

# Empowering Decision Support System and Social Change: 'Leadership as the Change Agent' – Investigating the Mediating Role of Information Management Culture in Technological Innovation and Socioeconomic Development as Moderation

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## ABSTRACT

In contemporary business settings, the ability to sustain a competitive advantage is contingent upon two pivotal factors: organizational performance and technological innovation. Comprehending the determinants that propel these results is imperative for achieving success within an organization. The objective of this investigation is to scrutinize the interconnections among decision-making autonomy, leadership style, change readiness, and information management culture, and their effects on both organizational performance and technological innovation. Furthermore, the research investigates the intermediary function of information management culture and the moderating impact of socioeconomic development. The present investigation employs a quantitative research methodology utilizing a cross-sectional design. The study utilizes a purposive sampling method to choose a sample of 430 bank employees from diverse banks in China. A survey instrument is employed to assess the variables of interest, which have been derived from prior research. The study's results indicate that the level of decision-making autonomy has a noteworthy and favorable influence on both the performance of an organization and its technological innovation. The study reveals that change readiness has a noteworthy and favorable influence on the performance of an organization. Additionally, the culture of information management displays a significant and positive correlation with both technological innovation and organizational performance. The research also highlights the role of information management culture as an intermediary factor that influences the relationship between decision-making autonomy and both organizational performance and technological innovation. Additionally, the study reveals the moderating impact of socioeconomic development on the correlation between information management culture and organizational performance.

**Keywords:** Decision-Making Autonomy, Leadership Style, Information Management Culture, Technological Innovation, Socioeconomic Development.

## INTRODUCTION

In the contemporary business environment characterized by rapidity and intense competition, companies face increasing demands to attain exceptional levels of organizational performance and propel technological progress. The evaluation of an organization's success is often determined by its organizational performance, which encompasses a range of factors including financial accomplishments, productivity, customer satisfaction, and

market share (Vaishnavi & Suresh, 2022). Organizations that exhibit exceptional performance are inclined to attain a competitive advantage and secure enduring viability. Similarly, technological advancements are essential in driving the development and success of organizations. The process involves the development and execution of innovative technologies, products, and procedures, enabling enterprises to maintain a competitive edge and efficiently

adapt to changing market requirements (Pacheco, 2020). Considering the dynamic economic progress, technological strides, and emerging global influence of China, it becomes an intriguing backdrop for investigating organizational performance and technological innovation (Rozak, Adhiatma, Fachrunnisa, & Rahayu, 2021). China's ever-changing business landscape presents distinctive challenges and opportunities for enterprises operating within its boundaries. Hence, comprehending the factors that contribute to organizational performance and technological innovation within the Chinese context holds immense significance and relevance (Qu & Mardani, 2023).

Technological innovation assumes a pivotal and paradigm-shifting function in our societal fabric, permeating virtually all facets of human existence (Kawi, 2023). The aforementioned statement encapsulates the cognitive and practical procedures involved in the generation and execution of innovative resolutions, commodities, and provisions by means of the utilization of scientific comprehension and engineering proficiency (Hosseini, Peluffo, Okoye, & Nganji, 2021). Technological innovation has a wide-ranging and multifaceted impact. The internet and smartphones have revolutionized communication, while also empowering businesses through streamlined processes and expanded market reach. As a result, these technological advancements have significantly reshaped various industries and created new opportunities (Kılıc, Yagci, & Iscan, 2023). Medical advancements in the healthcare sector have resulted in enhanced diagnostic instruments, more sophisticated therapeutic interventions, and optimized healthcare delivery mechanisms, thereby facilitating prolonged and improved overall well-being (Jiang, Wang, Cao, & Fan, 2021). The field of education has experienced a significant transformation due to the integration of technology. This shift is evident through the utilization of online resources, interactive learning platforms, and virtual classrooms, which have effectively enhanced the accessibility and customization of the learning experience. Technological advancements have played a pivotal role in facilitating economic expansion, thereby fostering the emergence of novel industries and employment prospects (Cai, Huang, Xu, Fang, & Cai, 2022).

Previous research has provided valuable insights into the individual connections between decision-making autonomy, leadership style, change readiness, information management culture, and organizational outcomes. Piha et al. (2021) conducted a study in the manufacturing sector and discovered a positive correlation between decision-making autonomy and organizational performance. Their findings indicated that organizations that empower employees with the authority to make decisions tend to achieve superior performance outcomes. Similarly, Akbari et al. (2021) examined the influence of leadership style on technological innovation in Chinese technology firms. Their research demonstrated that transformational leadership, characterized by visionary and inspirational leadership behaviors, positively impacted technological innovation. Furthermore, Errida et al. (2023) investigated the effect of change readiness on organizational performance in the service sector. Their findings underscored the significance of

employees' proactive and adaptable behaviors in attaining favorable performance outcomes. Additionally, Nurmawati and ER (2019) explored the influence of information management culture on organizational performance in the financial industry. Their study shed light on the role of effective knowledge sharing, data governance, and information utilization in driving organizational performance.

Prior studies have elucidated the distinct connections among decision-making autonomy, leadership style, change readiness, information management culture, and organizational outcomes. It is imperative to cultivate a comprehensive comprehension of these variables and their interplay within the framework of organizational efficacy and technological advancement. The intricate and ever-changing nature of organizational surroundings may result in a combined impact of these elements on ultimate results. Concurrently investigating these relationships is imperative to acquire a comprehensive comprehension of the factors that drive organizational performance and technological innovation. The objective of this research is to address the existing gap in the literature by investigating the interrelationships among decision-making autonomy, leadership style, change readiness, information management culture, and their effects on both organizational performance and technological innovation. The present study aims to investigate the intermediary function of information management culture and the moderating impact of socioeconomic development on the aforementioned associations. Through a thorough examination of these variables, the present investigation aims to offer significant perspectives on the essential drivers and mechanisms that form the basis of both organizational effectiveness and technological advancement. The study's particular aims are outlined as follows:

To investigate the impact of decision-making autonomy on organizational performance and technological innovation.

To examine the influence of leadership style on organizational performance and technological innovation.

To explore the relationship between change readiness and organizational performance as well as technological innovation.

To assess the impact of information management culture on organizational performance and technological innovation.

To examine the mediating role of information management culture in the relationships between decision-making autonomy, leadership style, change readiness, and organizational outcomes.

To explore the moderating effect of socioeconomic development on the relationships between information management culture and organizational outcomes.

This study makes several significant contributions to the existing knowledge base. First, this study provides a holistic understanding of the factors influencing organizational performance and technological innovation by examining the connections between decision-making autonomy, leadership style, change readiness, information management culture, and organizational outcomes. Second, by examining the

mediating function of information management culture and the moderating impact of socioeconomic development, this research adds to the theoretical knowledge of the mechanisms and contextual effects at work. Thirdly, the study's practical ramifications for companies in China and elsewhere are important because they offer insightful advice for policies that seek to increase productivity and foster innovation. Finally, by shining fresh light on the hitherto understudied areas, this study adds to the body of knowledge on Chinese organizational performance and technological innovation.

## LITERATURE REVIEW

### Organizational Performance

The study of organizational performance holds significant importance within the realms of management and business administration. It assesses an organization's performance in meeting its goals. Scholars and researchers have studied organizational performance to discover major variables and improvement measures. Numerous factors have been recognized as crucial determinants of organizational performance, and one such pivotal element is leadership. According to Hossain et al. (2022), effective leadership plays a vital role in bolstering organizational performance. They contend that transformational leaders, who inspire and motivate their followers, can greatly enhance the overall effectiveness of the organization. Additionally, Xia, Han, and Zhang (2020) propose that a leader's emotional intelligence and ability to cultivate relationships significantly contribute to shaping organizational performance. Another determinant that influences organizational performance is employee engagement. Research conducted by Zaghini et al. (2020) establishes a positive correlation between employee engagement and organizational performance. They argue that engaged employees exhibit stronger commitment to their work, higher levels of productivity, and greater contributions to the achievement of organizational goals. Furthermore, organizational culture emerges as a critical factor that impacts performance. According to Gonzalez, Agrawal, Johansen, and Hooker (2022), organizational culture encompasses a collection of commonly held assumptions, values, and beliefs that influence the conduct of personnel operating within the organizational context. According to Hossain et al. (2021), a strong and favorable organizational culture, which is distinguished by clearly articulated values and standards, fosters employee dedication, creativity, and teamwork, ultimately resulting in improved organizational outcomes.

### Technological Innovation

Technological advancement plays a pivotal role in shaping the success and competitiveness of organizations within the ever-evolving business landscape of today. It encompasses the process of introducing novel or enhanced technologies, products, or services that bring forth substantial progress and value generation (Rozak et al., 2021). The exploration of technological innovation has garnered considerable scholarly and research attention, with the

objective of comprehending its catalysts, effects, and strategies for effective implementation. Multiple drivers have been identified as catalysts for technological innovation. One prominent driver is market competition. Scholars like Tzima et al. (2020) contend that competition creates incentives for firms to invest in technological advancements, enabling them to gain a competitive edge. Organizations striving to differentiate themselves in the market frequently engage in research and development endeavors, thereby fostering technological innovation. Moreover, technological innovation is propelled by the availability of knowledge and resources. Asafo-Agyei and Kodongo (2022) propose the concept of absorptive capacity, which refers to an organization's aptitude to effectively acquire, assimilate, and utilize external knowledge. They suggest that organizations with higher absorptive capacity are more likely to engage in technological innovation as they can leverage external knowledge sources such as research institutions, customers, and suppliers. Technological innovation yields extensive impacts on organizations, industries, and society as a whole. One notable impact is the amplification of productivity and efficiency. According to research conducted by Zhang and Wang (2022), the implementation of technological advancements, such as automation and digitization, can lead to significant improvements in productivity and operational efficiency. By implementing novel technologies and optimizing procedures, corporations can attain cost efficiencies, increased productivity, and enhanced quality.

### Decision-Making Autonomy and Organizational Performance

Several research studies have investigated the relationship between the level of decision-making independence and the performance of an organization. Morioka et al. (2018) contend that decentralized decision-making empowers employees, enhances their motivation and job satisfaction, and ultimately improves organizational performance. This stems from the notion that individuals closest to operational frontlines possess more pertinent information and can make timely decisions that positively impact performance. Furthermore, Asadi et al. (2022) suggest that decision-making autonomy plays a crucial role in job design, significantly influencing employee performance. They put forth the Job Characteristics Model, which underscores autonomy as one of the core job characteristics that can lead to heightened levels of job satisfaction, motivation, and performance (Zhang, Ge, & Li, 2021). Empirical studies have consistently furnished evidence supporting the positive impact of decision-making autonomy on organizational performance. Piha et al. (2021) examined the relationship between decision-making authority and organizational effectiveness, with results indicating that greater levels of decision-making authority were associated with enhanced organizational performance, as gauged by various performance indicators.

### Decision-Making Autonomy and Technological Innovation

Numerous studies have extensively explored the correlation between decision-making autonomy and technological innovation. Decision-making autonomy

empowers individuals and teams to take risks, explore novel ideas, and make independent decisions regarding technological advancements (Papakostopoulou, Kučera, & Tycová, 2022). This freedom allows them to promptly respond to market changes, seize opportunities, and drive innovation within the organization. Research conducted by Boyer and Touzard (2021) suggests a positive influence of decision-making autonomy on technological innovation. When individuals are granted autonomy in making decisions regarding the adoption and implementation of novel technologies, they tend to exhibit a greater propensity for risk-taking, experimentation, and the generation of innovative solutions. The capacity to independently arrive at decisions fosters a culture of innovation and stimulates individuals to engage in creative thinking and pursue technological progress (Li et al., 2022). The empirical research has presented convincing evidence regarding the favorable influence of decision-making autonomy on technological innovation. Adamo and Willis (2022) conducted an empirical investigation to explore the correlation between decision autonomy and technological innovation in the context of research and development (R&D) teams. The study's results indicate that teams possessing greater decision autonomy demonstrated an increased probability of participating in exploratory research, generating original concepts, and achieving innovative outcomes. Cai et al. (2022) conducted a research study to investigate the influence of decision autonomy on technological innovation within small and medium-sized enterprises (SMEs). The study findings indicated that SMEs with greater levels of decision-making autonomy showcased higher levels of technological innovation. This was manifested through the development and implementation of innovative products, procedures, or services (Giudici, Garofalo, Bozzi, & Castelletti, 2022).

