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Exploring Factors Influencing Employees' Adoption of Artificial Intelligence: Evidence From China

Lei Yuan

Queen Mary, University of London

Xue Zhou

Queen Mary, University of London

Natalia Efremova

Queen Mary, University of London

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Abstract

China's issue with employees' overtime has grown into the toxic '996' culture which is significantly detrimental to employees' performance, quality of life and organisational sustainable development. Artificial Intelligence as an emerging technology could boost the productivity and performance of employees at work, which might be a solution to overtime in China. However, the adoption rate of AI is not high. By proposing a conceptual model based on the Technology Acceptance Model (TAM), this research aims to shed light on the factors influencing the adoption of AI by employees in China. A quantitative method will be adopted by using an online questionnaire survey. In addition to extending knowledge in the area of technology adoption, this proposed research will provide implications to company managers, policymakers and government officials.

Keywords: Technology Adoption, Artificial Intelligence, Overtime, China, TAM

Authors: Lei Yuan, Xue Zhou, Natalia Efremova

Track: Innovation

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RESEARCH CONTEXT

Problem Statement

The social life of human beings has traditionally been centred around work, and a proper amount of working hours is not only a prerequisite to ensure economic growth but a crucial factor in describing how socially productive forces are evolving at the moment (Ngai and Pissarides, 2008). However, scientific research and practices reveal that poor work-life balance induced by overwork drastically changed workers' lives, decreased their quality of life, and harmed their physical and mental health (Li et al, 2021).

With its reform and opening-up, China's economy has continued to expand, but overtime has become a significant problem. Between 2017 to 2022, the average number of weekly working hours in China has been 47.7 (CEIC, 2022), which is much greater than the legal maximum. The practice of overtime has evolved into a toxic work culture, known as '996.' The so-called '996' schedule requires workers to work from 9 a.m. to 9 p.m., six days a week. In China, overtime is increasingly widespread in the majority of businesses(e.g. Alibaba, Tencent and ByteDance). Current statistics on the overtime status of Chinese workers indicate that 91.6% are forced to work overtime, 84.7% are still expected to pay attention to work-related information after work, and over 60% work overtime for more than one hour every day (51job, 2022; Zhaopin, 2022).

Overtime has caused employees to experience stress and exhaustion, which significantly damaged their well-being. The unexpected outbreak of the Covid-19 epidemic in 2020-2022 has prompted many Chinese workers to work from home, hence increasing rather than decreasing their work hours (Gao et al., 2022). WHO reports that the pandemic increases the incidence of anxiety, depression, and insomnia by 25% globally in 2022. Owing to the rigorous quarantine regulations in China, more than a third of the participants said that working overtime had a significant negative effect on their health (Zhaopin, 2022; 51job, 2022). Similarly, a survey on young employees' overtime reveals that 71.31% of young employees lost personal time and felt physically and emotionally exhausted due to overtime (36Kr, 2022).

Potential Solution to Overtime: AI

'AI is the replication of human analytical and/or decision-making capabilities' (Finlay, 2017, p. 6) providing businesses the possibility for extensive enhancements and new business prospects. AI has been garnering major attention in recent years, and its adoption is becoming more prevalent in numerous sectors such as healthcare, finance, customer service, manufacturing, and many other areas to boost efficiency, decrease costs, and improve decision-making (Knight, 2015). **Simultaneously, AI could disrupt numerous sectors and revolutionise the way work is performed, as well as increase the productivity and performance of employees at work.** Despite the multiple advantages that AI may provide to workers, the AI adoption rate among employees remains low and remains a difficult, multi-factor process (IBM, 2022).

In this developmental paper, we propose to develop a conceptual model which is based on the original Technology Acceptance Model (TAM) and introduces additional factors at three levels including micro, meso, and macro levels aiming to provide a panoramic view of the factors that influence the intention to use AI by employees in China.

LITERATURE REVIEW

Technology Acceptance

Technology acceptance may be described as the process through which individuals adopt and begin to use new technology (Rogers, 1995). Since the 1980s, when the proliferation of personal computers became widespread, scholars have deemed it vital to investigate how individuals accept new technology. To do this, they have used a vast array of theoretical frameworks (Marikyan and Papagiannidis, 2022). Many models have been developed to better comprehend and predict how people might respond to new technology (Ajzen, 1991; Davis et al., 1992; Taylor and Todd, 1995; Thompson et al., 1991; Venkatesh et al., 2003). The Technological Acceptance Model (TAM) developed by Davis (1989) and based on the Theory of Reasoned Action has been used in the majority of studies (Ajzen and Fishbein, 1980; Davis, 1989; Silva, 2015).

