining Service performance adaptivity and Technologically-environmental mastery)	1963.29	673	465.10 (10)	0.08	0.84	0.83	0.07	0.07
Five-factor model (combining AI awareness and Prevention-focused job crafting)	2694.17	673	1195.98 (10)	0.10	0.75	0.74	0.09	0.07
Five-factor model (combining AI awareness and Promotion-focused job crafting)	2701.43	673	1203.24 (10)	0.10	0.75	0.73	0.09	0.07
Five-factor model (combining AI awareness and Service performance adaptivity)	2209.34	673	711.15 (10)	0.08	0.81	0.80	0.08	0.07
Five-factor model (combining AI awareness and Technologically-environmental mastery)	2051.32	673	553.13 (10)	0.08	0.83	0.82	0.08	0.07
Five-factor model (combining Servant leadership and Prevention-focused job crafting)	4462.38	823	2964.19 (160)	0.12	0.60	0.58	0.19	0.35
Five-factor model (combining Servant leadership and Promotion-focused job crafting)	5792.51	905	4294.32 (242)	0.13	0.50	0.47	0.24	0.38
Five-factor model (combining Prevention-focused job crafting and Service performance adaptivity)	2211.26	673	713.07 (10)	0.08	0.81	0.80	0.08	0.07
Five-factor model (combining Prevention-focused job crafting and Technologically-environmental mastery)	2061.45	673	563.26 (10)	0.08	0.83	0.82	0.08	0.07
Five-factor model (combining Promotion-focused job crafting and Service performance adaptivity)	2207.23	673	709.04 (10)	0.08	0.81	0.80	0.08	0.07
Five-factor model (combining Promotion-focused job crafting and Technologically-environmental mastery)	2051.90	673	553.71 (10)	0.08	0.83	0.82	0.08	0.07
Four-factor model (combining Prevention-focused job crafting and Promotion-focused job crafting; Service performance adaptivity and Technologically-environmental mastery)	4227.32	676	2729.13 (13)	0.13	0.57	0.54	0.19	0.07
Four-factor model (combining AI awareness and Servant leadership; Prevention-focused job crafting and Promotion-focused job crafting)	5115.90	710	3617.71 (47)	0.14	0.47	0.44	0.20	0.27
Four-factor model (combining AI awareness and Servant leadership; Service performance adaptivity and Technologically-environmental mastery)	3080.02	710	1581.83 (47)	0.10	0.72	0.70	0.10	0.27
Three-factor model (combining AI awareness and Servant leadership; Prevention-focused job crafting and Promotion-focused job crafting; Service performance adaptivity and Technologically-environmental mastery)	5390.28	712	3892.09 (49)	0.14	0.44	0.41	0.20	0.27

Note: N = 325 employees and 56 supervisors across 24 organizations.
RMSEA = root mean square error approximation; CFI = comparative fit index; TLI = Tucker-Lewis index; SRMR = standardized root mean squared residual.

and positively; $\gamma = 4.97$, $p = 0.09$) related to employee technologically-environmental mastery. The reason for this may be that adopting prevention-focused job crafting helps employees avoid further resource losses and save the limited resources at work. These resources have broader implications on the employees to control the technological environment in life, which may increase their technologically-environmental mastery.

The findings of this study confirm that AI awareness may also develop employees' promotion-focused job crafting (supporting H3), which can further improve their service performance adaptivity and technologically-environmental mastery (supporting H4a and H4b). These findings are consistent with and further extend Cheng et al.'s (2023) and Liang et al.'s (2022) arguments that AI awareness would be viewed as a challenging job demand with positive outcomes. In this regard, the results confirm that employees may use promotion-focused job crafting to cope with (respond to) AI awareness, subsequently promoting their service performance adaptivity at work. Furthermore, the findings tend to extend the prior research (e.g., Cheng et al., 2023; Liang et al., 2022) by pointing out that the effect of promotion-focused job crafting may spill over into increasing employee personal positive perceptions on the sense of controlling the AI technological environment.