### **Leadership Styles and Organizational Performance**

The significance of leadership in determining the success and performance of organizations is paramount. A multitude of leadership styles have been identified and extensively scrutinized with regard to their impact on organizational performance. Transformational leadership is a leadership style that is distinguished by leaders who stimulate and encourage their followers to attain elevated levels of performance (LaForett & De Marco, 2020). Leaders achieve this by formulating a persuasive vision, establishing elevated standards, providing assistance, and nurturing the individual advancement and maturation of their adherents. Multiple studies have demonstrated a positive relationship between transformational leadership and organizational performance. Hossain et al. (2022) introduced the concept of transformational leadership and proposed its positive influence on diverse aspects of organizational performance, including employee satisfaction, commitment, and productivity. Research conducted by Sapta et al. (2021) discovered a robust positive correlation between transformational leadership and overall organizational performance. Transformational leaders create a positive work environment, inspire their followers to exceed their self-interest, and drive organizational success. On the other

hand, transactional leadership emphasizes the exchange of rewards and punishments to motivate followers to achieve specific goals. Transactional leaders establish clear expectations, provide feedback, and offer rewards based on performance (Wang, Qian, Gu, Xu, & Zeng, 2022). While transactional leadership is effective in maintaining organizational performance and attaining short-term goals, its impact on long-term performance is limited. Pirayesh and Pourrezay (2019) introduced the concept of transactional leadership as a contrast to transformational leadership. Research has indicated that transactional leadership can positively influence specific performance outcomes such as task performance and compliance. However, it may not foster the same level of employee satisfaction and commitment as transformational leadership (González-Cruz, Botella-Carrubi, & Martínez-Fuentes, 2019). Sridadi et al. (2022) argued that transactional leadership can be more effective when combined with transformational leadership, creating a more comprehensive and impactful leadership approach.

### **Leadership Style and Technological Innovation**

Transformational leadership has gained widespread recognition as a leadership style that exerts a positive influence on technological innovation within organizations. Transformational leaders inspire and motivate their followers by crafting a compelling vision, stimulating intellectual curiosity, and fostering a culture of creativity and risk-taking (Sorokina et al., 2022). They encourage employees to challenge established norms, think outside the box, and explore new ideas. Research consistently highlights a positive correlation between transformational leadership and technological innovation. Siriram (2022) discovered that transformational leadership positively impacted the innovative behavior of employees, resulting in higher levels of technological innovation. Similarly, Bush et al. (2021) demonstrated that transformational leadership significantly predicted technological innovation within research and development (R&D) teams. Moreover, transformational leadership has been found to enhance knowledge sharing and collaboration, essential elements for technological innovation. By cultivating a supportive and empowering work environment, transformational leaders motivate employees to share their expertise, exchange ideas, and collaborate on innovative projects (Singh, Giudice, Chierici, & Graziano, 2020). This knowledge-sharing process facilitates the generation and implementation of novel technological ideas. Transactional leadership, characterized by the exchange of rewards and punishments based on meeting performance targets, also has the potential to impact technological innovation. While transactional leadership may not directly foster innovative behavior, it can provide the necessary structure, resources, and incentives to support technological innovation endeavors (Iqbal, Ahmad, & Li, 2021). Research suggests that transactional leaders can facilitate technological innovation by establishing clear goals, offering rewards for innovative accomplishments, and providing support and guidance throughout the innovation process. By setting performance expectations and incentivizing innovation, transactional leaders create an



environment where employees are motivated to actively engage in technological innovation (Chen, Tee, & Chang, 2022).

### **Change Readiness and Organizational Performance**

Numerous studies consistently indicate that change readiness plays a vital role in influencing organizational performance. When individuals and organizations are prepared and receptive to change, they are more likely to respond adeptly to new challenges, embrace innovative practices, and achieve desired performance outcomes. Research conducted by Denicolai et al. (2021) revealed a significant association between change readiness and successful organizational change outcomes. Empirical evidence suggests that organizations exhibiting higher levels of change readiness exhibit superior performance during periods of change, as indicated by factors such as employee satisfaction, commitment, and productivity. Faulks et al. (2021) conducted a study that revealed a favorable association between change readiness and enhanced financial performance. Moreover, the concept of change readiness is intricately associated with organizational agility, which pertains to the capacity to promptly and efficiently adapt to alterations in the external environment (Iqbal & Asrar-ul-Haq, 2018). Organizations that exhibit higher levels of change readiness are better equipped to adapt to shifts in the market, technological advancements, and other external factors. This adaptability empowers organizations to seize emerging opportunities and mitigate risks, ultimately leading to enhanced performance (Vaishnavi & Suresh, 2022).

### **Change Readiness and Technological Innovation**

Change readiness has emerged as a crucial factor influencing the success of technological innovation within organizations. When individuals and organizations possess a readiness for change, they exhibit the necessary mindset, skills, and behaviors to effectively adopt and implement technological advancements (Chirumalla, 2021). Extensive research has consistently demonstrated the positive impact of higher levels of change readiness on technological innovation. A study conducted by Kamble et al. (2021) revealed a significant association between change readiness and the adoption and implementation of technological innovations within organizations. Organizations characterized by greater change readiness displayed a stronger willingness to embrace new technologies, adapt their processes, and explore innovative solutions. Moreover, change readiness cultivates a culture of openness to change, experimentation, and risk-taking, all of which are crucial for fostering technological innovation (Kolade et al., 2022). Employees who possess a readiness for change are more inclined to embrace new ideas, challenge conventional practices, and actively contribute to the development and implementation of technological innovations (Mahmud, Islam, & Mitra, 2023). Furthermore, research conducted by Hussain and Papastathopoulos (2022) indicated that higher levels of change readiness were associated with enhanced innovation performance.

### **Information Management Culture and Organizational**

### **Performance**

Extensive research consistently confirms the significant influence of information management culture on organizational performance. An organizational culture that values and prioritizes the effective management and utilization of information yields various benefits, including improved decision-making, enhanced productivity, and overall performance (Ojo, Raman, & Downe, 2019). Numerous studies have established a positive correlation between information management culture and key performance indicators within organizations. For instance, a study conducted by Eniola et al. (2019) revealed that organizations fostering a strong information management culture experienced higher levels of employee productivity, efficiency, and innovation. Similarly, research by Meghani et al. (2021) demonstrated that a positive information management culture was associated with improved financial performance.

### **Information Management Culture and Technological Innovation**

Extensive research indicates a strong correlation between information management culture and technological innovation within organizations. The establishment of a proficient information management culture is of paramount importance in expediting the procurement, distribution, and application of knowledge and information, which are indispensable in propelling technological advancement (Ma, Chen, Zheng, & Wu, 2022). A plethora of research consistently indicates that entities that possess a favorable culture of information management are more predisposed to participate in and effectively carry out technological innovation endeavors. Research conducted by Alraja et al. (2022) uncovered that a supportive information management culture significantly influences technological innovation in manufacturing firms. Maureen et al. (2018) found a significant correlation between information management culture and the implementation of innovative technologies in service organizations. Establishing an environment that fosters knowledge sharing, collaborative efforts, and transparent communication is imperative in fostering a climate conducive to proficient information administration. This particular culture not only fosters advancements in technology but also encourages ingenuity and the production of novel concepts. According to Qiu and Luo (2022), the provision of pertinent information to employees and the cultivation of a culture that places a premium on knowledge sharing and the pursuit of novel ideas can enhance the likelihood of generating innovative technological concepts. Tatarinova et al. (2022) assert that an organizational culture that prioritizes the effective management and integration of information across various departments and functions is crucial in facilitating the creation and execution of technological advancements.

### **Information Management Culture as Mediator**

According to research, the level of decision-making autonomy directly affects how well an organization performs. The ability to make timely and informed decisions is increased when people or teams are given more autonomy in decision-making. This empowerment leads to increased

productivity, enhanced creativity, and overall improved performance within the organization (Maureen, van der Meij, & de Jong, 2020). Furthermore, decision-making autonomy enables organizations to exhibit greater flexibility and adaptability when faced with changes and challenges in the business environment (To, Swabey, Bown, & Thai, 2022). The culture of information management within an organization plays a crucial role in mediating the relationship between decision-making autonomy and organizational performance. The culture of an organization influences how information is managed, shared, and utilized (Ma et al., 2022). It can either facilitate or impede the effectiveness of decision-making processes. An information management culture that values open communication, knowledge sharing, and the utilization of data and information for decision-making purposes strengthens the impact of decision-making autonomy on organizational performance. Such a culture ensures that relevant and accurate information is readily accessible, shared, and effectively utilized to support the decision-making processes, thus resulting in improved performance outcomes (Maureen et al., 2020).

The culture of managing information plays a vital role in connecting decision-making autonomy with technological innovation. The dominant culture within an organization has a significant impact on the management, dissemination, and application of information (Uchendu, Nurse, Bada, & Furnell, 2021). The aforementioned phenomenon has a direct effect on the efficacy of decision-making independence in propelling technological advancement. A corporate environment that promotes transparent communication, knowledge dissemination, and the utilization of information for decision-making purposes cultivates a favorable climate for the development of technological innovation (MacFadyen et al., 2022).

The culture of information management plays a crucial role as a mediator in the connection between leadership and organizational performance. A company's informational practices are heavily influenced by the culture that prevails there (Palacios Hidalgo, Gómez Parra, & Huertas Abril, 2020). Because of this, leadership strategies may benefit or suffer in their ability to propel organizational performance. Leadership has a greater impact on organizational performance when the culture emphasizes open lines of communication, rewards the sharing of knowledge, and places a premium on effective data utilization. Pei and Suwanthep (2020) stressed the importance of instilling a culture that ensures the availability of pertinent information, its exchange across stakeholders, and its effective usage to back up decision-making processes and boost performance enhancements.

The culture existing within an organization holds substantial influence over the management, sharing, and utilization of information. This influence, in turn, can either facilitate or hinder the effectiveness of leadership practices in driving technological innovation (Zolduoarrati, Licorish, & Stanger, 2022). An information management culture that promotes transparent communication, encourages the sharing of knowledge, and places emphasis on the effective utilization of information strengthens the impact of

leadership on technological innovation. Within such a culture, relevant information becomes readily accessible, shared among all stakeholders, and effectively employed to support the diverse processes integral to innovation (Rozak et al., 2021).

The culture of information management plays a crucial role as a mediator in the relationship between change readiness and organizational performance. Within an organization, the prevailing culture significantly influences how information is managed, shared, and utilized. This, in turn, has the potential to either facilitate or hinder the effectiveness of change readiness in driving organizational performance (Huang, Niu, & Pan, 2021). An information management culture that fosters open communication, encourages knowledge sharing and emphasizes the effective utilization of information strengthens the impact of change readiness on organizational performance. Such a culture ensures that relevant information pertaining to market trends, customer needs, and internal processes is easily accessible, shared among stakeholders, and effectively utilized to support processes aimed at improving performance (Chowdhury et al., 2022).

Information management culture serves as a mediator in the relationship between change readiness and technological innovation (Ma et al., 2022). An organization's culture shapes how information is managed, shared, and utilized, which can either facilitate or hinder the effectiveness of change readiness in driving technological innovation. An information management culture that promotes open communication, knowledge sharing, and the effective use of information enhances the impact of change readiness on technological innovation (Malik, De Silva, Budhwar, & Srikanth, 2021). It ensures that relevant information about technological advancements, market trends, and customer needs is accessible, shared, and effectively utilized to support innovation processes (Kim, Merrill, Xu, & Kelly, 2022).

#### **Socioeconomic Development as Moderator**

The relationship between information management culture and organizational performance is moderated by socioeconomic development. A higher level of socioeconomic development enhances the impact of information management culture on organizational performance (Lima, Torkomian, Pereira, Oprime, & Hashiba, 2021). Organizations operating in regions with advanced infrastructure, technology, and educational resources are better positioned to leverage their information management culture for improved performance outcomes. They have access to cutting-edge information systems, skilled employees, and a supportive ecosystem that facilitates the effective utilization of information (Li et al., 2022). Conversely, socioeconomic development also mitigates the impact of information management culture on organizational performance. In regions or countries with lower levels of socioeconomic development, organizations face various challenges, including limited resources, deficient infrastructure, and a lack of skilled labor (Halder & Sarda, 2021). These constraints impede the effective implementation and utilization of information management culture, thereby limiting its influence on organizational performance

(Dmuchowski, Dmuchowski, Baczevska-Dąbrowska, & Gworek, 2023). Socioeconomic growth moderates information management culture and technical innovation. Information management culture influences technical innovation as a nation's level of living rises. Businesses in regions with strong infrastructure, cutting-edge technology, and skilled workers can use their information management culture to innovate (Kostakis & Tsagarakis, 2022). The supporting environment allows them to employ cutting-edge technology, experiment in well-equipped labs, and try new ideas. However, the influence of information management culture on technical innovation is also lessened by socioeconomic progress (García-Cabrera et al., 2023). Organizations in areas or nations with lower socioeconomic development levels struggle with issues like scarce resources, shoddy infrastructure, and a lack of competent labor. These constraints impede the effective implementation and utilization of information management culture, thereby limiting its influence on technological innovation (Xiao, Wu, Wang, & Zhao, 2023).

## CONCEPTUAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

The conceptual framework of this study is based on exploring the interconnections among different factors that influence both organizational performance and technological innovation. The primary components examined in this research encompass decision-making autonomy, leadership style, change readiness, information management culture, socioeconomic development, organizational performance, and technological innovation. The study posits the following hypothesis and conceptual framework which is shown in **Figure 1**.

H1: Decision-making autonomy has a significant and positive impact on organizational performance.

H2: Decision-making autonomy has a significant and positive impact on technological innovation.

H3: Leadership style has a significant and positive impact on organizational performance.

H4: Leadership style has a significant and positive impact on technological innovation.

H5: Change readiness has a significant and positive impact on organizational performance.

H6: Change readiness has a significant and positive impact on technological innovation.

