

# The Influence of Flexible Work Arrangements in HRM Practice on Innovative Work Behavior in Information Technology Industry of Shenzhen City, China

Tang, Jun<sup>1\*</sup>

<sup>1</sup>University of Melaka, Melaka, 78200, Malaysia

\*Corresponding author: [tangjun0529@126.com](mailto:tangjun0529@126.com)

Received 28 June 2024, Revised 25 July 2024, Accepted 3 August 2024, Available online 4 August 2024

To link to this article: <https://doi.org/10.53797/ujssh.v3i2.14.2024>

**Abstract:** The Information Technology (IT) industry in Shenzhen, China, a hub of rapid technological advancement and economic growth, necessitates an adaptable, skilled, and innovative workforce. This study aims to explore the impact of flexible work arrangements (FWA) on innovative work behavior (IWB), with a focus on the mediating roles of employee engagement (EE) and job autonomy (JA). Employing a quantitative research design, data were collected from 400 IT professionals in Shenzhen and analyzed using Structural Equation Modeling (SEM). The findings indicate that FWA positively influence IWB, with EE and JA serving as significant mediators. This study provides valuable insights into how flexible HR practices can foster an innovative organizational culture, offering practical guidance for enhancing competitiveness in Shenzhen's IT sector. By addressing potential challenges and strategically leveraging FWA, organizations can boost engagement, autonomy, and ultimately, innovation.

**Keywords:** flexible work arrangements, innovative work behavior, employee engagement, job autonomy

## 1. Introduction

Over the past few decades, China's IT industry has seen unprecedented growth, establishing itself as a critical player on the global stage (Liu, 2024). Shenzhen, often referred to as China's Silicon Valley, has been at the heart of this transformation. The city is home to major firms in e-commerce, telecommunications, and computer technology, alongside a vibrant start-up ecosystem (Su, 2021). This dynamic environment not only facilitates technological innovation but also demands a highly adaptable, skilled, and innovative workforce. Flexible work arrangements, which include telecommuting, flexible scheduling, and project-based engagements, have emerged as key components of modern human resource management (HRM) practices in the IT industry (Davitkovski et al., 2020). These arrangements have been further propelled by technological advancements, the COVID-19 pandemic, and evolving worker expectations (Siber & Cero, 2024).

Employee engagement is a critical factor for organizational success, significantly influenced by the nature of work arrangements (Weideman & Hofmeyr, 2020). Engaged employees exhibit higher levels of enthusiasm, commitment, and a willingness to go beyond their basic job requirements (Susanto, 2022). In the context of Shenzhen's IT industry, fostering an environment that promotes employee engagement is essential for sustaining innovation and maintaining a

competitive edge. Job autonomy, defined as the degree of control employees have over their work, including timing, methods, and decision-making processes, is another vital aspect influenced by FWA (Viète & Erdsiek, 2020). Greater autonomy is closely linked to job satisfaction, motivation, and innovative work behavior (Demircioglu, 2021). Empowering employees through increased autonomy can encourage creative problem-solving, faster decision-making, and a more agile response to technological trends and market demands.

Innovative work behavior, which encompasses the generation, promotion, and implementation of new ideas, is crucial for the sustained competitiveness of firms within the IT industry (Monica & Krishnaveni, 2019). This behavior extends beyond technological innovations to include new approaches to processes, management, and business models. The Chinese government's emphasis on innovation as a driving force for economic development further underscores its importance. Understanding how FWA impact these dimensions is essential for fostering a thriving and innovative work environment in Shenzhen's IT sector.

While flexible work arrangements are designed to enhance flexibility and support work-life balance, they also introduce several challenges that can impact human resource management and innovative work behavior in Shenzhen's IT industry. One significant issue is the potential for communication breakdown (Weideman & Hofmeyr, 2020). With employees working different schedules or from various locations, the synchronous exchange of information can be hindered, leading to delays and misunderstandings (Soga et al., 2022). In the fast-paced IT sector, where timely and clear communication is crucial, this can result in inefficiencies and errors. Additionally, the lack of regular face-to-face interactions can diminish team cohesion, essential for sparking innovation and collaborative problem-solving (Ronald & Steffen, 2021).

Another challenge of FWA is the difficulty in monitoring and evaluating performance due to the lack of direct supervision (Bontrager et al., 2021). This can lead to decreased motivation and productivity as employees may feel less accountable (Moalusi, 2021). For HR departments, ensuring that all team members are aligned with company goals and performing to their potential becomes more complex (Jooss et al., 2021), which is crucial for fostering an innovative culture.

Feelings of inequity and isolation among employees can also arise from FWA (Awada et al., 2021). Those working from the office might perceive that remote colleagues receive preferential treatment, or vice versa (Ghali-Zinoubi et al., 2021). Remote workers might feel disconnected from the team, decreasing job satisfaction and commitment (Hunsicker, 2023). Such feelings can stifle the collaborative spirit necessary for innovation.

Ironically, FWA intended to improve work-life balance can sometimes have the opposite effect (Ljungkvist & Moore, 2023). The blurring of boundaries between work and personal life can lead to longer working hours and burnout, which are detrimental to both employee well-being and the innovative output of the company (Kangas et al., 2023). Additionally, maintaining a strong and cohesive organizational culture becomes challenging with employees scattered across different locations and working varying hours (Yildiz & Akkas, 2023). Without a unified set of values and practices, the sense of belonging and loyalty to the company can weaken, reducing the likelihood of innovative behaviors (Müller et al., 2023).