The results further support the moderation hypotheses, indicating that servant leadership plays a moderating role in the relationships between AI awareness and self-regulatory job crafting (supporting H5a and H5b), which affects service performance adaptivity and technologically-environmental mastery. Varying from the previous studies that mostly focus on the organizational-level (e.g., organizational supports; Li et al., 2019) and individual-level moderation (e.g., individual future orientation; Liang et al., 2022), this study focuses on leader-level moderation. In the context of tourism industries, effective leadership is crucial to organizational success (Chon & Zoltan, 2019; Elche et al., 2020) as tourism employees generally have weaker commitments to their employers. Only relying on organizational-level interventions (moderation) may be a less effective way for tourism companies to manage their employees (Boukis et al., 2020). In this case, servant leadership can serve as an effective leadership style, especially for tourism and hospitality companies, as it cultivates more servant leaders for employees who can effectively serve their customers (Liden et al., 2014). When servant leadership is low, employees are more likely to think that they lack resources from their leaders to cope with the potential unemployment caused by AI and further develop their prevention-focused job crafting strategy to avoid future losses, which increases employees' service performance adaptivity (supporting H6a) but not technologically-environmental mastery (not supporting H6b). However, if servant leadership is high, employees are more likely to think that they acquire resources from their leader to cope with the potential unemployment caused by AI and further develop promotion-focused job crafting to access future gains, which increases employees' service performance adaptivity and technologically-environmental mastery (supporting H7a and H7b, see Appendix E for more details).

5.1. Theoretical contributions

This study adds to the existing literature on AI awareness in the context of tourism and hospitality sectors by drawing on the prevention-

Table 4
Correlations and descriptive statistics.

Variable		M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Individual level																		
1	Employee age (years)	30.35	5.10	–														
2	Employee gender	0.44	0.50	0.14**	–													
3	Employee education (years)	15.07	2.49	0.09	−0.05	–												
4	Employee organizational tenure (years)	5.90	4.51	0.72**	0.06	−0.03	–											
5	Employee tenure with AI (years)	2.07	0.98	0.21**	0.07	−0.16**	0.15**	–										
6	Lagged prevention-focused job crafting (T1; control)	4.97	0.84	−0.05	0.06	−0.08	−0.01	0.12*	(0.57)									
7	Lagged promotion-focused job crafting (T1; control)	5.51	0.68	−0.10	−0.04	−0.02	−0.05	−0.02	0.10	(0.57)								
8	Lagged service performance adaptivity (T2; control)	5.11	1.05	0.05	0.01	−0.04	−0.03	0.03	0.03	0.11*	(0.84)							
9	Lagged technologically-environmental mastery (T2; control)	5.22	0.90	0.02	0.09	−0.08	−0.01	0.06	0.07	0.11	0.42**	(0.79)						
10	AI awareness	4.44	1.57	−0.06	−0.11	−0.14**	0.01	0.02	0.08	0.03	−0.08	−0.09	(0.88)					
11	Prevention-focused job crafting (T2)	4.33	0.82	0.00	0.01	−0.06	0.01	−0.04	0.00	0.07	0.01	0.12*	0.16**	(0.77)				
12	Promotion-focused job crafting (T2)	4.85	0.92	0.09	0.03	−0.01	0.08	0.01	−0.07	0.07	0.23**	0.32**	0.09	0.02	(0.76)			
13	Service performance adaptivity (T3)	5.23	1.13	0.07	−0.01	0.17**	−0.01	−0.04	−0.05	−0.01	0.07	0.09	0.09	0.08	0.12*	(0.85)		
14	Technologically-environmental mastery (T3)	5.42	0.91	−0.07	0.00	0.01	−0.11	−0.03	−0.11*	−0.05	0.15**	0.07	0.12*	−0.04	0.12*	0.35**	(0.79)	
Group level																		
15	Servant leadership	5.31	0.85	0.35**	0.15**	0.17**	0.13*	0.14*	−0.04	−0.02	0.06	−0.01	0.07	0.08	0.18**	0.09	−0.04	(0.81)

Note: N = 325 employees and 56 supervisors across 24 organizations.
(parenthesis) = the square root of the AVE.
*p < 0.05, **p < 0.01.