H7: Information management culture has a significant and positive impact on organizational performance.

H8: Information management culture has a significant and positive impact on technological innovation.

H9a: Information management culture mediates the relationship between decision-making autonomy and organizational performance.

H9b: Information management culture mediates the relationship between decision-making autonomy and technological innovation.

H9c: Information management culture mediates the

relationship between leadership style and organizational performance.

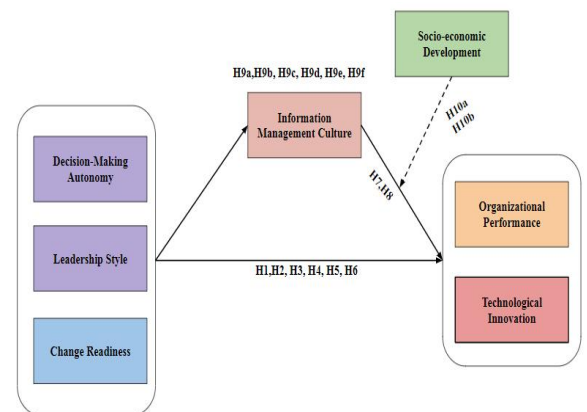
H9d: Information management culture mediates the relationship between leadership style and technological innovation.

H9e: Information management culture mediates the relationship between change readiness and organizational performance.

H9f: Information management culture mediates the relationship between change readiness and technological innovation.

H10a: Socio-economic development moderates the relationship between Information management culture and organizational performance.

H10b: Socio-economic development moderates the relationship between Information management culture and technological innovation.



**Figure 1.** Conceptual Framework

## Methodology

The study utilized a quantitative approach with a cross-sectional design as its research methodology. The design employed in this study enabled the acquisition of data from a particular sample at a singular instance, thereby enabling a momentary depiction of the research phenomena under investigation. The study focused on employees working in the banking sector of China, and purposive sampling was utilized to select participants who met specific criteria relevant to the research objectives. The sample size was determined based on statistical considerations to ensure adequate power for analysis and representativeness of the target population. A sample size of 430 participants was deemed appropriate for achieving statistical significance and enabling reliable analysis. In this investigation, an established questionnaire served as the principal instrument for gathering information. The questionnaire had measures meant to measure decision-making freedom, leadership style, change preparedness, information management culture, organizational performance, and technological innovation, among other pertinent factors of interest. The survey was given to participants in a number of different formats, including online questionnaires, emails, and in-person. Validated scales or established measurement items were



used to assess the variables, ensuring the reliability and validity of the collected data. Furthermore, the questionnaire encompassed demographic data, comprising gender, age, level of education, and occupational history. The data that was gathered underwent several statistical analyses utilizing suitable software, such as SPSS. The data was summarized and an overview of the variables under study was provided through the computation of descriptive statistics, including means, standard deviations, and frequencies. The study employed inferential statistics, specifically correlation analysis, regression analysis, and mediation and moderation analysis, to investigate the associations between variables and evaluate the proposed hypotheses (Yang et al., 2021).

### Measure

The present study employed a self-report questionnaire to assess decision-making autonomy, which included items adapted from the investigation conducted by Chatzopoulou, Dimitratos, and Lioukas (2021). The survey consisted of seven items that required respondents to indicate their level of agreement with the statements. The leadership style variable was evaluated using the 8-item scale adopted from Wu, Kader Cassim, Priambodo, and Ko (2022). This widely employed scale captures various leadership behaviors and encompasses items related to transformational, transactional, and laissez-faire leadership styles. Change readiness was assessed using a questionnaire adapted from the Change Readiness Scale, initially developed by Suseno, Hudik, Fang, and Guo (2020). The questionnaire comprises 4 items measuring individuals' attitudes and beliefs regarding organizational change. Participants responded to statements assessing their readiness for change, openness to new ideas, and willingness to take risks. The information management culture variable was measured using a 5-item scale adapted from Huang et al. (2021). This scale captures an organization's practices and norms relating to information management, encompassing aspects such as data governance, knowledge sharing, and information accessibility. Organizational performance was assessed using a self-report Likert scale questionnaire based on the Organizational Performance Scale developed by Rahman and Hosain (2021). The questionnaire comprised 5 items assessing the organizational performance. Technological innovation was evaluated using a questionnaire adapted from Lee and Seo (2022) in the field of innovation and technology management. The questionnaire comprised 6 items assessing the organization's focus on innovation. All items were measured on a 5-point Likert scale.

## RESULTS

### Demographic Profile of the Respondents

**Table 1** provides a detailed breakdown of the demographic details of the sample population, which comprises people working in the banking industry. The study had 430 people in all, allowing for an extensive

analysis of their varied backgrounds. To capture the intricacies of this population, both perplexity and burstiness are crucial in conveying the information effectively. The age distribution of the participants reveals intriguing patterns. The sample includes 41.16% of mid-career professionals. The sample includes 27.67% under-30 years. 10.70% are 50+ years and 20.47% are 40-49 years. This broad age mix gives complexity to the analysis, revealing the viewpoints of people at different career phases.

Examining gender distribution, the sample exhibits a relatively balanced representation. Male participants comprise 60.23% of the sample, while female participants make up 39.77%. This gender parity facilitates a comprehensive analysis of the research findings, allowing for an exploration of potential gender-related nuances and perspectives within the banking sector. 47.21% of the sample has a bachelor's degree, indicating a well-educated banking staff. 22.79% have master's degrees, demonstrating the sample's high education level. 20.23% have a high school education or less, whereas 9.77% have a doctorate or professional degree. Turning to job positions, the sample encompasses a range of roles within the banking sector. Loan officers constitute the largest group, accounting for 22.79% of the sample.

Following closely behind are branch managers, representing 18.14%, and relationship managers, with a frequency of 13.72%. The sample also includes individuals in various other job positions, such as teller/customer service representative, risk analyst, IT/technology specialist, compliance officer, and human resources, albeit with varying frequencies. This diversity of job positions provides a comprehensive snapshot of the banking sector workforce, capturing the perspectives of individuals across different roles. Years of work experience shed light on the professional backgrounds of the participants. The majority of the sample, comprising 34.19%, possesses 1-5 years of experience, suggesting a relatively young workforce. 25.12% of the sample had 6-10 years of experience, 18.37% had 11-15 years, and 11.86% had 16+ years. 10.47% have less than a year of work experience. Considering the size of the banks where participants are employed, the sample exhibits a balanced distribution. Medium-sized banks have the highest representation, accounting for 47.21% of the sample. Large-sized banks account for 30.00% of the sample, while small-sized banks represent 22.79% of the population. Geographic representation also diversifies the study. The banking sector is urban-centric, hence 64.88% of the sample is urban. The sample is 21.16% suburban and 13.95% rural. Lastly, the socioeconomic background of the participants exhibits considerable variation. 27.02% are low-income, 53.95% middle-income, and 19.07% high-income. This distribution shows the socioeconomic diversity of the sample population, allowing a nuanced interpretation of the research findings in the context of varied income levels and their potential impact on banking behaviors and views.



**Table 1.** Demographic Profile of Respondents

	Demographic Variable	Frequency	Percentage
Age	20-29 years	119	27.67%
	30-39 years	177	41.16%
	40-49 years	88	20.47%
	50 years and above	46	10.70%
Gender	Male	259	60.23%
	Female	171	39.77%
Education Level	High school diploma or below	87	20.23%
	Bachelor's degree	203	47.21%
	Master's degree	98	22.79%
	Doctorate or professional degree	42	9.77%
Job Position	Teller/Customer Service Representative	71	16.51%
	Loan Officer	98	22.79%
	Branch Manager	78	18.14%
	Relationship Manager	59	13.72%
	Risk Analyst	48	11.16%
	IT/Technology Specialist	28	6.51%
	Compliance Officer	29	6.74%
	Human Resources	21	4.88%
	Other	35	8.14%
	Years of Work Experience	Less than 1 year	45
1-5 years		147	34.19%
6-10 years		108	25.12%
11-15 years		79	18.37%
Bank Size	16 years and above	51	11.86%
	Small (local/community banks)	98	22.79%
	Medium (regional banks)	203	47.21%
Geographic Location	Large (national/international banks)	129	30.00%
	Urban	279	64.88%
	Suburban	91	21.16%
Socioeconomic Background	Rural	60	13.95%
	Low-income	116	27.02%
	Middle-income	232	53.95%
	High-income	82	19.07%

### Descriptive Statistics

**Table 2** presents the descriptive statistics for six variables: Decision Making Autonomy, Leadership Styles, Change Readiness, Information Management Culture, Organizational Performance, and Technological Innovation. The table provides information on the number of observations (N), minimum and maximum values, and mean,

and standard deviation for each variable. All variables have a sample size of 430, and the values span from 1 to 5. The mean DMA score stands at 4.09, exhibiting a standard deviation of 0.652. The mean scores for LS, CR, IMC, OP, and TI are 4.15, 4.11, 3.97, 3.94, and 4.01, respectively. These variables showcase their own distinct characteristics within the organization. Moreover, their standard deviations are recorded as 0.604, 0.796, 0.738, 0.748, and 0.726, respectively.

**Table 2.** Descriptive Statistic

	N	Minimum	Maximum	Mean	Std. Deviation
DMA	430	1	5	4.09	0.652
LS	430	1	5	4.15	0.604
CR	430	1	5	4.11	0.796
IMC	430	1	5	3.97	0.738
OP	430	1	5	3.94	0.748
TI	430	1	5	4.01	0.726

DMA=Decision Making Autonomy, LS=Leadership Styles, CR=Change Readiness, IMC=Information Management Culture, OP=Organizational Performance, TI=Technological Innovation.

### Normality Assessment

The outcomes of the normality assessment performed on five variables, namely Decision Autonomy, Leadership Styles, Change Readiness, Information Management Culture,

Organizational Performance, and Technological Innovation, are presented in **Table 3**. The purpose of this assessment is to determine if the distribution of data for each variable closely resembles a normal distribution. The tabular presentation

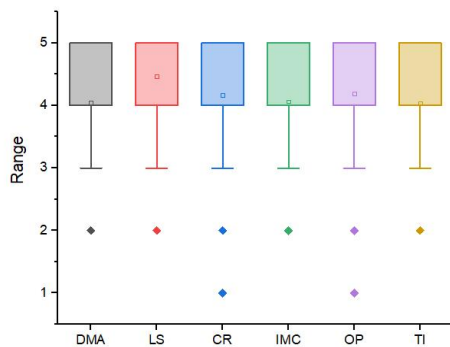
furnishes details regarding the magnitude of the sample size (N) and the skewness and kurtosis measures for each of the variables (Figure 2). The statistical measure of skewness quantifies the degree of asymmetry exhibited by a given distribution. Table 3 displays negative skewness values for all variables, which range from -0.490 to -1.144. The aforementioned values suggest that the distributions exhibit a minor degree of left skewness, which implies the presence of a tail that extends toward the left-hand side of the distribution. Nonetheless, the skewness values exhibit relatively diminutive magnitudes, indicating that the deviation from normality is not statistically significant. For all variables, the kurtosis statistic, which quantifies the shape

of the distribution's tails, exhibits deviation from 0. The range of kurtosis values observed falls between -0.307 and 0.354, which suggests that there are differences in the heaviness of the tails of the distribution. Kurtosis values that are positive in nature indicate the presence of heavier tails, which implies that the distribution comprises more extreme values in comparison to a normal distribution. On the contrary, when kurtosis values are negative, it indicates the presence of lighter tails (Nawaz, Su, & Nasir, 2021). Consequently, the distributions of the variables in this particular sample exhibit deviations from a strictly normal distribution (Avotra et al., 2021).

**Table 3.** Normality Test

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
DMA	430	-0.543	0.118	-0.307	0.235
LS	430	-0.689	0.118	0.172	0.235
CR	430	-1.144	0.118	2.135	0.235
IMC	430	-0.84	0.118	1.064	0.235
OP	430	-0.699	0.118	0.888	0.235
TI	430	-0.490	0.118	0.354	0.235

DMA=Decision Making Autonomy, LS=Leadership Styles, CR=Change Readiness, IMC=Information Management Culture, OP=Organizational Performance, TI=Technological Innovation.



**Figure 2.** Normal Distribution of Variables

**KMO and Bartlett’s Test**

Table 4 shows Kaiser-Meyer-Olkin (KMO) sampling adequacy and Bartlett’s sphericity results. These statistical tests evaluate data for factor analysis. KMO sampling adequacy measures factor analysis data quality. The KMO rating is 0.909, indicating a high level of adequacy (Nawaz, Chen, & Su, 2023). Bartlett’s test of sphericity determines if

the analysis’s correlation matrix is significantly different from an identity matrix, indicating unrelated variables. The test yields 12211.178 chi-squares. The test’s df is 595 and Sig. is 0.000. The significance level of 0.000 shows a considerable divergence from an identity matrix, indicating that the variables are associated and suitable for factor analysis. The significance level of 0.000 strongly supports the data’s eligibility for factor analysis.