The IT industry in Shenzhen also faces issues related to employee engagement. A perceived disconnect between employees and broader strategic objectives can lead to decreased engagement levels (Panda et al., 2022). Without regular and constructive feedback and recognition of efforts, employees may feel stagnant and less motivated to innovate (Basahal et al., 2022). Limited opportunities for career advancement or professional development can further diminish engagement (Engen et al., 2021). Poor work-life balance and cultural misalignments also play significant roles in reducing employee engagement and, consequently, innovative behavior (Arief et al., 2021; Benjamin, 2020).

Job autonomy presents its own set of challenges. Ensuring consistent quality and adherence to organizational standards can be difficult in highly autonomous environments (Zhou et al., 2019). Additionally, varying levels of skills among employees can lead to uneven project outcomes and workplace tension (Khoshnaw & Alavi, 2020). High levels of autonomy might also reduce team cohesion and collaboration, essential for project success (Guay, 2022). Furthermore,

increased responsibility can overwhelm some employees, leading to stress and burnout (Pattnaik & Sahoo, 2021).

Resistance to change, a lack of supportive culture, communication barriers, and a focus on short-term goals over long-term innovation can significantly hinder innovative work behavior in the IT industry (Yang & Lee, 2020; Zeng et al., 2023). These challenges highlight the complexities and potential drawbacks of implementing FWA in a dynamic and competitive environment like Shenzhen. Addressing these issues is crucial for leveraging flexibility to foster innovation effectively, ensuring the sustained competitiveness of Shenzhen's IT sector.

Based on the outlined problems and gaps identified in the understanding of flexible work arrangements, employee engagement, job autonomy, and innovative work behavior within the information technology (IT) industry of Shenzhen city, China, the study proposes the following research objectives:

(1) To analyze the relationship between flexible work arrangements and innovative work behavior in information technology industry of Shenzhen city, China.

(2) To examine the mediating effect of employee engagement between flexible work arrangements and innovative work behavior in information technology industry of Shenzhen city, China.

(3) To examine the mediating effect of job autonomy between flexible work arrangements and innovative work behavior in information technology industry of Shenzhen city, China.

## **2. Literature Review**

### **2.1 Flexible Work Arrangements and Innovative Work Behavior**

This section aims to explore the relationship between flexible work arrangements and innovative work behavior. By examining various studies, the section seeks to understand how the flexibility in work schedules, locations, and overall work environment influences employees' creativity, engagement, and their ability to innovate.

The scholarly discourse on Flexible Work Arrangements (FWA) reveals a harmonious agreement regarding their positive impact on Innovative Work Behavior (IWB), as articulated by recent studies (Jiang et al., 2023; Astriani & Muafi, 2023; Qi et al., 2023). Jiang et al. (2023) underscore the significance of aligning work schedules with individual peaks of creativity, positing that such autonomy not only empowers employees but also spurs their innovative capacities. This autonomy, they argue, cultivates a sense of trust and value among employees, thereby enhancing their motivation and commitment to presenting novel ideas. The psychological foundations of this effect, as they suggest, revolve around the resultant perception of being trusted and valued, which is crucial for the sustenance of engagement in innovative endeavors. Astriani & Muafi (2023), however, steer the discussion towards the spatial dimensions of FWA, advocating for the benefits of location flexibility. They assert that the dynamism from varied work environments fosters the emergence of fresh perspectives and ideas, vital for innovation. This shift in settings, they argue, combats cognitive stagnation, and promotes a vibrant flow of innovation, underlining the importance of such flexibility in enhancing both individual and organizational innovation capabilities. Qi et al. (2023) further enriched this narrative by identifying job satisfaction as a pivotal mediator in the relationship between FWA and IWB. They illustrate how the autonomy from FWA fortifies job satisfaction by mitigating stress and improving mental well-being, which in turn, catalyzes innovative output. This equilibrium, according to them, is instrumental for nurturing a mentally agile and engaged workforce, predisposed to innovation. While Jiang et al. (2023) and Astriani & Muafi (2023) converge on the empowerment and motivational aspects of FWA, Qi et al. (2023) pivoted the discussion towards psychological well-being as the cornerstone for innovation. Despite these nuanced differences, the collective body of research presents a compelling case for the adoption of FWA, showcasing their indispensable role in fostering an innovative and adaptable workforce across varying industrial landscapes. These perspectives not only reaffirm the critical role of autonomy in unlocking the creative potential of employees but also highlight the multifaceted benefits of FWA in enhancing the innovative capabilities of organizations. These studies advocate for a strategic reevaluation of work policies to integrate FWA, thereby leveraging their potential to drive innovation and maintain a competitive edge in the rapidly evolving business milieu.

## 2.2 Flexible Work Arrangements and Employee Engagement

This section aims to explore the relationship between flexible work arrangements and employee engagement in the past few years.