and promotion-focused job crafting strategies. First, this research contributes to the tourism AI awareness literature by investigating how AI awareness can impact employees' adaptivity toward the AI technological environment, both at work (service performance adaptivity) and in life (technologically-environmental mastery). Recently, in the tourism industry, the research stream has shed light on how AI awareness influences employees' attitudinal and behavioral outcomes (see Appendix Afor the literature review). With respect to the most recent AI awareness literature in the tourism industry (e.g., He et al., 2023; Kong et al., 2021, 2024a, 2024b; Li et al., 2019; Liang et al., 2022) that highlights the impacts of AI awareness on employees' work-related outcomes, this research does not only focus on the general work-related outcomes but examines the adaptivity toward the AI technological environment more specifically by considering work-related (service performance adaptivity) and life-related (technologically-environmental mastery) outcomes to offer novel understandings on AI awareness body of knowledge in the tourism and hospitality sectors. Indeed, tourism employees are particularly affected by the potential unemployment caused by AI (Rydzik & Kissoon, 2022a). This leads to such employees feeling overwhelmed by a force that they can neither fathom nor resist. It is crucial to explore whether and how AI awareness can spill over their work boundaries and have a broader implication on their sense of controlling the technological environment in life. Therefore, this research tends to support and extend the tourism and hospitality fundamental proposition that AI awareness is related to both service performance adaptivity and technologically-environmental mastery.

Second, this study expands the job crafting strategies in AI awareness literature by investigating the mediating role of regulatory-focused (prevention- and/or promotion-focused) job crafting. Indeed, previous studies have mainly focused on the positive and negative effects of AI awareness on employees' work-related outcomes (e.g., Ding, 2021; Li et al., 2019; Liang et al., 2022). Nonetheless, the manner in which tourism employees can adopt strategies to avoid such negative effects and promote the positive effects remains largely unexplored. The results of this study contribute to the AI awareness literature by demonstrating regulatory-focused job crafting as an effective strategic process for tourism employees to cope with these positive and negative effects. Although He et al. (2023) investigated the effect of employees' AI perceptions on job crafting, their research conceptualized job crafting as a pure-positive process. However, it has been found that job crafting can be both positive and negative; while it enhances individuals' work engagement, job satisfaction (Rudolph et al., 2017), and performance (Tims et al., 2013), it also leads to job strain (Rudolph et al., 2017), burnout, and turnover intentions (Crawford et al., 2010). This suggests that it is critical to conceptualize and clarify job crafting as both positive and negative; assuming all job crafting strategies function similarly may obscure the existence of important differential effects (e.g., Bindl et al., 2019). Accordingly, we tend to reveal the underlying and complex mediation and moderation mechanism of how employee AI awareness links to job crafting that is not conceptualized as a pure-positive strategy. Our findings indicate various mediation processes through prevention- or promotion-focused job crafting, which highlights the underlying and complex mechanism of the impacts of AI awareness on employee AI adaptivity, both at work (service performance adaptivity) and in life (technologically-environmental mastery).

More importantly, while previous research (Lichtenthaler & Fischbach, 2019) has emphasized that prevention-focused job crafting is associated with attenuating employee motivation and health, we indicate that prevention-focused job crafting would be an effective and positive strategy for tourism employees to respond to AI awareness by increasing their service performance adaptivity. This study integrates the existing AI awareness research on regulatory-focused job crafting (e.g., Cheng et al., 2023) to suggest that AI awareness can promote employees' different strategical processes (prevention- or promotion-focused job crafting) on their service performance adaptivity and technologically-environmental mastery.

Table 5
Results for the predictors of the hypothesized relationships.