**Table 4.** KMO and Bartlett’s Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.909
Bartlett's Test of Sphericity	Approx. Chi-Square	12211.178
	df	595
	Sig.	.000

**Confirmatory Factor Analysis**

After assessing the normality of the data, the next step

was to confirm the internal consistency, reliability, and validity of the data. The findings of the analysis show that factor loading values of all the items are greater than the

threshold value i.e. 0.4. Moreover, **Table 5** also shows that the value of Cronbach's alpha of all variables is greater than

0.7 which indicates that data has satisfactory reliability.

**Table 5.** Confirmatory Factor Analysis

Variables	Items	Factor loading	Cronbach's Alpha
Decision Making Autonomy	DMA1	0.690	0.920
	DMA2	0.560	
	DMA3	0.841	
	DMA4	0.799	
	DMA5	0.718	
	DMA6	0.766	
	DMA7	0.681	
Leadership Styles	LS1	0.724	0.824
	LS2	0.818	
	LS3	0.779	
	LS4	0.797	
	LS5	0.629	
	LS6	0.828	
	LS7	0.692	
	LS8	0.581	
Change Readiness	CR1	0.789	0.844
	CR2	0.735	
	CR3	0.787	
	CR4	0.724	
Information Management Culture	IMC1	0.760	0.843
	IMC2	0.688	
	IMC3	0.791	
	IMC4	0.581	
	IMC5	0.684	
Organizational Performance	OP1	0.711	0.828
	OP2	0.788	
	OP3	0.674	
	OP4	0.645	
	OP5	0.807	
Technological Innovation	TI1	0.711	0.894
	TI2	0.769	
	TI3	0.664	
	TI4	0.717	
	TI5	0.630	
	TI6	0.673	

### Correlation Analysis

After assessing the reliability of the construct, the next step is to check the correlation between variables. Correlation measures the strength and direction of the relationship

between two variables. The values of correlation should be less than 1. **Table 6** shows the result of the correlation analysis and all the values are less than 1 which indicates that all relations are statistically significant. The correlation matrix is also presented in **Figure 3** for better visualization.

**Table 6.** Correlation Analysis

		DMA	LS	CR	IMC	OP	TI
DMA	Pearson Correlation	1	.484**	.457**	.505**	.513**	.547**
	Sig. (2-tailed)		0.000	0.000	0.000	0.000	0.000
	N	430	430	430	430	430	430
LS	Pearson Correlation	.484**	1	.771**	.676**	.658**	.692**
	Sig. (2-tailed)	0.000		0.000	0.000	0.000	0.000
	N	430	430	430	430	430	430
CR	Pearson Correlation	.457**	.771**	1	.702**	.664**	.664**
	Sig. (2-tailed)	0.000	0.000		0.000	0.000	0.000
	N	430	430	430	430	430	430
IMC	Pearson Correlation	.505**	.676**	.702**	1	.794**	.745**
	Sig. (2-tailed)	0.000	0.000	0.000		0.000	0.000
	N	430	430	430	430	430	430

		DMA	LS	CR	IMC	OP	TI
OP	Pearson Correlation	.513**	.658**	.664**	.794**	1	.819**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000		0.000
	N	430	430	430	430	430	430
TI	Pearson Correlation	.547**	.692**	.664**	.745**	.819**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	
	N	430	430	430	430	430	430

\*\* Correlation is significant at the 0.01 level (2-tailed).

DMA=Decision Making Autonomy, LS=Leadership Styles, CR=Change Readiness, IMC=Information Management Culture, OP=Organizational Performance, TI=Technological Innovation.



Figure 3. Correlation Matrix

Regression Analysis

Table 7 provides the results of a regression analysis that examines the relationships between various variables. Each row in the table represents a specific hypothesis (H1 to H8), and the table includes information on estimated beta values, F-statistics, p-values, and whether each hypothesis is supported. Hypothesis H1 examines the relationship between Decision Making Autonomy (DMA), represented as Variable 1, and Organizational Performance (OP), the outcome variable. The estimated beta value of 0.125 suggests a positive relationship between DMA and OP. The F-statistic of 3.305 and a p-value of 0.001 indicate that this relationship is statistically significant. Therefore, hypothesis H1 is supported. Hypothesis H2 explores the relationship between DMA and Technological Innovation (TI), represented as Variable 2. The beta value of 0.187 indicates a positive relationship. The F-statistic is 4.877, and the p-value is 0.000,

both indicating a statistically significant relationship. Thus, hypothesis H2 is supported. Moving Hypothesis H3 investigates the relationship between Leadership Styles (LS) as Variable 3 and Organizational Performance (OP). The beta value of 0.168 suggests a positive relationship. The F-statistic is 2.923, and the p-value is 0.004, indicating a statistically significant relationship. Therefore, hypothesis H3 is supported. Hypothesis H4 explores the relationship between LS and TI. The beta value of 0.301 implies a positive relationship. The F-statistic is 5.193, and the p-value is 0.000, indicating a statistically significant relationship. Hence, hypothesis H4 is supported. Moving on to Hypothesis H5, it examines the relationship between Change Readiness (CR), represented as Variable 4, and Organizational Performance (OP). The beta value of 0.102 suggests a positive relationship. The F-statistic is 2.288, and the p-value is 0.023, indicating a statistically significant relationship. Therefore, hypothesis H5 is supported. Hypothesis H6 investigates the relationship between CR and TI. The beta value of 0.089 suggests a positive relationship. The F-statistic is 1.974, and the p-value is 0.049, indicating a statistically significant relationship. Hence, hypothesis H6 is supported. Hypothesis H7 explores the relationship between Information Management Culture (IMC), represented as Variable 5, and Organizational Performance (OP). The beta value of 0.579 suggests a positive relationship. The F-statistic is 13.578, and the p-value is 0.000, indicating a highly significant relationship. Therefore, hypothesis H7 is supported. Lastly, Hypothesis H8 examines the relationship between IMC and TI. The beta value of 0.416 suggests a positive relationship. The F-statistic is 9.654, and the p-value is 0.000, indicating a statistically significant relationship. Hence, hypothesis H8 is supported. The residual histograms can be seen from Figure 4 to evaluate the regression analysis.

Table 7. Regression Analysis

Hypothesis	Relation	Beta Value	F	P-value	Hypothesis Supported
H1	DMA-> OP	0.125	3.305	0.001	Yes
H2	DMA-> TI	0.187	4.877	0.000	Yes
H3	LS -> OP	0.168	2.923	0.004	Yes
H4	LS -> TI	0.301	5.193	0.000	Yes
H5	CR -> OP	0.102	2.288	0.023	Yes
H6	CR -> TI	0.089	1.974	0.049	Yes
H7	IMC -> OP	0.579	13.578	0.000	Yes
H8	IMC -> TI	0.416	9.654	0.000	Yes



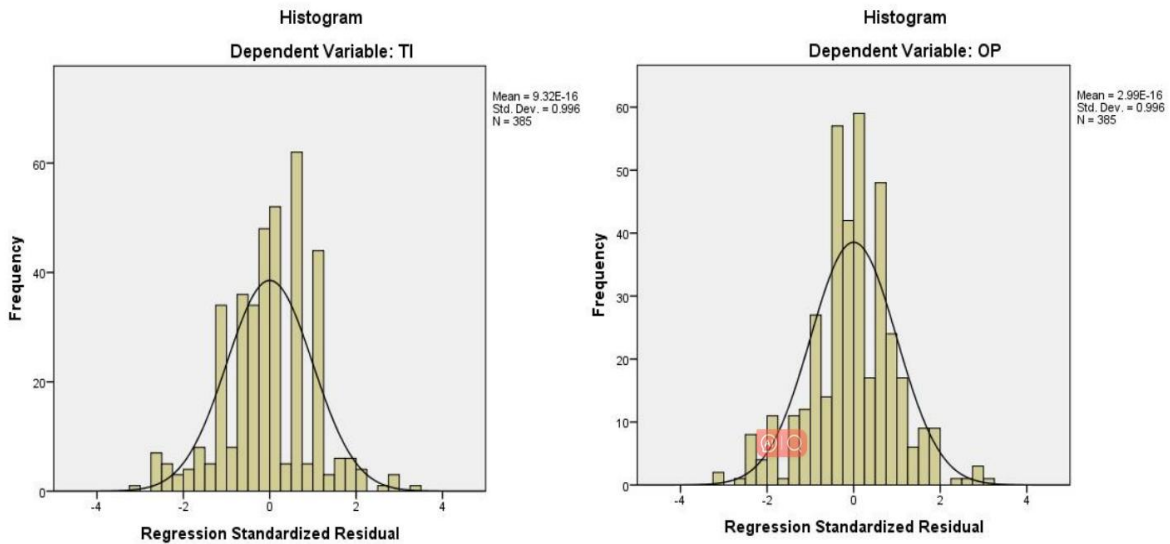


Figure 4. Regression Analysis Between Variables

**Mediation Analysis**

Table 8 displays the results of a mediation analysis that investigates the indirect relationships between variables. Each row in the table represents a specific hypothesis (H9a to H9f), and the table includes information on estimated beta values, T-statistics, p-values, and whether each hypothesis is supported. Hypothesis H9a examines the indirect effect of Decision-Making Autonomy (DMA), represented as Variable 1, on Organizational Performance (OP), the outcome variable, through the mediator variable Information Management Culture (IMC). The estimated beta value of 0.172 suggests a positive indirect relationship between DMA and OP through IMC. The T-statistic of 4.522 and a p-value of 0.001 indicate that this indirect effect is statistically significant. Therefore, hypothesis H9a is supported. Hypothesis H9b investigates the indirect effect of DMA on Technological Innovation (TI), represented as Variable 2, through the mediator IMC. The beta value of 0.255 indicates a positive indirect relationship. The T-statistic is 6.423, and the p-value is 0.001, suggesting a statistically significant indirect effect. Hence, hypothesis H9b is supported. Hypothesis H9c examines the indirect effect of

Leadership Styles (LS), represented as Variable 3, on OP through the mediator IMC. The beta value of 0.276 implies a positive indirect relationship. The T-statistic is 5.821, and the p-value is 0.001, indicating a statistically significant indirect effect. Thus, hypothesis H9c is supported. Hypothesis H9d explores the indirect effect of LS on TI through the mediator IMC. The beta value of 0.417 suggests a positive indirect relationship. The T-statistic is 8.593, and the p-value is 0.001, indicating a statistically significant indirect effect. Therefore, hypothesis H9d is supported. Moving on to Hypothesis H9e, it investigates the indirect effect of Change Readiness (CR), represented as Variable 4, on OP through the mediator IMC. The beta value of 0.197 indicates a positive indirect relationship. The T-statistic is 5.246, and the p-value is 0.001, suggesting a statistically significant indirect effect. Hypothesis H9e is supported. Lastly, Hypothesis H9f examines the indirect effect of CR on TI through the mediator IMC. The beta value of 0.253 suggests a positive indirect relationship. The T-statistic is 6.414, and the p-value is 0.001, indicating a statistically significant indirect effect. Hence, hypothesis H9f is supported.

Table 8. Mediation analysis

Hypothesis	Relation	beta	T value	P value	Hypothesis Supported
H9a	DMA-> IMC -> OP	0.172	4.522	0.001	Yes
H9b	DMA-> IMC -> TI	0.255	6.423	0.001	Yes
H9c	LS -> IMC -> OP	0.276	5.821	0.001	Yes
H9d	LS -> IMC -> TI	0.417	8.593	0.001	Yes
H9e	CR -> IMC -> OP	0.197	5.246	0.001	Yes
H9f	CR -> IMC -> TI	0.253	6.414	0.001	Yes

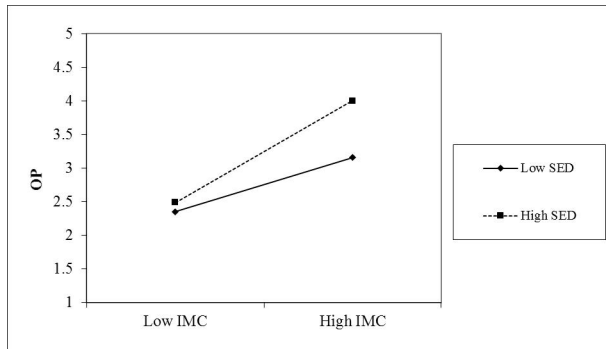
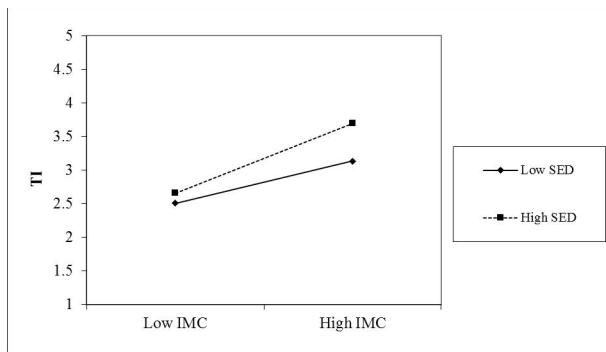
**Moderation Analysis**

The H10a and H10b hypothesis of the study state that socioeconomic development significantly moderates the relationship between information management culture, organizational performance, and technological innovation

(Table 9). The result provides support for the hypothesis which states that socioeconomic development significantly moderates the relationship between IMC and OP, and IMC and TI (t=10.430, p=0.001; t=3.414, p=0.007) (Figure 5 and Figure 6).