The prevailing view among scholars underscores the beneficial impact of Flexible Work Arrangements (FWA) on Employee Engagement, with studies by Weideman & Hofmeyr (2020), Shah et al. (2020), and Gašić & Berber (2021) providing a multidimensional perspective on this relationship. Weideman & Hofmeyr (2020) emphasize the psychological empowerment derived from job autonomy, noting how FWA enable employees to customize their work lives, which enhances engagement through increased ownership and intrinsic motivation. This viewpoint is paralleled and expanded upon by Shah et al. (2020), who attribute the positive effects of FWA to the cultivation of a trust-based organizational culture. They argue that flexible working practices symbolize an employer's trust and respect, deepening employees' sense of value and belonging, which, in turn, strengthens engagement. Gašić & Berber (2021) shift the focus to the role of FWA in alleviating work-life conflict, asserting that the adaptability provided by such arrangements allows for a more balanced and satisfying work-life integration, thus fostering a more engaged and motivated workforce. While all three studies converge on the positive outcomes of FWA, their emphasis varies from the psychological (Weideman & Hofmeyr, 2020) and cultural (Shah et al., 2020) to the practical aspects of work-life balance (Gašić & Berber, 2021). These studies illuminate the complex and multifaceted nature of employee engagement, highlighting the need for a holistic approach in the adoption and implementation of FWA by organizations aiming to enhance employee engagement.

## 2.3 Employee Engagement and Innovative Work Behavior

This section aims to the pivotal relationship between employee engagement and innovative work behavior, aiming to underscore the critical influence that engaged employees exert on organizational innovation.

Recent studies converge on the understanding that employee engagement significantly bolsters innovative work behavior, albeit through varied mechanisms and emphases. Manuati Dewi et al. (2023) underscore the emotional and cognitive connection employees foster towards their tasks as a cornerstone for innovation, suggesting that this profound engagement not only enhances their work experience but also imbues their roles with purpose, consequently fueling creativity. In a similar vein, Ali & Li (2022) underscore the concept of discretionary effort, where engaged employees naturally incline towards going beyond their job descriptions, laying the groundwork for innovation through a willingness to explore and solve problems beyond conventional boundaries. This notion of discretionary effort ties closely to the idea that innovation stems not just from doing more but from a distinct mindset geared towards challenging the status quo. Koroglu & Ozmen (2022), meanwhile, focus on the alignment between employees' personal ambitions and organizational goals, positing that this alignment is a crucial driver for innovative behavior. This perspective harmonizes with the others in highlighting the role of emotional and cognitive investment in work tasks but places a stronger emphasis on the motivational power of shared goals and collective vision for innovation. These perspectives illuminate the multifaceted relationship between employee engagement and innovative work behavior, highlighting the need for a tailored approach in cultivating an innovative organizational culture that leverages the unique contributions of engaged employees.

## 2.4 Flexible Work Arrangements and Job Autonomy

This section aims to explore the intricate relationship between flexible work arrangements and job autonomy, highlighting the transformative effects these practices have on employee empowerment, satisfaction, and organizational success.

In examining the impacts of flexible work arrangements on job autonomy, Allen et al. (2021), Wang (2021), and Rodhiya et al. (2021) collectively underscore the positive ramifications, albeit through distinct lenses. Allen et al. (2021) emphasized the empowerment of employees to integrate work and personal lives more effectively, highlighting the

pivotal role of autonomy in facilitating a balanced work experience. This notion is echoed by Wang (2021), who posits that such flexibility allows employees to tailor their work environments and schedules, thus enhancing job satisfaction and productivity through increased control over work conditions. On the other hand, Rodhiya et al. (2021) shift focus towards the essential element of trust between employers and employees, arguing that flexible work arrangements signal an employer's confidence in their staff's capabilities, thereby fostering a culture of respect, loyalty, and commitment. While all three studies herald the benefits of flexible work arrangements for job autonomy, they present a nuanced discourse on the mechanisms through which these benefits are realized. Allen et al. (2021) and Wang (2021) converge on the empowerment and customization of work settings as key drivers, whereas Rodhiya et al. (2021) spotlight the underpinning factor of trust and its effect on organizational culture and employee motivation. These studies contribute to a comprehensive understanding of the significance of flexible work arrangements, reinforcing the consensus that such arrangements are instrumental in promoting job autonomy, yet they invite further investigation into the interplay between employee empowerment, trust, and organizational culture in optimizing these arrangements.

## 2.5 Job Autonomy and Innovative Work Behavior

This section aims to explore the intricate relationship between job autonomy and innovative work behavior by different scholars in the past few years.

In examining the impact of job autonomy on innovative work behavior, Dara (2024), Porcu et al. (2024), and Shakil et al. (2023) each contribute insights that collectively underscore the vital role of autonomy in fostering innovation within organizations. Dara (2024) emphasizes how autonomy enables employees to make decisions about their work processes and schedules, thus nurturing creativity and leading to significant innovative outcomes for organizations. This study highlights the direct link between flexible work arrangements and an increase in autonomous decision-making, illustrating that such an environment is conducive to enhancing employee satisfaction and creativity. Conversely, Porcu et al. (2024) focus on the psychological aspects of autonomy, suggesting that the freedom to tailor work environments and schedules provides the psychological space necessary for engaging in experimental and risk-taking behaviors, key components of the innovation process. They argue that job autonomy facilitates a sense of ownership and encourages employees to venture beyond conventional boundaries, which is crucial for innovation. Meanwhile, Shakil et al. (2023) explore the empowerment aspect of autonomy, asserting that the flexibility to decide when, where, and how work is done promotes critical thinking and the challenging of the status quo. This, according to their findings, stimulates the creation of new ideas and supports a workplace ethos that values innovation. These studies demonstrate a layered understanding of job autonomy's role in innovative work behavior, highlighting its multifaceted impact on organizational culture, psychological empowerment, and the encouragement of critical thinking and risk-taking behaviors essential for innovation.