	Model 1				Model 2						Model 3					
	Service performance adaptivity (T3)		Technologically-environmental mastery (T3)		Prevention-focused job crafting (T2)		Service performance adaptivity (T3)		Technologically-environmental mastery (T3)		Promotion-focused job crafting (T2)		Service performance adaptivity (T3)		Technologically-environmental mastery (T3)	
	γ	$SE\gamma$	γ	$SE\gamma$	γ	$SE\gamma$	γ	$SE\gamma$	γ	$SE\gamma$	γ	$SE\gamma$	γ	$SE\gamma$	γ	$SE\gamma$
Controls																
Employee age	0.01	0.02	0.00	0.01	0.00	0.00	0.02	0.02	0.01	0.01	0.01	0.02	0.03	0.03	0.01	0.01
Employee gender	0.01	0.11	0.01	0.11	−0.04	0.08	0.01	0.10	−0.01	0.11	0.08	0.12	0.01	0.10	0.01	0.11
Employee education	0.06	0.04	−0.01	0.02	−0.02	0.02	0.06	0.03	−0.02	0.02	−0.04*	0.02	0.06	0.04	−0.01	0.02
Employee organizational tenure	−0.01	0.02	−0.02	0.01	0.01	0.01	−0.02	0.02	−0.02	0.01	−0.01	0.02	−0.03	0.02	−0.02	0.01
Employee tenure with AI	−0.03	0.06	−0.03	0.04	−0.07	0.04	−0.02	0.06	−0.03	0.04	−0.04	0.05	−0.02	0.07	−0.03	0.04
Lagged prevention-focused job crafting (T1; control)					−0.01	0.05										
Lagged promotion-focused job crafting (T1; control)											0.11	0.08				
Lagged service performance adaptivity (T2; control)	−0.01	0.07					−0.03	0.07					−0.02	0.07		
Lagged technologically-environmental mastery (T2; control)			−0.08	0.05					−0.02	0.05					−0.05	0.05
Predictors																
AI awareness	0.88***	0.19	0.55***	0.15	0.12	0.06	−0.01	0.04	0.01	0.04	0.48*	0.19	0.002	0.04	0.02	0.04
Servant leadership					−0.04[a]	0.02					0.12	0.14				
AI awareness x Servant leadership					−0.26**	0.08					0.14**	0.05				
Prevention-focused job crafting (T2)							7.71*	3.39	4.97	2.94						
Promotion-focused job crafting (T2)													1.16***	0.31	0.55*	0.26
Diff −2*log[a]	4400.06				4867.31						4775.65					
Δdf	3				10						10					
Pseudo R^2	0.59				0.66						0.78					

Note: N = 325 employees and 56 supervisors across 24 organizations. γ = unstandardized regression coefficient; SE_γ = standard error of γ.
[a] Model 1 (−2*log = 3011.09) was compared with a null model (−2*log = 7411.15). Model 2 (−2*log = 2543.84) was compared with a null model. Model 3 (−2*log = 2635.49) was compared with the null model. Pseudo R^2 = 1 – log likelihood (model)/log likelihood (null). *$p < .05$, **$p < .01$, ***$p < .001$.

Third, this sheds light on the moderation role of servant leadership. Aligning with the job crafting strategies (Tims et al., 2015; Zhang & Parker, 2019), the findings indicate that servant leadership, as an important job resource, can interact with AI awareness (job demands) to determine the regulatory-focused (prevention- or promotion-focused) job crafting can help them master the AI technological environment. These findings are theoretically contributable as exploring and verifying moderation at the leader-level is crucial for further development. Although prior tourism literature has largely focused on the moderating role of organizational-level (-centered) variables (e.g., Li et al., 2019) and individual-level (-centered) variables (Liang et al., 2022), the moderating effects of the leader-level (-centered) variables should be explored. Especially for tourism and hospitality companies, since employees generally have lower commitments toward their companies, and organizational strategies and practices could make it difficult to directly communicate with the employees. Instead, with closer relationships and more frequent interactions with employees, leadership has stronger implications for the tourism employees (Darvishmotevali & Altinay, 2022). The researchers of this study aim to fill this gap by suggesting the cross-level moderating role of servant leadership.

The findings further indicate that AI awareness is linked to employees' engagements in either prevention- or promotion-focused job crafting, followed by service performance adaptivity and technologically-environmental mastery, depending on the levels (high vs. low) of servant leadership. Previous research has suggested that prevention- and promotion-focused job crafting could involve different driving processes (e.g., Lichtenthaler & Fischbach, 2019); however, few empirical studies investigate their complex originating mechanisms. Recent research by Barclay et al. (2022) has explored these originating mechanisms and argued that how employees assess the evolving changes in their work environment (meaningfulness vs. effectiveness) could elicit discrete emotions (pride vs. frustration), which encourages