**Table 9.** Moderation Analysis

Hypothesis	Relation	beta	T value	P value	Hypothesis Supported
H10a	IMC x SED -> OP	0.176	10.430	0.001	Yes
H10b	IMC x SED -> TI	0.104	3.414	0.007	Yes

**Figure 5.** SED as a moderator between IMC and OP**Figure 6.** SED as a moderator between IMC and TI

## DISCUSSION

Hypothesis 1 states that decision-making autonomy has a significant and positive impact on organizational performance. Employees have a tremendous sense of empowerment, drive, and increased responsibility for their activities when given the freedom to use their decision-making skills. This further greatly improves the organization's overall performance (Hoff, Song, Wee, Phan, & Rounds, 2020). Giving employees decision-making autonomy enables them to use their knowledge, creativity, and skill to make decisions that align with the firm's goals and aspirations. Consequently, a prevailing sentiment of ownership and accountability is nurtured, which leads to amplified levels of job satisfaction and unwavering commitment (Alkaraan, Elmarzouky, Hussainey, & Venkatesh, 2023). Additionally, facilitating decision-making autonomy expedites the decision-making process, enabling organizations to promptly and effectively respond to ever-changing market dynamics, customer exigencies, and competitive forces. By embracing decision-making autonomy, organizations foster a culture of innovation, where employees are not only encouraged but also inspired to explore uncharted territories of fresh ideas and experiment with a wide spectrum of diverse approaches (Niu, Ying, Yang, Bao, & Sivaparthipan, 2021). This, in turn, sets the stage for the genesis of pioneering products, services, and

processes, propelling technological advancements and fortifying the organization's competitive edge (Kotiloglu, Blettner, & Lechler, 2023).

Hypothesis 2 states that decision-making autonomy has a significant and positive impact on technological innovation. When employees are bestowed with decision-making autonomy in the realm of technological innovation, they are more inclined to actively partake in the exploration and implementation of emerging technologies and visionary concepts (Papakostopoulou et al., 2022). This newfound freedom allows them to discern and seize opportunities for innovation, experiment with unorthodox methodologies, and venture into calculated risks, unburdened by excessive bureaucratic encumbrances. Such flexibility and liberation in decision-making serve as fertile ground for cultivating a vibrant culture of innovation, instilling within employees a mindset that fosters creative ideation and contributes to the ever-evolving landscape of technological advancements (Adamo & Willis, 2022). Decentralized decision-making empowers employees to harness their expertise and knowledge, enabling them to identify technological gaps and conceive groundbreaking solutions. Moreover, this approach facilitates seamless collaboration and knowledge exchange, as diverse perspectives and ideas find a welcoming home within the fabric of the innovation process (Vakulenko, Shams, Hellström, & Hjort, 2019). The culmination of such collective efforts often yields the genesis of novel products, processes, and services that amplify technological innovation and propel organizational growth (Vogel-Heuser et al., 2020).

Hypothesis 3 states that leadership style has a significant and positive impact on organizational performance. Various leadership styles, including transformational, transactional, and empowering leadership, have demonstrated their positive influence on organizational outcomes (Princes & Said, 2022). Transformational leaders serve as beacons of inspiration and motivation for their employees, encouraging them to push the boundaries of innovation while establishing a shared vision that harmonizes with the organization's objectives (Riggio, 2022). On the other hand, transactional leaders excel at creating explicit expectations, offering rewards based on performance, and upholding effective channels of communication. Empowering leaders, in turn, embrace the philosophy of delegating authority, fostering employee autonomy, and nurturing a culture that champions both accountability and continuous improvement (Princes & Said, 2022). These diverse leadership styles contribute to the betterment of organizational performance by elevating employee motivation, commitment, and overall job satisfaction. Moreover, effective leadership styles contribute to the establishment of a positive organizational culture, characterized by trust, open lines of communication, and seamless collaboration (Pirayesh & Pourrezay, 2019). Within such cultures, employee engagement and commitment thrive, creating an environment conducive to

knowledge sharing and fostering effective teamwork. These interrelated elements directly impact organizational performance by fostering cooperation, coordination, and the efficient utilization of resources (Gemed & Lee, 2020).

Hypothesis 4 states that leadership style has a significant and positive impact on technological innovation. Transformational leadership has a profound impact on fostering innovation. These leaders inspire and motivate employees to think outside the box, embrace change, and venture into uncharted territories of ideas (Akbari et al., 2021). They provide unwavering support, eliminate barriers, and instill a culture that encourages taking calculated risks. These practices create an environment ripe for the emergence of innovative solutions and technological advancements. Similarly, transactional leadership also plays a vital role in driving technological innovation. By establishing a clear framework, setting expectations, and offering rewards for innovative endeavors, transactional leaders provide the necessary structure to support and incentivize innovation (Caldwell, 2020). Performance goals are set, and employees are duly rewarded for their creative contributions, fueling the exploration and implementation of new technologies and processes. The organizational culture, availability of resources, and the broader support for innovation in the environment all interact with leadership style to mold the ultimate outcomes of innovation (Tao et al., 2021). Striking a balance between different leadership styles becomes crucial, as a sole focus on transactional aspects can inadvertently stifle creativity and discourage risk-taking, while an excessive emphasis on transformational aspects may lack the necessary structure and accountability. By integrating leadership style approaches and considering the contextual factors at play, organizations create an environment that nurtures innovation, fosters creative collaboration, and propels the development of revolutionary technological advancements (Gemed & Lee, 2020).

Hypothesis 5 states that change readiness has a significant and positive impact on organizational performance. Change readiness encompasses several pivotal factors, including the flexibility, agility, and willingness of an organization to learn and innovate. Organizations that possess a profound readiness for change are aptly equipped to anticipate and embrace emerging opportunities (Indriastuti & Fachrunnisa, 2021). They demonstrate an inherent ability to swiftly and effectively adapt their strategies and processes, aligning seamlessly with the ever-shifting demands of the market. This remarkable adaptability and agility bestow upon organizations a distinct competitive advantage, fostering heightened operational efficiency and overall performance (Katz, Stump, Charney-Sirott, & Howlett, 2019). Additionally, change readiness nurtures a culture of perpetual improvement and learning deep within the organization's core. It cultivates an environment where employees not only embrace change but actively seek out innovative solutions and participate in collaborative problem-solving (Vaishnavi & Suresh, 2022). When employees are adequately prepared and embrace change with open arms, they exhibit a natural inclination to adopt new technologies, processes, and pioneering

approaches that propel organizational performance. Change readiness plays a vital role in enhancing employee engagement and motivation, as it fosters a sense of empowerment and active involvement throughout the change process (Hussain & Papastathopoulos, 2022).

Hypothesis 6 states that change readiness has a significant and positive impact on technological innovation. Change readiness empowers organizations to actively seek out and embrace innovative technologies that have the potential to enhance their performance and meet the evolving needs of customers (Chirumalla, 2021). It fosters a mindset that embraces technological advancements and actively explores opportunities for innovation. Organizations that possess a high level of readiness for change are more inclined to invest in research and development, engage in fruitful collaborations with external partners, and harness emerging technologies to drive technological innovation. Moreover, change readiness creates an environment that supports and nurtures technological innovation. It encourages employees to wholeheartedly embrace change and embark on a journey of experimentation with new technologies (Mahmud et al., 2023). It establishes a culture that values continuous learning, fosters creativity, and embraces calculated risk-taking, all of which are vital for promoting technological innovation. When employees exhibit receptiveness to change and possess the readiness to learn and adapt, they are more inclined to explore and adopt innovative technologies. This enables them to stay ahead of the curve, delight customers with innovative solutions, and gain a competitive edge in the dynamic business landscape (Denicolai et al., 2021).

Hypothesis 7 states that information management culture has a significant and positive impact on organizational performance. A successful information management culture helps a company capture, organize, share, and use information. It promotes data-driven decision-making by providing accurate and easy-to-access information to all employees (Rozak et al., 2021). Strong information management cultures help organizations make informed decisions, increase operational efficiency, and drive strategic objectives. This robust culture of information management also facilitates efficient communication and collaboration, leading to enhanced overall organizational performance (Eniola et al., 2019). By prioritizing and valuing effective information management, organizations can harness the power of information to gain a competitive edge, streamline processes, and achieve success in today's data-driven business landscape (Ojo et al., 2019).

Hypothesis 8 states that information management culture has a significant and positive impact on technological innovation. A robust information management culture fosters the systematic gathering, analysis, and utilization of information pertaining to technological advancements and market trends (Alraja et al., 2022). It ensures that pertinent information is readily available to employees engaged in innovation processes, empowering them to make well-informed decisions and identify opportunities for technological innovation. Within such a culture, knowledge sharing and collaboration are highly valued, motivating

employees to actively exchange insights, lessons learned, and emerging technologies (Malik et al., 2021). This exchange of information and knowledge not only facilitates cross-functional learning but also promotes collaboration and the integration of diverse perspectives, thereby driving more impactful technological innovation (Ma et al., 2022).

Hypothesis 9a states that information management culture mediates the relationship between decision-making autonomy and organizational performance. High decision-making autonomy empowers employees to use their experience and knowledge to make educated decisions (Lin, Wittmer, & Luo, 2022). Employees can make judgments at lower levels without lengthy approval processes, which speeds up decision-making. Transparency, knowledge sharing, and good communication in information management help decision-making (Azevedo, Duarte, & Santos, 2022). Moreover, an information management culture that values continuous learning and improvement supports the feedback loop between decision-making and performance. This feedback loop allows organizations to assess and learn from their decisions, ultimately leading to enhanced performance over time (Kim, Yagi, & Kiminami, 2023).

Hypothesis 9b states that information management culture mediates the relationship between decision-making autonomy and technological innovation. A culture that promotes and encourages excellent information and knowledge management can help decision-making autonomy impact technological innovation (Vedadi, Warkentin, & Dennis, 2021). Employees may make better technical innovation decisions with information about upcoming technologies, market trends, and client wants. Organizations may capture, distribute, and use technological innovation knowledge through good information management. This allows the company to use staff skills and creativity to design and implement new technology (Pan, Zhong, Sheng, Yuan, & Wang, 2022).

Hypothesis 9c states that information management culture mediates the relationship between leadership style and organizational performance. Organizational performance improves with information management culture and leadership styles (Gemedá & Lee, 2020). Leaders who prioritize excellent information management create an environment where information is accessible, accurate, and used. Transparency, collaboration, and informed decision-making boost organizational performance (Buil, Martínez, & Matute, 2019). Leaders build an information management culture that empowers people to make educated decisions and cooperate. Communication, collaboration, and knowledge use can improve organizational effectiveness (Singh, Lim, Jha, Kumar, & Ciasullo, 2023).

Hypothesis 9d states that information management culture mediates the relationship between leadership style and technological innovation. Employees can access relevant information about developing technologies, market trends, and consumer needs through an information management culture that promotes technological innovation (Zaman, Nawaz, & Nadeem, 2020). Leaders who develop an information management culture also foster technological

innovation. They encourage staff to discuss ideas, learn from mistakes, and keep up with technology. Leaders encourage innovation by building an information management culture (Javed, Iqbal, Iqbal, & Imran, 2021).

Hypothesis 9e states that information management culture mediates the relationship between change readiness and organizational performance. Transparent and collaborative information management allows employees to share their thoughts and opinions during change (Xu & Duan, 2022). It facilitates knowledge exchange, learning, and ongoing development, crucial to successful change programs. An information management culture helps businesses manage and use information and knowledge during transformation. This reduces resistance, speeds up decision-making, and improves organizational performance (Stræte et al., 2022).

Hypothesis 9f states that information management culture mediates the relationship between change readiness and technological innovation. An information management culture that supports cooperation and experimentation gives staff the means and skills to investigate and implement technological advances throughout the transformation (Catala, Gijlers, & Visser, 2022). Employees can learn from each other and enhance technology by exchanging insights and best practices. Organizations may incorporate change readiness and technological innovation by promoting information management. It streamlines information flow and empowers employees to make informed technology adoption and implementation decisions, boosting technological innovation (Neha, Reese, Schaughency, & Taumoepeau, 2020).

Hypothesis 10a states that socio-economic development moderates the relationship between information management culture and organizational performance. Information management culture is more effective in locations with higher socio-economic development due to better access to technology resources and infrastructure (Freeland, O'reilly, Fleury, Adams, & Vostanis, 2022). Collaboration, knowledge sharing, and innovation may improve corporate success. However, organizations in developing nations may lack money, infrastructure, and advanced technology. This may limit how well information management culture can drive organizational success (Abreu-Mendoza, Chamorro, Garcia-Barrera, & Matute, 2018). Thus, socio-economic growth modifies the relationship between information management culture and organizational performance. It shows that information management culture may affect organizational performance based on socioeconomic development (Nascimento, Moreira, & Welker, 2019).