## 3. Research Methodology

### 3.1 Research Design

In the context of assessing the influence of flexible work arrangements on innovative work behavior within the information technology industry of Shenzhen city, China, employing a quantitative analysis method is critical. Quantitative research involves the systematic empirical investigation of observable phenomena via statistical, mathematical, or computational techniques (Mohajan, 2020). The primary goal is to generate numerical data or data that can be transformed into usable statistics (Pentang, 2023). This methodology enables the researcher to quantify behaviors, opinions, or features and generalize results from a larger sample population (Sreekumar, 2022).

The decision to use quantitative methods in this study stems from several considerations. Quantitative research is valued for its precision and objectivity (Ghauri et al., 2020). By using numerical data and established statistical methods, the research can provide clear, unbiased results that are less susceptible to the personal biases of the researcher (Orlando

& Farrington, 2024). This is important in a study aiming to establish the influence of flexible work arrangements on measurable outcomes like innovative work behavior and employee engagement.

Additionally, the information technology industry often employs large numbers of staff, and Shenzhen's IT sector is no exception. Quantitative methods allow for the analysis of large datasets, ensuring that the conclusions drawn are statistically significant and reflective of broader trends within the industry (Sardana et al., 2023). The research hypothesizes specific relationships between flexible work arrangements, employee engagement, job autonomy, and innovative work behavior. Quantitative methods are effective for hypothesis testing through techniques like SEM path analysis (Franklin, 2023), which can determine the strength and significance of these relationships. Moreover, quantitative research findings can often be generalized to a larger population beyond the sample under study, which is crucial for HRM strategies intending to apply successful practices across the IT sector (Franklin, 2022).

### 3.2 Population and Sample Size

The information technology (IT) industry in Shenzhen, as per the 2023 IT Services Industry Research Report and reports by "Yicai" (formerly known as First Financial), boasts an impressive workforce of 702,500 individuals. This substantial population provides a fertile ground for examining the impacts of flexible work arrangements on innovative work behavior. Using the total population of 702,500 IT professionals in Shenzhen, the sample size calculator recommended a sample size of 384 to achieve a 95% confidence level with a 5% margin of error. This sample size is adequate to represent the population effectively, ensuring that the research findings can be generalized to the entire population with a high degree of accuracy.

Anticipating issues such as non-response, missing values, or invalid data, it is prudent to slightly increase the sample size to enhance the robustness of the study's results. Therefore, a decision was made to round up the sample size to 400 participants. Choosing a sample size of 400 not only addresses statistical requirements and potential data collection issues but also provides a solid foundation for conducting comprehensive statistical analyses. This size is manageable in terms of resource allocation for survey distribution, data collection, and analysis, aligning well with the logistical capabilities and constraints of the study.

### 3.3 Sampling

For this study examining the influence of flexible work arrangements on innovative work behavior in the IT industry of Shenzhen, the chosen sampling method is random sampling. This method is selected to ensure that every individual in the population of 702,500 IT professionals in Shenzhen has an equal chance of being included in the sample. Random sampling is crucial for reducing sampling bias and increasing the generalizability of the research findings (Jiang et al., 2023).

To implement random sampling effectively, a comprehensive and up-to-date database of IT professionals employed in Shenzhen will be utilized. This database must include contact information and employment details to ensure that each potential participant can be independently selected without bias. The selection process will involve generating a random set of numbers corresponding to the entries in the database, typically using computer software designed to ensure randomization. This process guarantees that every individual has an equal probability of being selected, adhering to the principles of randomness.

### 3.4 Instrument

The primary instrument for data collection in this study is a structured questionnaire, designed to capture both the demographic characteristics of the participants and their perceptions and experiences related to flexible work arrangements, employee engagement, job autonomy, and innovative work behavior. The questionnaire is divided into two main sections to gather data relevant to the research objectives while ensuring clarity and ease of understanding for

the respondents.

The first section of the questionnaire is dedicated to collecting demographic information from the participants. The second section is designed around the main latent variables of the study: flexible work arrangements, employee engagement, job autonomy, and innovative work behavior. The items in this section are developed and adjusted based on scales used in previous studies, ensuring they are both valid and reliable for measuring the constructs of interest within the context of the IT industry of Shenzhen city, China.

### **3.5 Data Analysis Method**

The initial step in the quantitative analysis involves utilizing SPSS (Statistical Package for the Social Sciences) for conducting descriptive statistical analysis. This phase focuses on mapping out the landscape of the collected data by detailing the demographic characteristics of the participants and providing an overview of the main latent variables. Descriptive statistics, including mean scores, standard deviations, frequencies, and distributions, will be calculated for each variable.

Following the descriptive analysis, the study advances to a stage of data examination with Confirmatory Factor Analysis (CFA) using AMOS (Analysis of Moment Structures) software. CFA is a sophisticated statistical technique that tests the measurement model's fit to the observed data, confirming whether the data structure conforms to the researcher's theoretical understanding of the construct makeup (Marsh et al., 2020).