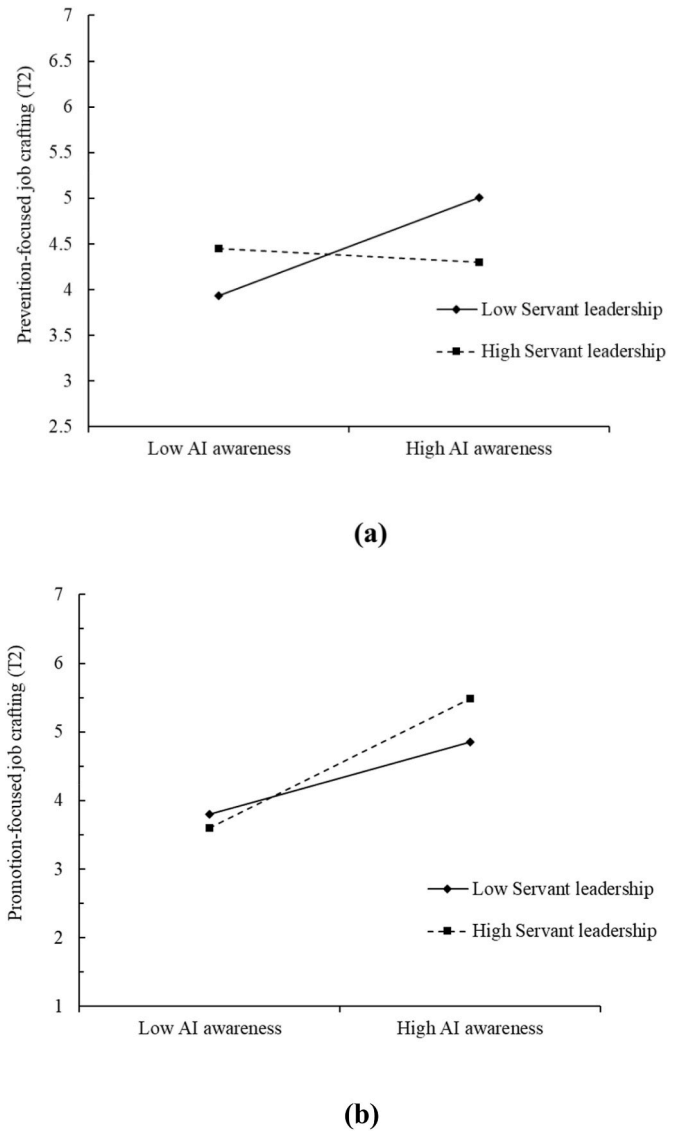


Fig. 2. Servant leadership as a moderator on the relationship between AI awareness and (a) prevention-focused job crafting and (b) promotion-focused job crafting.

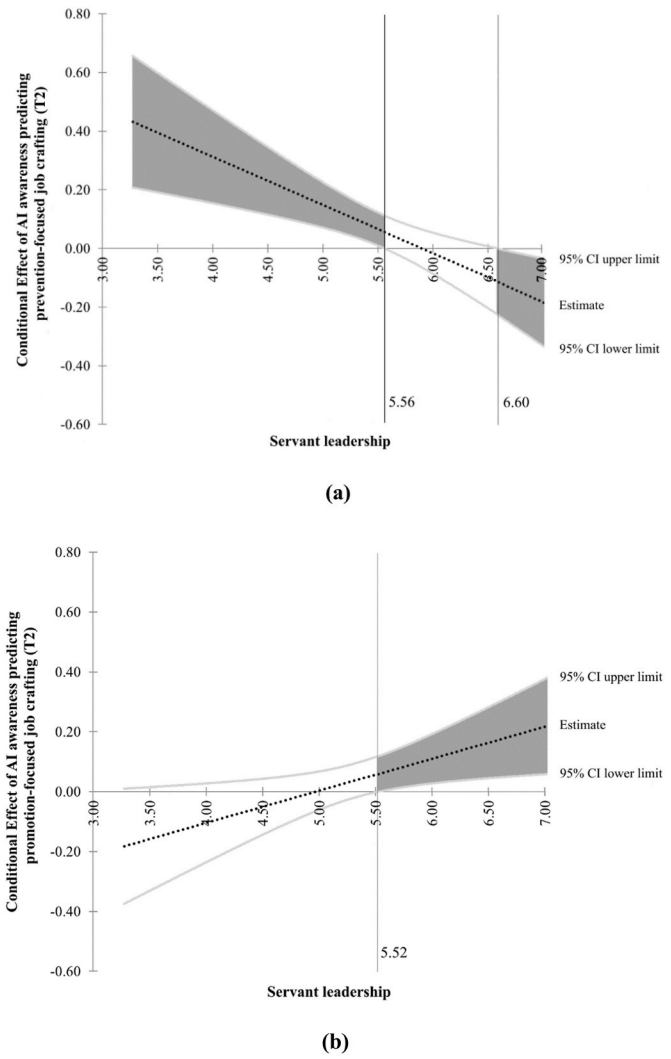
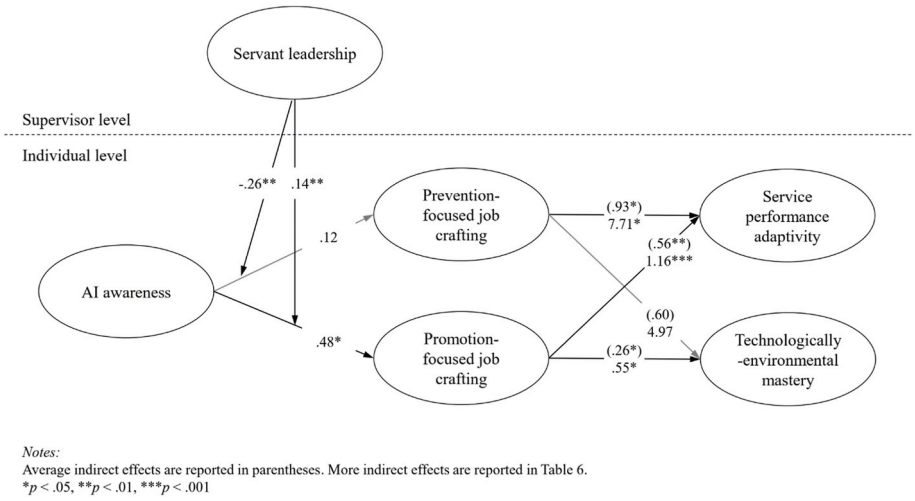