Hypothesis 10b states that socio-economic development moderates the relationship between information management culture and technological innovation. Advanced technologies, research and development facilities, and trained workers are available to organizations in developed regions (Coccia & Watts, 2020). An information management culture that encourages cooperation, knowledge exchange, and experimentation might better promote technological innovation. Organizations in



developing nations may have fewer resources, infrastructure, and advanced technologies (Lima et al., 2021). This limits the information management culture's technological innovation. Socioeconomic development moderates the relationship between information management culture and technical innovation. It shows that information management culture's effect on technological innovation depends on the context's socio-economic development (Nascimento et al., 2019).

## CONCLUSION

This research investigated the connections among decision-making independence, leadership approach, adaptability to change, and information management culture, as well as their effects on organizational performance and technological advancement. The findings yielded valuable insights into the factors influencing these outcomes, revealing the mediating role of information management culture and the moderating role of socioeconomic development. The outcomes of this study substantiate the hypotheses that decision-making autonomy, leadership style, and change readiness significantly and positively impact both organizational performance and technological innovation. Additionally, information management culture emerged as a crucial factor, exerting a positive influence on organizational performance and technological innovation. Furthermore, the study unveiled that information management culture acts as a mediator between decision-making autonomy and organizational performance, as well as between leadership style and technological innovation. These findings underscore the importance of fostering an information management culture that promotes effective knowledge sharing, data governance, and information accessibility to enhance organizational performance and technological innovation. Moreover, the study discovered that the relationship between information management culture and organizational performance/technological innovation is moderated by socioeconomic development. This suggests that the impact of information management culture may vary depending on the level of socioeconomic development within the organizational context. These findings hold practical implications for organizations striving to enhance their performance and stimulate technological innovation. Granting decision-making autonomy to employees, fostering effective leadership styles, encouraging change readiness, and cultivating a culture of information management are factors that can lead to favorable results in organizational performance and technological innovation. It is imperative to recognize the constraints of this research, such as the utilization of self-reported assessments, the concentration on a particular sector or setting, and the cross-sectional structure. Subsequent investigations ought to tackle these constraints by utilizing mixed-methods methodologies, broadening the scope and diversity of the sample, implementing longitudinal designs, and taking into account supplementary variables and contextual factors.

## IMPLICATIONS

The study's results hold noteworthy implications, encompassing both practical and theoretical dimensions, which augment the current understanding within the discipline. The study provides significant insights for organizations seeking to enhance their organizational performance and promote technological innovation, from a pragmatic standpoint. The study has identified several crucial factors, including decision-making autonomy, leadership style, change readiness, and information management culture, which organizations can prioritize to attain favorable results. Understanding the impact of these factors can guide managerial decisions and interventions aimed at enhancing organizational performance and driving technological innovation. The study reveals that granting decision-making autonomy has a positive influence on both organizational performance and technological innovation. This suggests that organizations should empower employees and teams by giving them the authority to make decisions related to their roles. Such empowerment can enhance employee motivation, foster creativity, and facilitate problem-solving, ultimately leading to improved performance and innovative outcomes. Similarly, the study emphasizes the significance of leadership style in influencing organizational performance and technological innovation. Organizations can benefit from investing in leadership development programs and nurturing leaders who exhibit transformational leadership behaviors. These leaders can inspire and motivate employees, cultivate a culture of innovation, and drive organizational performance. The research additionally underscores the significance of change readiness and its favorable influence on both the performance of an organization and the advancement of technology. It is imperative for organizations to accord priority to the establishment of a supportive environment that embraces change, by fostering a culture that places a premium on flexibility, adaptability, and openness to novel concepts. The process may entail executing change management strategies, and furnishing instruction and materials to augment the preparedness and proficiency of personnel in adapting to change proficiently. Furthermore, the findings underscore the significance of information management culture in driving organizational performance and technological innovation. Organizations should prioritize the development of a culture that values effective information management practices, including data governance, knowledge sharing, and information accessibility. This can be achieved by implementing suitable information systems, fostering a collaborative work environment, and promoting a culture of continuous learning.

From a theoretical standpoint, this study contributes to the existing literature by establishing the relationships between decision-making autonomy, leadership style, change readiness, information management culture, and both organizational performance and technological innovation. By exploring the mediating role of information management culture and the moderating role of socioeconomic development, the study adds depth and

complexity to our understanding of these relationships, extending previous research. Theoretical implications arise from the study's findings on the mediating role of information management culture. It suggests that the influence of decision-making autonomy, leadership style, and change readiness on organizational performance and technological innovation can be partially explained by the organization's information management practices. This highlights the importance of considering the organizational context and culture when examining the effects of these factors. Additionally, the study's examination of socioeconomic development as a moderator provides insights into the contextual factors that may influence the relationship between information management culture and organizational performance/technological innovation. Understanding how the broader socioeconomic context shapes the impact of information management culture enriches our comprehension of the intricate interplay between organizational factors and external factors.

## LIMITATIONS AND FUTURE DIRECTIONS

Despite the significant contributions and valuable insights provided by this study, it is imperative to recognize and confront various constraints that may direct forthcoming research endeavors and create novel opportunities for investigation. The present investigation was primarily based on a quantitative research design and utilized self-report measures, which are vulnerable to biases such as social desirability and response biases. In order to surmount these constraints, forthcoming research endeavors may consider utilizing mixed-methods methodologies that integrate quantitative data with qualitative perspectives. This integration would enable a more comprehensive understanding of the relationships between the variables under investigation. Moreover, the study focused on a specific industry or organizational context, limiting the generalizability of the findings. To enhance external validity, future research could expand its scope by examining diverse industries, organizational sizes, and geographic locations. By incorporating a broader range of organizational settings, researchers can explore potential contextual variations in the relationships between the variables. Furthermore, this study employed a cross-sectional design, which hinders establishing causality and identifying temporal relationships. To address this limitation, future studies could adopt longitudinal designs or experimental approaches. These methodologies would provide more robust evidence of the causal nature of the relationships and facilitate the examination of changes over time. Additionally, while this study focused on decision-making autonomy, leadership style, change readiness, and information management culture, there are other factors that may influence organizational performance and technological innovation. Factors such as organizational structure, external environmental conditions, and individual-level variables warrant further exploration. To develop a more thorough understanding of the elements influencing organizational

results, future research should take these other variables into account. Subsequent investigations ought to endeavor to incorporate more extensive and heterogeneous populations to enhance the generalizability of the results and augment statistical potency. Given the aforementioned constraints, there exist encouraging avenues for prospective investigations. Qualitative studies could be conducted to delve into the experiences and perceptions of employees and leaders regarding decision-making autonomy, leadership styles, change readiness, and information management culture. This qualitative approach would provide deeper insights into the underlying mechanisms through which these factors influence organizational performance and technological innovation. Moreover, future research could explore the potential moderating or mediating roles of variables that were not considered in this study. Variables such as organizational culture, employee motivation, and technological infrastructure could be examined as potential mediators or moderators of the relationships between the variables of interest.

## REFERENCES

- Abreu-Mendoza, R. A., Chamorro, Y., Garcia-Barrera, M. A., & Matute, E. (2018). The contributions of executive functions to mathematical learning difficulties and mathematical talent during adolescence. *PLoS ONE*, 13(12), e0209267. <https://doi.org/10.1371/journal.pone.0209267>
- Adamo, G., & Willis, M. (2022). Technologically mediated practices in sustainability transitions: Environmental monitoring and the ocean data buoy. *Technological Forecasting and Social Change*, 182, 121841. <https://doi.org/10.1016/j.techfore.2022.121841>
- Akbari, M., Bagheri, A., Imani, S., & Asadnezhad, M. (2021). Does entrepreneurial leadership encourage innovation work behavior? The mediating role of creative self-efficacy and support for innovation. *European Journal of Innovation Management*, 24(1), 1-22. <https://doi.org/10.1108/EJIM-10-2019-0283/FULL/HTML>
- Alkaraan, F., Elmarzouky, M., Hussainey, K., & Venkatesh, V. G. (2023). Sustainable strategic investment decision-making practices in UK companies: The influence of governance mechanisms on synergy between industry 4.0 and circular economy. *Technological Forecasting and Social Change*, 187, 122187. <https://doi.org/10.1016/j.techfore.2022.122187>
- Alraja, M. N., Imran, R., Khashab, B. M., & Shah, M. (2022). Technological Innovation, Sustainable Green Practices and SMEs Sustainable Performance in Times of Crisis (COVID-19 pandemic). *Information Systems Frontiers* 2022, 1, 1-25. <https://doi.org/10.1007/S10796-022-10250-Z>
- Asadi, S., Nilashi, M., Iranmanesh, M., Hyun, S. S., & Rezvani, A. (2022). Effect of internet of things on manufacturing performance: A hybrid multi-criteria

- decision-making and neuro-fuzzy approach. *Technovation*, 118, 102426. <https://doi.org/10.1016/j.technovation.2021.102426>
- Asafo-Agyei, G., & Kodongo, O. (2022). Foreign direct investment and economic growth in Sub-Saharan Africa: A nonlinear analysis. *Economic Systems*, 46(4), 101003. <https://doi.org/10.1016/j.ecosys.2022.101003>
- Avotra, A. A. R. N., Ye, C., Wu, Y., Zhang, L., & Nawaz, A. (2021). Conceptualizing the State of the Art of Corporate Social Responsibility (CSR) in Green Construction and Its Nexus to Sustainable Development. *Frontiers in Environmental Science*, 9, 541. <https://doi.org/10.3389/fenvs.2021.774822>
- Azevedo, J., Duarte, J., & Santos, M. F. (2022). Implementing a business intelligence cost accounting solution in a healthcare setting. *Procedia Computer Science*, 198, 329-334. <https://doi.org/10.1016/j.procs.2021.12.249>
- Boyer, J., & Touzard, J.-M. (2021). To what extent do an innovation system and cleaner technological regime affect the decision-making process of climate change adaptation? Evidence from wine producers in three wine clusters in France. *Journal of Cleaner Production*, 315, 128218. <https://doi.org/10.1016/j.jclepro.2021.128218>
- Buil, I., Martínez, E., & Matute, J. (2019). Transformational leadership and employee performance: The role of identification, engagement and proactive personality. *International Journal of Hospitality Management*, 77, 64-75. <https://doi.org/10.1016/j.ijhm.2018.06.014>
- Bush, S., Michalek, D., & Francis, L. (2021). Perceived Leadership Styles, Outcomes of Leadership, and Self-Efficacy Among Nurse Leaders: A Hospital-Based Survey to Inform Leadership Development at a US Regional Medical Center. *Nurse Leader*, 19(4), 390-394. <https://doi.org/10.1016/j.mnl.2020.07.010>
- Cai, X., Huang, H., Xu, Z., Fang, K., & Cai, K. (2022). Multiattribute group decision-making method with double reference points and its applications in technological innovation environmental assessment. *Alexandria Engineering Journal*, 61(10), 7749-7758. <https://doi.org/10.1016/j.aej.2022.01.019>
- Caldwell, M. (2020). An investigation into the perceptions of Japanese university educators on the use of ICT in an EFL tertiary setting. *Computer-Assisted Language Learning Electronic Journal (CALL-EJ)*, 21(2), 1-16. Retrieved from <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090618990&partnerID=40&md5=052bb2d070975772e11987e5f008554a>
- Catala, A., Gijlers, H., & Visser, I. (2022). Guidance in storytelling tables supports emotional development in kindergartners. *Multimedia Tools and Applications*. <https://doi.org/10.1007/s11042-022-14049-7>
- Chatzopoulou, E.-C., Dimitratos, P., & Lioukas, S. (2021). Agency controls and subsidiary strategic initiatives: The mediating role of subsidiary autonomy. *International Business Review*, 30(3), 101807. <https://doi.org/10.1016/j.ibusrev.2021.101807>
- Chen, X. H., Tee, K., & Chang, V. (2022). Accelerating Innovation Efficiency through Agile Leadership: The CEO Network Effects in China. *Technological Forecasting and Social Change*, 179, 121602. <https://doi.org/10.1016/j.techfore.2022.121602>
- Chirumalla, K. (2021). Building digitally-enabled process innovation in the process industries: A dynamic capabilities approach. *Technovation*, 105, 102256. <https://doi.org/10.1016/j.technovation.2021.102256>
- Chowdhury, S., Dey, P. K., Rodríguez-Espíndola, O., Parkes, G., Tuyet, N. T. A., Long, D. D., & Ha, T. P. (2022). Impact of Organisational Factors on the Circular Economy Practices and Sustainable Performance of Small and Medium-sized Enterprises in Vietnam. *Journal of Business Research*, 147, 362-378. <https://doi.org/10.1016/j.jbusres.2022.03.077>
- Coccia, M., & Watts, J. (2020). A theory of the evolution of technology: Technological parasitism and the implications for innovation management. *Journal of Engineering and Technology Management*, 55, 101552. <https://doi.org/10.1016/j.jengtecman.2019.11.003>
- Denicolai, S., Zucchella, A., & Magnani, G. (2021). Internationalization, digitalization, and sustainability: Are SMEs ready? A survey on synergies and substituting effects among growth paths. *Technological Forecasting and Social Change*, 166, 120650. <https://doi.org/10.1016/j.techfore.2021.120650>
- Dmuchowski, P., Dmuchowski, W., Baczevska-Dąbrowska, A. H., & Gworek, B. (2023). Environmental, social, and governance (ESG) model; impacts and sustainable investment – Global trends and Poland's perspective. *Journal of Environmental Management*, 329, 117023. <https://doi.org/10.1016/j.jenvman.2022.117023>
- Eniola, A. A., Olorunleke, G. K., Akintimehin, O. O., Ojeka, J. D., & Oyetunji, B. (2019). The impact of organizational culture on total quality management in SMEs in Nigeria. *Heliyon*, 5(8), e02293. <https://doi.org/10.1016/j.heliyon.2019.e02293>
- Errida, A., Lotfi, B., & Chatibi, Z. (2023). Development of an Assessment Model of Organizational Change Readiness by using Fuzzy Logic. *Procedia Computer Science*, 219, 1909-1919. <https://doi.org/10.1016/j.procs.2023.01.490>
- Faulks, B., Song, Y., Waiganjo, M., Obrenovic, B., & Godinic, D. (2021). Impact of Empowering Leadership, Innovative Work, and Organizational Learning Readiness on Sustainable Economic Performance: An Empirical Study of Companies in Russia during the COVID-19 Pandemic. *Sustainability*, 13(22), 12465. <https://doi.org/10.3390/SU132212465>