For the quantitative analysis, the study utilizes Structural Equation Modeling (SEM) path analysis. SEM is employed to test the hypothesized relationships within the proposed theoretical model, incorporating both the direct and mediated effects among the study variables (Kline, 2023). This comprehensive statistical method allows for the simultaneous examination of multiple relationships (Hair et al., 2021), providing a detailed understanding of how flexible work arrangements influence innovative work behavior, both directly and indirectly, through employee engagement and job autonomy.

## **4. Research Findings and Discussion**

This study investigates the influence of flexible work arrangements (FWA) on innovative work behavior (IWB) in Shenzhen's IT industry. It also explores the mediating effects of employee engagement (EE) and job autonomy (JA) on this relationship.

The SEM path analysis results are displayed in figure 1 and the mediating effect analysis results are displayed in Table 1.

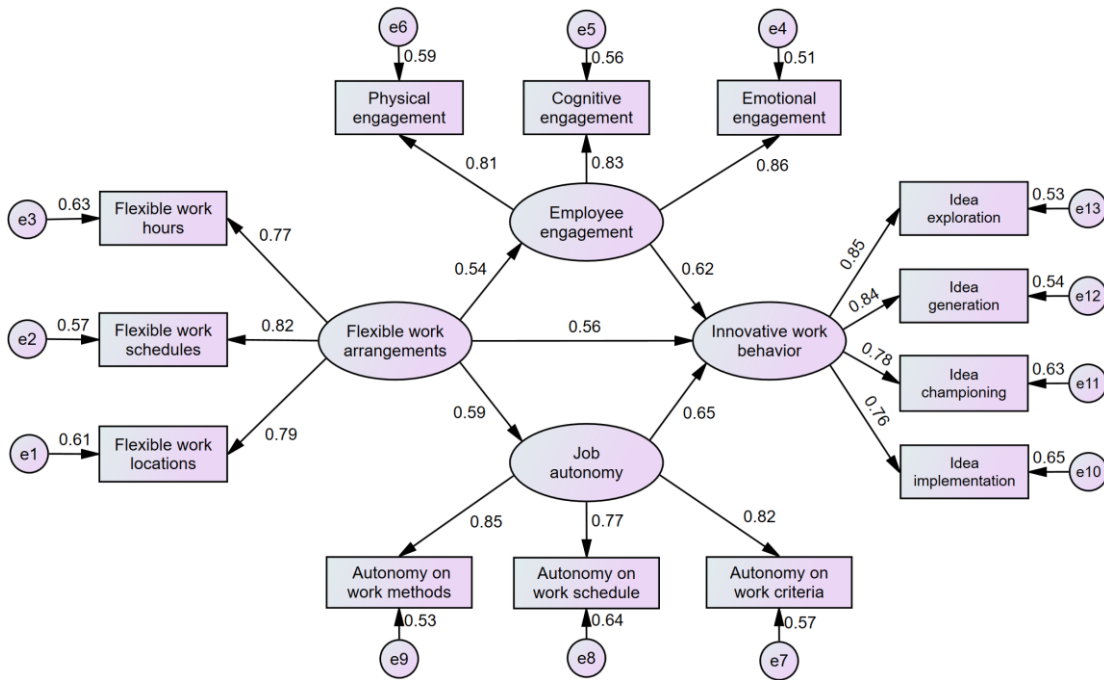


Figure 1: SEM path analysis results

Table 1 Analysis results of mediating effect of employee engagement and job autonomy

Standard effect	Path	Effect coefficient	95% confidence interval		S.E.	P-value	Results
			Lower	Upper			
Total effect	FWA --->IWB	0.894	0.843	0.945	0.026	***	Mediating effect
Direct effect	FWA --->IWB	0.562	0.517	0.607	0.023	***	
Indirect effect	FWA-->EE---> IWB	0.332	0.291	0.373	0.021	***	
Total effect	FWA --->IWB	0.942	0.895	0.989	0.024	***	Mediating effect
Direct effect	FWA --->IWB	0.562	0.517	0.607	0.023	***	
Indirect effect	FWA-->JA---> IWB	0.380	0.341	0.419	0.020	***	

After conducting the SEM path analysis and mediating effect analysis, the study holds the following main research findings:

#### 4.1 Flexible Work Arrangements and Innovative Work Behavior

The findings indicate that FWA significantly influence IWB in Shenzhen's IT industry. The statistical analysis revealed a positive correlation between the implementation of FWA and the enhancement of innovative behaviors among employees. This relationship underscores the critical role of flexibility in fostering a creative and innovative workforce. The autonomy and flexibility provided by FWA appear to empower employees, allowing them to explore new ideas and approaches, thereby driving innovation. This result aligns with previous studies (Jiang et al., 2023; Astriani & Muafi, 2023) that emphasize the positive impact of FWA on employees' innovative capacities.

#### 4.2 Flexible Work Arrangements and Employee Engagement

The research also highlights that FWA significantly influence employee engagement. The data indicates that employees who experience flexible work conditions exhibit higher levels of engagement. This finding supports the notion



that FWA enhance job satisfaction by allowing employees to balance their work and personal lives more effectively, leading to increased enthusiasm and commitment to their roles. Studies by Weideman & Hofmeyr (2020) and Shah et al. (2020) similarly found that flexibility in work arrangements can cultivate a sense of trust and value among employees, thus boosting their engagement levels.