Fig. 3. The moderating effects of servant leadership on the relationship between AI awareness and (a) prevention-focused job crafting and (b) promotion-focused job crafting.

promotion-vs. prevention-focused behaviors and, consequently, performance adaptivity vs. environmental mastery. However, our research extends Barclay et al.'s (2022) work in two ways. First, we focused specifically on AI awareness as the driver of two job crafting strategies (prevention-vs. promotion-focused), which contributes to the tourism AI awareness literature (e.g., He et al., 2023), whereas Barclay et al. (2022) linked general (non-specific) work changes to promotion-vs. prevention-focused behaviors. Indeed, AI has recently been creating an evolving career environment in the tourism and hospitality sectors (Tuomi et al., 2020; Tussyadiah, 2020), and AI awareness would reflect a major change at work that could significantly affect tourism employees (Li et al., 2019). Accordingly, more studies should focus on how tourism employees use AI awareness to improve their adaptivity toward the evolving AI technological environment (Kong, Jiang, et al., 2024; Kong, Yin, et al., 2024). Second, we aimed to extend the links from AI awareness to the two job crafting strategies (as well as service performance adaptivity and technologically-environmental mastery) through investigating the cross-level moderating effect of servant leadership, whereas Barclay et al. (2022) have not explored the boundary effects of their theoretical model. Since our findings indicate that AI awareness is linked to prevention-vs. promotion-focused job crafting, it is critical to investigate the determinants (moderators) that explain the circumstances in which employees may adopt the prevention-focused (vs. promotion-focused) job crafting strategy (Petrou et al., 2018). Thus, we addressed the need for further exploration of the complex originating mechanisms of employee prevention- and/or promotion-focused job crafting by considering the cross-level moderating effect of servant leadership. As a whole, our research tends to advance the knowledge on prevention- and promotion-focused job crafting through its investigation of the moderated mediation mechanism: how AI awareness would prompt service performance adaptivity and technologically-environmental mastery through either prevention- or promotion-focused job crafting, depending on the level (low vs. high) of servant leadership.

5.2. *Practical implications*

In terms of a macro perspective, it was found that tourism policymakers have taken a superficial view of AI taking over human jobs. Currently, tourism policymakers are encouraging the application of AI in the tourism industry while ignoring the threat of AI to tourism employees. For example, AI may evoke a sense of job insecurity in employees (Brougham & Haar, 2018; Wang et al., 2022). Therefore, it is



Notes:
Average indirect effects are reported in parentheses. More indirect effects are reported in Table 6.
*$p < .05$, **$p < .01$, ***$p < .001$

Fig. 4. Results of path coefficient for the hypothesized model.