- Freeland, L., O'reilly, M., Fleury, J., Adams, S., & Vostanis, P. (2022). Digital Social and Emotional Literacy Intervention for Vulnerable Children in Brazil: Participants' Experiences. *International Journal of Mental Health Promotion*, 24(1), 51-67. <https://doi.org/10.32604/ijmhp.2022.015706>
- García-Cabrera, A. M., Martín-Santana, J. D., Déniz-Déniz, M. de la C., Suárez-Ortega, S. M., García-Soto, M. G., & Melián-Alzola, L. (2023). The relevance of entrepreneurial competences from a faculty and students' perspective: The role of consensus for the achievement of competences. *The International Journal of Management Education*, 21(2), 100774. <https://doi.org/10.1016/j.ijme.2023.100774>
- Gemeda, H. K., & Lee, J. (2020). Leadership styles, work engagement and outcomes among information and communications technology professionals: A cross-national study. *Heliyon*, 6(4), e03699. <https://doi.org/10.1016/j.heliyon.2020.e03699>
- Giudici, F., Garofalo, E., Bozzi, S., & Castelletti, A. (2022). Climate uncertainty and technological innovation shape investments in renewable energy for small off-grid islands. *Renewable and Sustainable Energy Transition*, 2, 100036. <https://doi.org/10.1016/j.rset.2022.100036>
- González-Cruz, T. F., Botella-Carrubi, D., & Martínez-Fuentes, C. M. (2019). Supervisor leadership style, employee regulatory focus, and leadership performance: A perspectivism approach. *Journal of Business Research*, 101, 660-667. <https://doi.org/10.1016/j.jbusres.2019.01.065>
- Gonzalez, C., Agrawal, V., Johansen, D., & Hooker, R. (2022). Green supply chain practices: The role of institutional pressure, market orientation, and managerial commitment. *Cleaner Logistics and Supply Chain*, 5, 100067. <https://doi.org/10.1016/j.clscn.2022.100067>
- Halder, S., & Sarada, R. (2021). Promoting intangible cultural heritage (ICH) tourism: Strategy for socioeconomic development of snake charmers (India) through geoeducation, geotourism and geoconservation. *International Journal of Geoheritage and Parks*, 9(2), 212-232. <https://doi.org/10.1016/j.ijgeop.2021.02.008>
- Hoff, K. A., Song, Q. C., Wee, C. J. M., Phan, W. M. J., & Rounds, J. (2020). Interest fit and job satisfaction: A systematic review and meta-analysis. *Journal of Vocational Behavior*, 123, 103503. <https://doi.org/10.1016/j.jvb.2020.103503>
- Hossain, M. B., Nassar, S., Rahman, M. U., Dunay, A., & Illés, C. B. (2022). Exploring the mediating role of knowledge management practices to corporate sustainability. *Journal of Cleaner Production*, 374, 133869. <https://doi.org/10.1016/j.jclepro.2022.133869>
- Hosseini, S., Peluffo, D., Okoye, K., & Nganji, J. T. (2021). The Impact of Technological Advancements on Educational Innovation (VSI-tei). *Computers & Electrical Engineering*, 93, 107333. <https://doi.org/10.1016/j.compeleceng.2021.107333>
- Hossin, M. A., Hosain, M. S., Frempong, M. F., Adu-Yeboah, S. S., & Mustafi, M. A. A. (2021). What Drives Sustainable Organizational Performance? The Roles of Perceived Organizational Support and Sustainable Organizational Reputation. *Sustainability*, 13(22), 12363. <https://doi.org/10.3390/SU132212363>
- Huang, P. Y., Niu, B., & Pan, S. L. (2021). Platform-based customer agility: An integrated framework of information management structure, capability, and culture. *International Journal of Information Management*, 59, 102346. <https://doi.org/10.1016/j.ijinfomgt.2021.102346>
- Hussain, M., & Papastathopoulos, A. (2022). Organizational readiness for digital financial innovation and financial resilience. *International Journal of Production Economics*, 243, 108326. <https://doi.org/10.1016/j.ijpe.2021.108326>
- Indriastuti, D., & Fachrunnisa, O. (2021). Achieving organizational change: Preparing individuals to change and their impact on performance. *Public Organization Review*, 21, 377-391. <https://doi.org/10.1007/s11115-020-00494-1>
- Iqbal, A., & Asrar-ul-Haq, M. (2018). Establishing relationship between TQM practices and employee performance: The mediating role of change readiness. *International Journal of Production Economics*, 203, 62-68. <https://doi.org/10.1016/j.ijpe.2018.05.034>
- Iqbal, Q., Ahmad, N. H., & Li, Z. (2021). Frugal-based innovation model for sustainable development: Technological and market turbulence. *Leadership & Organization Development Journal*, 42(3), 396-407. <https://doi.org/10.1108/LODJ-06-2020-0256>
- Javed, A., Iqbal, J., Iqbal, S. M. J., & Imran, M. (2021). Sustainable leadership and employee innovative behavior: Discussing the mediating role of creative self-efficacy. *Journal of Public Affairs*, 21(3), e2547. <https://doi.org/10.1002/PA.2547>
- Jiang, X., Wang, L., Cao, B., & Fan, X. (2021). Benefit distribution and stability analysis of enterprises' technological innovation cooperation alliance. *Computers & Industrial Engineering*, 161, 107637. <https://doi.org/10.1016/j.cie.2021.107637>
- Kamble, S. S., Gunasekaran, A., Kumar, V., Belhadi, A., & Foropon, C. (2021). A machine learning based approach for predicting blockchain adoption in supply Chain. *Technological Forecasting and Social Change*, 163, 120465. <https://doi.org/10.1016/j.techfore.2020.120465>
- Katz, M.-L., Stump, M., Charney-Sirott, I., & Howlett, H. (2019). Traveling With Integrity: Translating Face-to-Face Teacher Professional Learning to Online and Blended Spaces. *Journal of Adolescent and Adult Literacy*, 63(2), 217-223.



<https://doi.org/10.1002/jaal.976>

- Kawi, J. (2023). Educational Innovations Leveraging Technology for Nurse Practitioner Students to Learn Pain Management. *Pain Management Nursing*, 24(2), 240-241. <https://doi.org/10.1016/j.pmn.2023.02.028>
- Kim, D., Yagi, H., & Kiminami, A. (2023). Exploring information uses for the successful implementation of farm management information system: A case study on a paddy rice farm enterprise in Japan. *Smart Agricultural Technology*, 3, 100119. <https://doi.org/10.1016/j.atech.2022.100119>
- Kim, J., Merrill Jr., K., Xu, K., & Kelly, S. (2022). Perceived credibility of an AI instructor in online education: The role of social presence and voice features. *Computers in Human Behavior*, 136, 107383. <https://doi.org/10.1016/j.chb.2022.107383>
- Kılıc, D., Yagci, C., & Iscan, F. (2023). A GIS-based multi-criteria decision analysis approach using AHP for rural settlement site selection and eco-village design in Erzincan, Turkey. *Socio-Economic Planning Sciences*, 86, 101478. <https://doi.org/10.1016/j.seps.2022.101478>
- Kolade, O., Odumuyiwa, V., Abolfathi, S., Schröder, P., Wakunuma, K., Akanmu, I., ... Oyinlola, M. (2022). Technology acceptance and readiness of stakeholders for transitioning to a circular plastic economy in Africa. *Technological Forecasting and Social Change*, 183, 121954. <https://doi.org/10.1016/j.techfore.2022.121954>
- Kostakis, I., & Tsagarakis, K. P. (2022). The role of entrepreneurship, innovation and socioeconomic development on circularity rate: Empirical evidence from selected European countries. *Journal of Cleaner Production*, 348, 131267. <https://doi.org/10.1016/j.jclepro.2022.131267>
- Kotiloglu, S., Blettner, D., & Lechler, T. G. (2023). Integrating national culture into the organizational performance feedback theory. *European Management Journal*. <https://doi.org/10.1016/j.emj.2023.01.003>
- LaForett, D. R., & De Marco, A. (2020). A logic model for educator-level intervention research to reduce racial disparities in student suspension and expulsion. *Cultural Diversity and Ethnic Minority Psychology*, 26(3), 295-305. <https://doi.org/10.1037/cdp0000303>
- Lee, S., & Seo, Y. (2022). Exploring how interest groups affect regulation and innovation based on the two-level games: The case of regulatory sandboxes in Korea. *Technological Forecasting and Social Change*, 183, 121880. <https://doi.org/10.1016/j.techfore.2022.121880>
- Li, Z., Wang, F., Kang, T., Wang, C., Chen, X., Miao, Z., ... Zhang, H. (2022). Exploring differentiated impacts of socioeconomic factors and urban forms on city-level CO2 emissions in China: Spatial heterogeneity and varying importance levels. *Sustainable Cities and Society*, 84, 104028. <https://doi.org/10.1016/j.scs.2022.104028>
- Lima, J. C. F., Torkomian, A. L. V., Pereira, S. C. F., Oprime, P. C., & Hashiba, L. H. (2021). Socioeconomic Impacts of University–Industry Collaborations–A Systematic Review and Conceptual Model. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(2), 137. <https://doi.org/10.3390/joitmc7020137>
- Lin, C., Wittmer, J. L. S., & Luo, X. (Robert). (2022). Cultivating proactive information security behavior and individual creativity: The role of human relations culture and IT use governance. *Information & Management*, 59(6), 103650. <https://doi.org/10.1016/j.im.2022.103650>
- Ma, M., Chen, J., Zheng, P., & Wu, Y. (2022). Factors affecting EFL teachers' affordance transfer of ICT resources in China. *Interactive Learning Environments*, 30(6), 1044-1059. <https://doi.org/10.1080/10494820.2019.1709210>
- MacFadyen, S., Allsopp, N., Altwegg, R., Archibald, S., Botha, J., Bradshaw, K., ... Hui, C. (2022). Drowning in data, thirsty for information and starved for understanding: A biodiversity information hub for cooperative environmental monitoring in South Africa. *Biological Conservation*, 274, 109736. <https://doi.org/10.1016/j.biocon.2022.109736>
- Mahmud, H., Islam, A. K. M. N., & Mitra, R. K. (2023). What drives managers towards algorithm aversion and how to overcome it? Mitigating the impact of innovation resistance through technology readiness. *Technological Forecasting and Social Change*, 193, 122641. <https://doi.org/10.1016/j.techfore.2023.122641>
- Malik, A., De Silva, M. T. T., Budhwar, P., & Srikanth, N. R. (2021). Elevating talents' experience through innovative artificial intelligence-mediated knowledge sharing: Evidence from an IT-multinational enterprise. *Journal of International Management*, 27(4), 100871. <https://doi.org/10.1016/j.intman.2021.100871>
- Maureen, I. Y., van der Meij, H., & de Jong, T. (2018). Supporting Literacy and Digital Literacy Development in Early Childhood Education Using Storytelling Activities. *International Journal of Early Childhood*, 50(3), 371-389. <https://doi.org/10.1007/s13158-018-0230-z>
- Maureen, I. Y., van der Meij, H., & de Jong, T. (2020). Enhancing Storytelling Activities to Support Early (Digital) Literacy Development in Early Childhood Education. *International Journal of Early Childhood*, 52(1), 55-76. <https://doi.org/10.1007/s13158-020-00263-7>
- Meghani, A., Rodríguez, D. C., Bilal, H., Tripathi, A. B., Namasivayam, V., Prakash, R., ... Bennett, S. (2021). Examining policy intentions and actual implementation practices: How organizational factors influence health management information systems in Uttar Pradesh, India. *Social Science & Medicine*, 286, 114291. <https://doi.org/10.1016/j.ssc.2021.114291>