### **4.3 Employee Engagement and Innovative Work Behavior**

Further analysis shows a significant relationship between employee engagement and IWB. Engaged employees tend to demonstrate higher levels of innovative behavior, as their emotional and cognitive connections to their tasks inspire them to go beyond basic job requirements. This finding is consistent with Manuati Dewi et al. (2023) and Ali & Li (2022), who noted that engaged employees are more likely to exert discretionary effort and engage in creative problem-solving, which are essential components of innovative work behavior. Therefore, fostering employee engagement is critical for cultivating a culture of innovation within the organization.

### **4.4 Flexible Work Arrangements and Job Autonomy**

The study finds that FWA significantly impact job autonomy. Employees who enjoy flexible work schedules and environments report higher levels of autonomy, which in turn enhances their job satisfaction and productivity. This aligns with the findings of Allen et al. (2021) and Wang (2021), who highlighted that flexibility in work arrangements empowers employees to take control of their work processes, leading to a more motivated and productive workforce. The sense of ownership and control over their work environment fosters an atmosphere conducive to innovation.

### **4.5 Job Autonomy and Innovative Work Behavior**

The analysis also reveals a significant positive relationship between job autonomy and IWB. Employees who experience higher levels of autonomy are more likely to engage in innovative behaviors. This finding supports the arguments of Dara (2024) and Porcu et al. (2024), who emphasized that autonomy enables employees to make decisions about their work processes, thereby fostering creativity and innovation. The freedom to experiment and take risks without stringent supervision encourages employees to develop and implement new ideas, which is crucial for maintaining a competitive edge in the IT industry.

### **4.6 Mediating Role of Employee Engagement**

Employee engagement is found to mediate the relationship between FWA and IWB. This mediating effect suggests that FWA enhance employee engagement, which in turn drives innovative work behavior. The pathway analysis using SEM confirmed that engaged employees, motivated by the flexibility of their work arrangements, are more inclined to exhibit innovative behaviors. This finding is consistent with the theoretical framework proposed in the literature, highlighting the role of engagement as a critical mediator in the relationship between flexibility and innovation (Koroglu & Ozmen, 2022).

### **4.7 Mediating Role of Job Autonomy**

Similarly, job autonomy is shown to mediate the relationship between FWA and IWB. The data indicates that FWA contribute to increased job autonomy, which subsequently fosters innovative behavior among employees. This mediating effect underscores the importance of autonomy as a factor that bridges the gap between flexible work conditions and innovation. Employees who have the freedom to manage their work processes and environments are better positioned to think creatively and implement new solutions. This result aligns with the findings of Shakil et al. (2023), who noted that job autonomy is crucial for fostering a culture of innovation.

## 5. Conclusion

This study offers a comprehensive examination of the impact of Flexible Work Arrangements (FWA) on Innovative Work Behavior (IWB) within the information technology (IT) industry in Shenzhen, China, and delves into the mediating roles of Employee Engagement (EE) and Job Autonomy (JA). The findings underscore the multifaceted benefits of FWA, highlighting their significant positive influence on fostering an innovative and adaptive workforce. By enhancing job flexibility, FWA empower employees to balance their professional and personal lives, resulting in higher job satisfaction and engagement. This empowerment, in turn, cultivates an environment where creativity and innovation thrive, crucial for maintaining a competitive edge in the rapidly evolving IT sector. The study confirms that engaged employees, who feel valued and trusted, exhibit heightened innovative behaviors, emphasizing the importance of fostering a supportive organizational culture. Additionally, the research highlights the critical role of job autonomy, demonstrating that employees with greater control over their work processes and environments are more inclined to experiment, take risks, and develop novel solutions. This autonomy not only enhances job satisfaction and productivity but also stimulates the creative potential essential for innovation. Furthermore, the mediating effects of EE and JA between FWA and IWB suggest a dynamic interplay where flexible work conditions enhance engagement and autonomy, which in turn drive innovative behavior. These insights provide valuable implications for human resource management (HRM) practices in the IT industry. By strategically implementing FWA, organizations can boost employee engagement and job autonomy, thereby fostering a culture of innovation. However, it is essential to address potential challenges such as communication breakdowns, performance monitoring difficulties, and feelings of isolation that may arise from FWA. Ensuring robust communication channels, clear performance metrics, and inclusive practices can mitigate these issues, enhancing the overall effectiveness of FWA. This study contributes to the academic understanding of FWA's impact on innovation and offers practical guidance for HRM practitioners aiming to leverage flexibility to drive innovation and sustain competitiveness in the IT sector. In conclusion, the adoption of FWA in the IT industry of Shenzhen is instrumental in cultivating an innovative workforce, provided that organizations address associated challenges and strategically harness the benefits of enhanced employee engagement and job autonomy.

## Acknowledgement

The authors would like to express their gratitude to the University of Melaka for their support in providing both facilities and financial assistance for this research.

## Conflict of Interest

The authors declare no conflicts of interest.