According to the TAM, there are two primary factors to consider: Perceived Usefulness (PU), which indicates the extent to which a user's performance might be enhanced by a given system, and (ii) Perceived Ease-of-Use (PEOU), which indicates how simple or complex a given system is to use (Davis et al. 1989; Venkatesh, 2015). Because of its solid theoretical grounding and its ability to be consistently evaluated in an individual situation, the TAM is thought to be the most appropriate for the proposed research (Adams et al., 1992; Hendrickson et al., 1993). TAM has been criticised for being too simplistic, for failing to take into account the nuances of advanced technology and the unique traits of individual users, and for failing to fully capture contextual aspects (Chung, 2017). Thus, it is vital to expand the TAM with additional variables in order to foresee how people will embrace complicated technology like AI.

AI Adoption

Although AI is often referred to as one technology, it is a combination of unrelated methods, applied in certain ways depending on the type of data: speech and language modelling, computer vision, time series forecasting etc. (Chollet, 2022). Therefore, the understanding of AI acceptance should depend first on the method and further on the application.

Several studies have investigated the factors that influence the adoption of AI and the most adopted theory is the Technology, Organization and Environment (TOE) framework (Tornatzky and Fleischer, 1990). TOE has been used to study AI adoption in certain areas, such as IT adoption (Chen et al., 2021), customer service (Cruz-Jesus et al. (2019), software management (Oliveira et al., 2019), and mobile hotel reservation systems (Wang et al., 2016). However, little attention has been paid to the adoption of AI by individuals and very few have focused specifically on employees and in the Chinese context in particular.

Therefore, this proposed study is going to fill the knowledge gap by adopting the TAM with extended variables to explore AI adoption from an individual perspective.

THE CONCEPTUAL MODEL AND HYPOTHESES

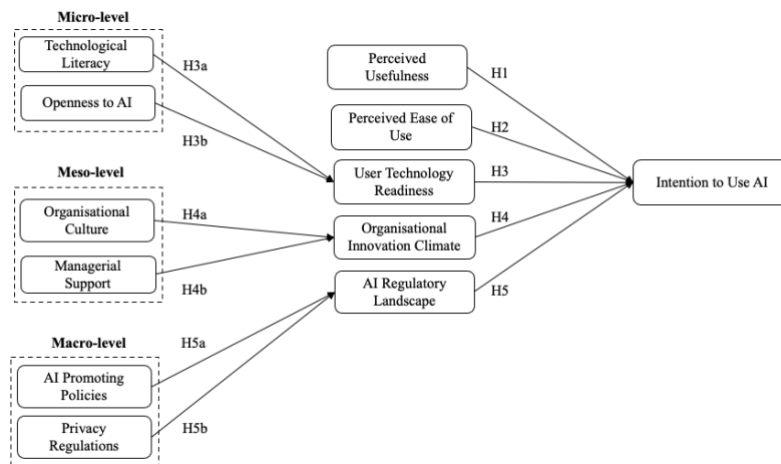


Figure 1. The Conceptual Model

• The TAM

Perceived Usefulness reflects the degree to which an employee believes that using AI would enhance his/her work performance and quality of life (Davis, 1989). Many Chinese workers have enormous workloads and poor work-life balance (Siu, et al., 2005). AI (e.g., DingTalk, SenseTime, and iFlytek) offers potential solutions for boosting employee performance and encouraging work-life balance.

Perceived Ease of Use can be defined as the degree to which an employee believes that using AI in his/her workplace would be free of effort (Davis, 1989). Due to the heavy workload, employees in China would not put much effort into learning to use AI. Prior research has revealed that an individual's perception of AI's usefulness is a crucial aspect that directly influences their acceptance of AI in China (Ye et al., 2019).

• Micro Level

User Readiness can be defined as the extent to which an employee is ready to accept and successfully employ AI in his/her workplace (Parasuraman, 2000). User readiness can encompass a range of antecedents, including technological literacy, openness to AI, personal innovativeness, and job collaboration.

Technological Literacy can be defined as the extent to which an employee believes he/she is familiar with AI (Dugger, 2000). Technologically literate individuals may be more likely to accept and successfully use AI in the workplace because they may feel more comfortable and confident utilising AI.

Openness to AI refers to the extent to which an employee is willing to use and explore AI in the workplace. Individuals who are more open to AI may be more likely to adopt it, while those who are sceptical or fear losing their jobs to AI may be less likely to adopt it (Brynjolfsson, 2017).