necessary to pay attention to how tourism employees can cope with such threats of being potentially replaced by AI. Meanwhile, policymakers should also appeal to employees to actively protect their rights and explore ways to improve employees' adaptivity in this technology-driven era. For instance, organizing employees for skills training, creating new jobs, and developing regulations to achieve a humans-AI balance can help people adapt to this technology. Policymakers should also provide employees with the required support so that they are more inclined to adopt promotion-focused job crafting, thereby improving their service performance adaptivity and technologically-environmental mastery. Most tourism employees are young, female immigrants with low skill, education, and salary levels (Rydzik & Kissoon, 2022a), thereby resulting in a high labor turnover. As such, tourism policymakers and companies must support their frontline employees in coping with the AI environment. Tourism policymakers should pay more attention to effective strategies for employees' adaption to the evolving technological environment and seek more humane countermeasures from the employee perspective.

From a micro perspective, the findings provide some enlightenment for the management of tourism companies. On the one hand, this research encourages tourism managers to realize the balance between AI and their employee labor to improve the company's efficiency. For example, managers should make full use of resources, provide employees with more opportunities conducive to career development (Kong et al., 2023), increase the interaction between employees and AI, and encourage employees to develop trust (Kong, Yin, et al., 2024) and commitment toward AI as a coworker. In this case, employees may have sufficient resources to develop promotion-focused job crafting, improving their adaptivity. On the other hand, if employees adopt prevention-focused job crafting, it can help them to adapt to the technologically-environmental changes in the workplace, but they would not acquire a sense of mastery. In this case, managers must provide support (Mo et al., 2021) to help them improve their technologically-environmental mastery. Tourism managers should also engage in more effective communication with their employees, establish equal labor relations, and increase mutual trust (Tussyadiah, 2020). In this way, employees will become confident to control the changing AI technological environment, thus increasing their technologically-environmental mastery.

In addition, this study finds that servant leadership plays a key moderating role among tourism employees. Specifically, the level of servant leadership moderates employees to adopt prevention- or promotion-focused job crafting, thus impacting their service performance adaptivity and technologically-environmental mastery. Tourism companies should pay attention to encouraging and cultivating servant leadership. For example, companies can train senior executives to master and possess the characteristics of servant leadership (e.g., listening, healing, and compassion). Meanwhile, taking the core attributes and skills of servant leadership as the criterion, the companies can motivate managers to integrate servant behaviors into daily work (Ling et al., 2016). For instance, in the context of the AI technological environment, to help engage employees who fail to recognize the value in gaining AI technologic competencies, servant leaders should launch an internal service program to help such employees imagine the possibilities of being empowered by AI technology. Then, servant leaders should further focus on boosting employee confidence to cope with AI technology by, for example, promoting employees' experience and interaction with AI technologies through either education or employment and sharing stories of the successful AI technology experiences of coworkers, managers, and other relevant people (Neeley & Leonardi, 2022). In this way, servant leaders can encourage employees to believe that the AI technological environment at work may produce benefits for them and believe in their abilities to gain these benefits. However, it should be noted that while tourism companies encourage and train their leaders to become servant leaders, they should also give adequate support and attention to the leaders to reduce the pressure on them (Darvishmotevali & Altinay, 2022).

5.3. *Limitations and directions for future research*

First, a time-lagged cross-level multi-source field survey with tourism working adults in China, as well as multilevel structural equation modeling and the Monte Carlo method were adopted as analytical techniques to test the model. Notwithstanding the solid methodology of this study, it might be helpful for future researchers to replicate these findings by employing tourism working adults from Western cultures (versus the Eastern cultures in this study) as research samples. This can be done by employing different metrological designs such as vignette-based experiments to counteract the potential shortcomings of other study methods (Mo, Liu, Wong, & Wu, 2022) by using other data collection and analytical techniques, such as machine learning for analyzing employees' sentiments through their photos. Second, future studies can extend this research by investigating other theoretically relevant variables that may mediate the hypothesized relationships. For example, learning-preparedness variables (including possessing recent prior experiences, anxiety in learning situations, perceived intelligence, and beliefs about possessing learning qualities) may also explain the potential mediation between AI awareness and performance adaptivity. The extent to which tourism employees are aware that the potential AI replacement at work would affect their learning attitudes and

Table 6
Results of indirect effects.