## References

- Ali, H., & Li, M. (2022). Employee engagement and innovative work behavior among Chinese millennials: mediating and moderating role of work-life balance and psychological empowerment. *Frontiers in Psychology*, 13, 942580.
- Allen, J., Alpass, F. M., Szabó, Á., & Stephens, C. V. (2021). Impact of flexible work arrangements on key challenges to work engagement among older workers. *Work, Aging and Retirement*, 7(4), 404-417. <https://doi.org/10.1093/workar/waab010>
- Arief, N. R., Purwana, D., & Saptono, A. (2021). Effect of quality work of life (QWL) and work-life balance on job satisfaction through employee engagement as intervening variables. *The International Journal of Social Sciences World (TIJOSW)*, 3(1), 259-269.
- Astriani, I., & Muafi, M. (2023). The Influence of Flexible Work Arrangements toward Loyalty and Innovative Work Behavior Mediated by Work-Life Balance. *Telaah Bisnis*, 24(2), 102-115.
- Awada, M., Lucas, G., Becerik-Gerber, B., & Roll, S. (2021). Working from home during the COVID-19 pandemic: Impact on office worker productivity and work experience. *Work*, 69(4), 1171-1189.

- Basahal, A., Jelli, A. A., Alsabban, A. S., Basahel, S., & Bajaba, S. (2022). Factors influencing employee productivity—a Saudi manager's perspective. *International journal of business and management*, 17(1), 39-51.
- Benjamin, L. (2020). Achieving the dream through a screen: Exploring employee engagement and commitment in virtual environments. *Organizational Dynamics Programs*.
- Bontrager, M., Clinton, M. S., & Tyner, L. (2021). Flexible work arrangements: A human resource development tool to reduce turnover. *Advances in developing human resources*, 23(2), 124-141.
- Dara, D. (2024). An Investigation of Faculty Members' Job Autonomy, Work Satisfaction, and Innovative Work Behavior Indicators.
- Davitkovski, M., Sarkanjac, S. J., & Sarkanjac, B. (2020). The effects of flexible work in the IT industry.
- Demircioglu, M. A. (2021). Sources of innovation, autonomy, and employee job satisfaction in public organizations. *Public Performance & Management Review*, 44(1), 155-186.
- Engen, M., Fuglsang, L., Tuominen, T., Sundbo, J., Møller, J. K., Scupola, A., & Sørensen, F. (2021). Conceptualising employee involvement in service innovation: an integrative review. *Journal of Service Management*, 32(5), 702-751.
- Franklin, R. (2022). Quantitative methods I: Reckoning with uncertainty. *Progress in Human Geography*, 46(2), 689-697.
- Franklin, R. (2023). Quantitative methods III: Strength in numbers?. *Progress in Human Geography*, 03091325231210512.
- Gašić, D., & Berber, N. (2021). The influence of flexible work arrangement on employee behavior during the COVID-19 pandemic in the Republic of Serbia. *Management: Journal of Sustainable Business and Management Solutions in Emerging Economies*, 26(3), 73-88.
- Ghali-Zinoubi, Z., Amari, A., & Jaoua, F. (2021). E-learning in Era of COVID-19 Pandemic: Impact of flexible working arrangements on work pressure, work-life conflict and academics' satisfaction. *Vision*, 09722629211054238.
- Ghauri, P., Grønhaug, K., & Strange, R. (2020). *Research methods in business studies*. Cambridge University Press.
- Guay, F. (2022). Applying self-determination theory to education: Regulations types, psychological needs, and autonomy supporting behaviors. *Canadian Journal of School Psychology*, 37(1), 75-92.
- Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., Ray, S., ... & Ray, S. (2021). An introduction to structural equation modeling. *Partial least squares structural equation modeling (PLS-SEM) using R: a workbook*, 1-29.
- Hunsicker, J. (2023). *Remote Working Arrangements in the Context of Employee Engagement and Motivation Among Remote and On-Site Employees: A Quantitative Comparison* (Doctoral dissertation, Saint Leo University).
- Jiang, L., Pan, Z., Luo, Y., & Guo, Z. (2023). More flexible and more innovative: the impact of flexible work arrangements on the innovation behavior of knowledge employees. *Frontiers in Psychology*, 14, 1053242.
- Jiang, Y., Wu, G., & Jiang, L. (2023). A semi-randomized Kaczmarz method with simple random sampling for large-scale linear systems. *Advances in Computational Mathematics*, 49(2), 20.
- Jooss, S., McDonnell, A., & Conroy, K. (2021). Flexible global working arrangements: An integrative review and future research agenda. *Human Resource Management Review*, 31(4), 100780.
- Kangas, H., Pensar, H., & Rousi, R. (2023). I wouldn't be working this way if I had a family-Differences in remote workers' needs for supervisor's family-supportiveness depending on the parental status. *Journal of Vocational Behavior*, 147, 103939.
- Khoshnaw, S., & Alavi, H. (2020). Examining the interrelation between job autonomy and job performance: A critical literature review. *Multidisciplinary Aspects of Production Engineering*, 3(1), 606-616.
- Kline, R. B. (2023). *Principles and practice of structural equation modeling*. Guilford publications.
- Koroglu, Ş., & Ozmen, O. (2022). The mediating effect of work engagement on innovative work behavior and the role