• Meso Level

Organizational Innovation Climate refers to the extent to which an organisation supports and encourages innovation, as well as the extent to which employees feel empowered to engage in innovative activities (Scott and Bruce, 1994). It is a significant determinant of an organization's

capacity to innovate and adapt to changing conditions, particularly the acceptance and implementation of novel technologies like AI. It is a multifaceted concept that includes a variety of aspects, including organisational culture, and management support.

Organizational Culture is a set of shared assumptions, values, and beliefs that inform workers on what constitutes acceptable and unacceptable standards of behaviour (Chatman and Eunyong, 2003; Kerr and Slocum, 2005). The extent to which staff attitudes towards innovation tactics and adopting new practices are influenced by organisational culture (Glisson, 2015). A positive organisational culture that values innovation and experimentation, autonomy and empowerment, and places a premium on learning and development, as well as flexibility and adaptability, can foster an environment that encourages innovation by providing motivation, optimism, trust, collaboration, and feedback (Abdi and Senin, 2014).

Managerial support refers to the degree to which managers in an organization would provide necessary resources, encouragement, and guidance to support and facilitate the adoption of AI by their employees (Travaglione et al., 2017). Managerial support can have a positive impact on organisational innovation climate by creating a culture or atmosphere that encourages creativity, risk-taking, participation and feedback (Mokhber et al., 2018).

- **Macro Level**

Regulatory Landscape refers to the extent to which a nation would introduce formal laws, regulations, policies, and guidelines, and promote informal norms that govern the development, deployment, and use of artificial intelligence, including ethical considerations, data privacy, security, and transparency. In this proposed study, the regulatory environment is comprised of AI-promoting policies and privacy regulations. Individuals residing in nations with supportive regulations, policies, and standards may be more inclined to embrace technology than those in nations with legal or regulatory obstacles (Casovan and Shankar, 2022).

AI Promoting Policies refer to the extent to which government policies and initiatives could promote the development, adoption, and diffusion of artificial intelligence. These policies and initiatives may include providing funding for research and development of AI, tax incentives for businesses that invest in AI, and the development of AI education projects. China has made considerable investments in AI and enacted regulations that promote AI. China has adopted projects and efforts such as ‘Made in China 2025,’ ‘Action Outline for Promoting the Development of Big Data,’ and ‘Next Generation Artificial Intelligence Development Plan’ to position itself as a global leader in AI development and adoption (Li, et al., 2021).

Privacy Regulations refer to the extent to which laws, regulations, and guidelines could protect individuals’ personal data and privacy. Privacy regulations can have a significant impact on the AI regulatory landscape in China by setting the legal framework and standards for data collection, use, and protection (Lu et al., 2022). These rules compel organisations to acquire users’ permission before to collecting and using their personal information and impose stringent storage and transfer standards.

RESEARCH HYPOTHESES

Based on the above information, we present the following hypotheses:

H1	H1: Perceived usefulness positively relates to the intention to use AI among employees in China.
H2	H2: Perceived Ease of Use positively relates to the intention to use AI among employees in China.
H3	H3: User readiness positively relates to the intention to use AI among employees in China.
H3a	H3a: Technological literacy will have a significant positive influence on user readiness.
H3b	H3b: Openness to AI will have a significant positive influence on user readiness.
H4	H4: Organisational innovation climate positively relates to the intention to use AI among employees in China.
H4a	H4a: Organisational culture will have a significant positive influence on organizational innovation climate.
H4b	H4b: Managerial support will have a significant positive influence on organizational innovation climate.
H5	H5: Regulatory landscape positively relates to the intention to use AI among employees in China.
H5a	H5a: AI Promoting Policies will have a significant positive influence on AI Regulatory Landscape.
H5b	H5b: Privacy regulations will have a significant positive influence on AI Regulatory Landscape.

RESEARCH METHOD AND DATA COLLECTION

In this proposed study, we want to conduct an online quantitative survey of the employees in organisations in China. The self-administered questionnaires would be based on existing and validated scales (Davis, 1989). The questionnaires would also be designed in both languages: English and Chinese. Potential participants would be anyone who is employed in mainland China. Participants will be recruited by the means of social media platforms (e.g. Weibo and Xiaohongshu).

CONCLUSION

By shedding light on the factors influencing the adoption of AI by employees in China, the proposed research would contribute to the literature in the technology adoption field. Also, it will provide actionable insights into the challenges and opportunities related to AI adoption, enhancing the innovation climate of enterprises. Lastly, it will assist policymakers, legislators, and government officials in developing effective laws, rules, and strategies for AI development and promotion in China.

CURRENT STAGE

The proposed study has finished the literature review stage. Once the ethical approval is obtained, we would distribute online questionnaires in China.

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