Model	Indirect effect	95% lower level	95% upper level
Average indirect effect			
AI awareness – Prevention-focused job crafting – Service performance adaptivity	0.93	0.0006	2.34
Conditional indirect effect			
AI awareness – Prevention-focused job crafting – Service performance adaptivity (high Servant leadership)	−11.43	−26.25	−1.09
AI awareness – Prevention-focused job crafting – Service performance adaptivity (low Servant leadership)	9.87	1.43	19.56
Difference	−21.30	−46.10	−2.51
Average indirect effect			
AI awareness – Prevention-focused job crafting – Technologically-environmental mastery	0.60	−0.32	0.86
Conditional indirect effect			
AI awareness – Prevention-focused job crafting – Technologically-environmental mastery (high Servant leadership)	−7.37	−19.41	0.91
AI awareness – Prevention-focused job crafting – Technologically-environmental mastery (low Servant leadership)	6.37	−1.08	14.45
Difference	−13.74	−34.55	1.79
Average indirect effect			
AI awareness – Promotion-focused job crafting – Service performance adaptivity	0.56	0.06	1.38
Conditional indirect effect			
AI awareness – Promotion-focused job crafting – Service performance adaptivity (high Servant leadership)	1.55	0.41	3.19
AI awareness – Promotion-focused job crafting – Service performance adaptivity (low Servant leadership)	−0.16	−0.75	0.56
Difference	1.70	0.40	3.50
Average indirect effect			
AI awareness – Promotion-focused job crafting – Technologically-environmental mastery	0.26	0.003	0.82
Conditional indirect effect			
AI awareness – Promotion-focused job crafting – Technologically-environmental mastery (high Servant leadership)	0.73	0.03	1.87
AI awareness – Promotion-focused job crafting – Technologically-environmental mastery (low Servant leadership)	−0.07	−0.34	0.33
Difference	0.80	0.02	1.97

Note: N = 325 employees and 56 supervisors across 24 organizations.

preparedness processes to cope with (respond to) the AI (mediating processes) subsequently influences how they can effectively adapt to this technological environment (Kong et al., 2023). Third, by identifying other relevant theories, future studies can extend these results by specifying the moderators in the relationship between AI awareness and tourism employee outcomes. For example, digital transformational leadership, regarded as an effective leadership style in the technology-driven era, can help employees respond to the possible AI threats at work by engendering leader-member trust, seeking to develop leadership among members, exhibiting self-sacrifice, and serving as moral models. Following this logic, future studies can explore a potential research question: How does AI awareness interact with digital transformational leadership in shaping employees' coping strategies? Moreover, employees' attitudes toward AI technologies, such as competitive or collaborative attitudes on working with AI technologies, may prove to be another important moderator for future studies in investigating job crafting. For example, when employees have competitive attitudes toward working with AI technologies, they are more likely to evade and reduce cooperation (and even interaction) with AI technologies, thus narrowing their work boundaries and work roles toward the technological environment (prevention-focused job crafting). When employees have collaborative attitudes on working with AI technologies, they are more likely to accept AI and actively adjust themselves to better collaborate with AI, thus better accommodating AI implementation, and expanding their work boundaries and work roles toward the technological environment (promotion-focused job crafting), which subsequently affects their service performance adaptivity and technologically-environmental mastery.

Declarations of interest

None.

Impact statement

There are a few practical implications of this research that may help tourism policymakers, companies, and managers. In terms of a macro perspective, currently, tourism policymakers are encouraging the application of AI in the tourism industry while ignoring the threat of AI to tourism employees. Tourism policymakers should pay more attention to effective strategies for employees to adapt to the technological environment and seek more humane countermeasures from the employee perspective. From a micro perspective, this research encourages tourism managers to realize the balance between AI and their employee labor to improve the company's efficiency; and, if employees adopt prevention-focused job crafting, managers must provide support to help them improve their technologically-environmental mastery. In addition, this study finds that servant leadership plays a key moderating role among tourism employees. Tourism companies should pay attention to encouraging and cultivating servant leadership.

CRediT authorship contribution statement

Ziying Mo: Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Data curation, Conceptualization. **Matthew Tingchi Liu:** Writing – review & editing, Supervision, Resources, Project administration, Investigation, Funding acquisition, Data curation, Writing – original draft. **Yu Ma:** Writing – review & editing, Writing – original draft, Software, Methodology, Data curation, Formal analysis.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.tourman.2024.104971.

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