- of psychological well-being in the job demands–resources (JD-R) model. *Asia-Pacific Journal of Business Administration*, 14(1), 124-144.
- Liu Dian. (2024). China's Internet in 30 years: Risks and challenges under the changing global landscape, strategic transformation and future prospects. *Frontiers of Data and Computing Development*, 6(2), 39-45.
- Ljungkvist, H., & Moore, M. (2023). The Challenges of Achieving Work-Life Balance in the Digital Age: A Study of Young Professionals: Exploring the Impact of New Ways of Working on Early Career Adults.
- MANUATI DEWI, I., Ayu, G., RIANA, I. G., SUPARNA, G., & SURYA, I. B. K. (2023). The Role of Authentic Leadership in Fostering Work Engagement and Innovative Behavior in The Creative Industry. *Quality-Access to Success*, 24(197).
- Mohajan, H. K. (2020). Quantitative research: A successful investigation in natural and social sciences. *Journal of Economic Development, Environment and People*, 9(4), 50-79.
- Monica, R., & Krishnaveni, R. (2019). Enhancing innovative work behaviour through work engagement: examining the role of psychological empowerment and social support. *International Journal of Business Innovation and Research*, 20(4), 527-553.
- Müller, L. S., Reiners, S., Becker, J., & Hertel, G. (2023). Long-term effects of COVID-19 on work routines and organizational culture—A case study within higher education's administration. *Journal of business research*, 163, 113927.
- Orlando, M. S., & Farrington, D. P. (2024). Quantitative Analysis. In *Understanding and Preventing Recidivism of Young Offenders in Argentina* (pp. 33-51). Springer, Cham.
- Panda, A., Sinha, S., & Jain, N. K. (2022). Job meaningfulness, employee engagement, supervisory support and job performance: a moderated-mediation analysis. *International Journal of Productivity and Performance Management*, 71(6), 2316-2336.
- Pattnaik, S. C., & Sahoo, R. (2021). Employee engagement, creativity and task performance: role of perceived workplace autonomy. *South Asian Journal of Business Studies*, 10(2), 227-241.
- Pentang, J. (2023). Quantitative research instrumentation for educators.
- Porcu, O., Hermans, L., & Broersma, M. (2024). Creative Autonomy in the Newsroom: How Hierarchy Impacts Innovative Behaviour. *Journalism Practice*, 1-20.
- Qi, X., Liu, H., Li, X., & Liu, H. (2023). The influence of flexible work arrangements on innovative employee behaviour in China: a perspective of person-job fit. *Asia Pacific Business Review*, 29(3), 479-500.
- Rodhiya, F. I., Parahyanti, E., & Radikun, T. B. (2021, March). Boosting innovation in uncertain condition to grow an economic income: The role of flexible working arrangements. In *IOP Conference Series: Earth and Environmental Science* (Vol. 716, No. 1, p. 012083). IOP Publishing.
- Ronald, B., & Steffen, M. (2021). Time is the most valuable thing—revisiting the impact of flexible working arrangements on employee satisfaction and perceived productivity. *Advances In Management*, 14(4), 1-18.
- Sardana, N., Shekoohi, S., Cornett, E. M., & Kaye, A. D. (2023). Qualitative and quantitative research methods. In *Substance Use and Addiction Research* (pp. 65-69). Academic Press.
- Shah, M. W., Khattak, P., & Shah, M. H. (2020). The impact of flexible working hours and psychological empowerment on team performance with the mediating role of work engagement. *British Journal of Research*, 7(1), 49.
- Shakil, R. M., Memon, M. A., & Ting, H. (2023). Inclusive leadership and innovative work behaviour: the mediating role of job autonomy. *Quality & Quantity*, 57(Suppl 4), 707-721.
- Siber, D., & Cero, E. (2024). IMPACT OF FLEXIBLE WORKING ARRANGEMENTS ON EMPLOYEE SATISFACTION WITHIN THE IT SECTOR IN BOSNIA AND HERZEGOVINA. *Ecoforum Journal*, 13(1).
- Soga, L. R., Bolade-Ogunfodun, Y., Mariani, M., Nasr, R., & Laker, B. (2022). Unmasking the other face of flexible working practices: A systematic literature review. *Journal of Business Research*, 142, 648-662.

- Sreekumar, D. (2022). Differences between qualitative and quantitative research.
- Su Guantian. (2021). The impact of the development of the electronic information industry on globalization. *Modern Radar*, 43(6), 101-102.
- Susanto, P. C. (2022, December). Employee Engagement Strategy: Analysis Of Organizational Commitment, Compensation, Career Development. In *International Conference of Humanities and Social Science (ICHSS)* (pp. 96-103).
- Viete, S., & Erdsiek, D. (2020). Mobile information technologies and firm performance: The role of employee autonomy. *Information Economics and Policy*, 51, 100863.
- Wang, S. (2021). Flexible work management and work-life balance.
- Weideman, M., & Hofmeyr, K. B. (2020). The influence of flexible work arrangements on employee engagement: An exploratory study. *SA Journal of Human Resource Management*, 18(1), 1-18.
- Yang, Q., & Lee, Y. C. (2020). Crowdfunding Resistance and Adoption: Empirical Evidence from Startups in China Great Bay Area. *아시아/아연*, 23(3), 367-394.
- Yildiz, R. O., & Akkas, H. (2023). Flexible work arrangements in the era of disasters and technology. *International Studies in Social, Human and Administrative Sciences–II, Ed. Catalcali-Ceylan A. and Batal S*, 157-172.
- Zeng, Q., Tong, Y., & Yang, Y. (2023). Can green finance promote green technology innovation in enterprises: empirical evidence from China. *Environmental Science and Pollution Research*, 30(37), 87628-87644.
- Zhou Can, Cao Xianzhong, & Zeng Gang. (2019). Cluster network model and evolutionary path of innovation in China's electronic information industry. *Geographic Research*, 38(9), 2212-2225.