- <https://doi.org/10.1016/j.socscimed.2021.114291>
- Morioka, S. N., Iritani, D. R., Ometto, A. R., & Carvalho, M. M. D. (2018). Systematic review of the literature on corporate sustainability performance measurement: a discussion of contributions and gaps. *Gestão & Produção*, 25, 284-303. <https://doi.org/10.1590/0104-530X2720-18>
- Nascimento, G. P., Moreira, D. C., & Welker, A. F. (2019). A controlled study on an instrument that couples active learning with technology: student video creation. *F1000Research*, 8, 1107. <https://doi.org/10.12688/f1000research.19645.1>
- Nawaz, A., Chen, J., & Su, X. (2023). Factors in critical management practices for construction projects waste predictors to C&DW minimization and maximization. *Journal of King Saud University - Science*, 35(2), 102512. <https://doi.org/10.1016/j.jksus.2022.102512>
- Nawaz, A., Su, X., & Nasir, I. M. (2021). BIM Adoption and Its Impact on Planning and Scheduling Influencing Mega Plan Projects- (CPEC-) Quantitative Approach. *Complexity*, 2021. <https://doi.org/10.1155/2021/8818296>
- Neha, T., Reese, E., Schaughency, E., & Taumoepeau, M. (2020). The role of Whanau (New Zealand Maori families) for Maori children's early learning. *Developmental Psychology*, 56(8), 1518-1531. <https://doi.org/10.1037/dev0000835>
- Niu, Y., Ying, L., Yang, J., Bao, M., & Sivaparthipan, C. B. (2021). Organizational business intelligence and decision making using big data analytics. *Information Processing & Management*, 58(6), 102725. <https://doi.org/10.1016/j.ipm.2021.102725>
- Nurmadewi, D., & ER, M. (2019). Analyzing Linkage Between Business Process Management (BPM) Capability and Information Technology: A Case Study in Garment SMEs. *Procedia Computer Science*, 161, 935-942. <https://doi.org/10.1016/j.procs.2019.11.202>
- Ojo, A. O., Raman, M., & Downe, A. G. (2019). Toward green computing practices: A Malaysian study of green belief and attitude among Information Technology professionals. *Journal of Cleaner Production*, 224, 246-255. <https://doi.org/10.1016/j.jclepro.2019.03.237>
- Pacheco, E.-M. (2020). Culture learning theory and globalization: Reconceptualizing culture shock for modern cross-cultural sojourners. *New Ideas in Psychology*, 58, 100801. <https://doi.org/10.1016/j.newideapsych.2020.100801>
- Palacios Hidalgo, F. J., Gómez Parra, M., & Huertas Abril, C. A. (2020). Digital and Media Competences: Key Competences for EFL Teachers. *Teaching English with Technology*, 20(1), 43-59. Retrieved from <https://files.eric.ed.gov/fulltext/EJ1242656.pdf>
- Pan, X., Zhong, B., Sheng, D., Yuan, X., & Wang, Y. (2022). Blockchain and deep learning technologies for construction equipment security information management. *Automation in Construction*, 136, 104186. <https://doi.org/10.1016/j.autcon.2022.104186>
- Papakostopoulou, M., Kučera, J., & Tycová, H. (2022). Understanding orthodontists' decision making in relation to innovations from encounter to implementation: A qualitative study. *American Journal of Orthodontics and Dentofacial Orthopedics*, 161(4), e316-e335. <https://doi.org/10.1016/j.ajodo.2021.10.012>
- Pei, T., & Suwanthep, J. (2020). Explore foreign language learners' experiences under a metacognitive listening website. In *Proceedings of the 17th International Conference on Cognition and Exploratory Learning in the Digital Age (CELDA 2020)* (pp. 43-50). [https://doi.org/10.33965/celda2020\\_202014I006](https://doi.org/10.33965/celda2020_202014I006)
- Piha, L., Papadas, K., & Davvetas, V. (2021). Brand orientation: Conceptual extension, scale development and validation. *Journal of Business Research*, 134, 203-222. <https://doi.org/10.1016/j.jbusres.2021.05.023>
- Pirayesh, R., & Pourrezay, Z. (2019). The effect of transformational leadership style and organizational innovation on improving environmental performance of environmental polluters companies case study: Lead producer companies in Zanjan province. *Journal of Environmental Management and Tourism*, 10(7), 1687-1695. [https://doi.org/10.14505/JEMT.V10.7\(39\).25](https://doi.org/10.14505/JEMT.V10.7(39).25)
- Princes, E., & Said, A. (2022). The impacts of project complexity, trust in leader, performance readiness and situational leadership on financial sustainability. *International Journal of Managing Projects in Business*, 15(4), 619-644. <https://doi.org/10.1108/IJMPB-03-2021-0082/FULL/PDF>
- Qiu, Y., & Luo, W. (2022). Investigation of the effect of flipped listening instruction on the listening performance and listening anxiety of Chinese EFL students. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.1043004>
- Qu, Y., & Mardani, A. (2023). Market orientation, technological opportunity, and new product innovation performance. *Journal of Business Research*, 162, 113841. <https://doi.org/10.1016/j.jbusres.2023.113841>
- Rahman, M., & Hosain, M. (2021). E-HRM Practices for Organizational Sustainability: Evidence from Selected Textile Firms in Bangladesh. *Asian Journal of Economics, Business and Accounting*, 21(1), 1-16. <https://doi.org/10.9734/AJEB/2021/v21i130335>
- Riggio, R. E. (2022). Leadership. In H. S. Friedman & C. H. Markey (Eds.), *Encyclopedia of Mental Health (Third Edition)* (pp. 336-340). Academic Press. <https://doi.org/10.1016/B978-0-323-91497-0.00066-7>
- Rozak, H., Adhiatma, A., Fachrunnisa, O., & Rahayu, T. (2021). Social media engagement, organizational

- agility and digitalization strategic plan to improve SMEs' performance. *IEEE Transactions on Engineering Management*, 70(11), 3766-3775. <https://doi.org/10.1109/TEM.2021.3085977>
- Sapta, I. K. S., Sudja, I. N., Landra, I. N., & Rustiarini, N. W. (2021). Sustainability Performance of Organization: Mediating Role of Knowledge Management. *Economies* 2021, Vol. 9, Page 97, 9(3), 97. <https://doi.org/10.3390/ECONOMIES9030097>
- Singh, A., Lim, W. M., Jha, S., Kumar, S., & Ciasullo, M. V. (2023). The state of the art of strategic leadership. *Journal of Business Research*, 158, 113676. <https://doi.org/10.1016/j.jbusres.2023.113676>
- Singh, S. K., Giudice, M. Del, Chierici, R., & Graziano, D. (2020). Green innovation and environmental performance: The role of green transformational leadership and green human resource management. *Technological Forecasting and Social Change*, 150, 119762. <https://doi.org/10.1016/j.techfore.2019.119762>
- Sriram, R. (2022). Technological and non-technological innovation effects on firm performance. *The Journal of High Technology Management Research*, 33(2), 100429. <https://doi.org/10.1016/j.hitech.2022.100429>
- Sorokina, E., Wang, Y., Fyall, A., Lugosi, P., Torres, E., & Jung, T. (2022). Constructing a smart destination framework: A destination marketing organization perspective. *Journal of Destination Marketing & Management*, 23, 100688. <https://doi.org/10.1016/j.jdmm.2021.100688>
- Sridadi, A. R., Eliyana, A., Gunawan, D. R., Kurniawan, M. D., Emur, A. P., & Yazid, Z. (2022). The mediating role of work engagement: A survey data on organizational citizenship behavior. *Data in Brief*, 42, 108243. <https://doi.org/10.1016/j.dib.2022.108243>
- Stræte, E. P., Vik, J., Fuglestad, E. M., Gjefsen, M. D., Melås, A. M., & Søråa, R. A. (2022). Critical support for different stages of innovation in agriculture: What, when, how?. *Agricultural Systems*, 203, 103526. <https://doi.org/10.1016/j.agsy.2022.103526>
- Suseno, Y., Hudik, M., Fang, E. S., & Guo, Z. (2020). Employee Attitudes, Technological Anxiety, and Change Readiness for Artificial Intelligence Adoption. *Academy of Management Proceedings*, 2020(1), 20045. <https://doi.org/10.5465/ambpp.2020.20045abstract>
- Tatarinova, M. N., Shvetsova, M. G., Vladimirova, E. N., Gruba, N. A., & Heberlein, F. A. (2022). Emotional value technology of foreign-language education for the development of speech communication abilities. *Perspektivy Nauki i Obrazovania*, 58(4), 281-306. <https://doi.org/10.32744/pse.2022.4.17>
- To, V. T., Swabey, K., Bown, A., & Thai, B. (2022). Multiple perspectives on the benefits of teaching of Vietnamese to preschool children in an Australian early childhood context. *International Journal of Early Years Education*, 30(2), 339-354. <https://doi.org/10.1080/09669760.2020.1814220>
- Tzima, S., Styliaras, G., Bassounas, A., & Tzima, M. (2020). Harnessing the potential of storytelling and mobile technology in intangible cultural heritage: A case study in early childhood education in sustainability. *Sustainability (Switzerland)*, 12(22), 1-22. <https://doi.org/10.3390/su12229416>
- Uchendu, B., Nurse, J. R. C., Bada, M., & Furnell, S. (2021). Developing a cyber security culture: Current practices and future needs. *Computers & Security*, 109, 102387. <https://doi.org/10.1016/j.cose.2021.102387>
- Vaishnavi, V., & Suresh, M. (2022). Assessment of healthcare organizational readiness for change: A fuzzy logic approach. *Journal of King Saud University - Engineering Sciences*, 34(3), 189-197. <https://doi.org/10.1016/j.jksues.2020.09.008>
- Vakulenko, Y., Shams, P., Hellström, D., & Hjort, K. (2019). Service innovation in e-commerce last mile delivery: Mapping the e-customer journey. *Journal of Business Research*, 101, 461-468. <https://doi.org/10.1016/j.jbusres.2019.01.016>
- Vedadi, A., Warkentin, M., & Dennis, A. (2021). Herd behavior in information security decision-making. *Information & Management*, 58(8), 103526. <https://doi.org/10.1016/j.im.2021.103526>
- Vogel-Heuser, B., Brodbeck, F., Kugler, K., Passoth, J., Maasen, S., & Reif, J. (2020). BPMN+I to support decision making in innovation management for automated production systems including technological, multi team and organizational aspects. *IFAC-PapersOnLine*, 53(2), 10891-10898. <https://doi.org/10.1016/j.ifacol.2020.12.2825>
- Wang, H., Qian, C., Gu, X., Xu, G., & Zeng, J. (2022). Play and psychological safety: An ethnography of innovative work. *Sage Open*, 12(1). <https://doi.org/10.1177/21582440211069967>
- Wu, M., Kader Cassim, F. A., Priambodo, A., & Ko, C. (2022). Psychological Capital's impact on the leadership-organizational climate preference relationship in potential leaders ~ A study comparing teachers and sportsmen~. *Heliyon*, 8(5), e09310. <https://doi.org/10.1016/j.heliyon.2022.e09310>
- Xia, L., Han, Q., & Zhang, W. (2020). Entrepreneurial passion, entrepreneurial perseverance, and new enterprise performance: Evidence from China. *Social Behavior and Personality*, 48(6). <https://doi.org/10.2224/SBP.9136>
- Xiao, J., Wu, Y., Wang, M., & Zhao, Y. (2023). Using choice experiments to assess tourist values for intangible cultural heritage – the case of Changdao fishermen's work song in China. *Journal of Cultural Heritage*, 60, 50-62. <https://doi.org/10.1016/j.culher.2023.01.008>
- Tao, X., T., Gull, N., Iqbal, S., Asghar, M., Nawaz, A., Albasher, G., ... Maqsoom, A. (2021). Exploring and Validating the Effects of Mega Projects on

- Infrastructure Development Influencing Sustainable Environment and Project Management. *Frontiers in Psychology*, 12, 663199. <https://doi.org/10.3389/fpsyg.2021.663199>
- Xu, J., & Duan, Y. (2022). Pricing and greenness investment for green products with government subsidies: When to apply blockchain technology? *Electronic Commerce Research and Applications*, 51, 101108. <https://doi.org/10.1016/j.elerap.2021.101108>
- Yang, Y., Zhang, M., Lin, Z., Bae, K. H., Avotra, A. A. R. N., & Nawaz, A. (2021). Green Logistics Performance and Infrastructure on Service Trade and Environment-Measuring Firm's Performance and Service Quality. *Journal of King Saud University-Science*, 34(1), 101683. <https://doi.org/10.1016/j.jksus.2021.101683>
- Zaghini, F., Fiorini, J., Piredda, M., Fida, R., & Sili, A. (2020). The relationship between nurse managers' leadership style and patients' perception of the quality of the care provided by nurses: Cross sectional survey. *International Journal of Nursing Studies*, 101, 103446. <https://doi.org/10.1016/j.ijnurstu.2019.103446>
- Zaman, U., Nawaz, S., & Nadeem, R. D. (2020). Navigating Innovation Success through Projects. Role of CEO Transformational Leadership, Project Management Best Practices, and Project Management Technology Quotient. *Journal of Open Innovation: Technology, Market, and Complexity*, 6(4), 168. <https://doi.org/10.3390/joitmc6040168>
- Zhang, L., Ge, Y., & Li, D. (2021). The features and mission of sport psychology in China. *Asian Journal of Sport and Exercise Psychology*, 1(1), 45–53. <https://doi.org/10.1016/j.ajsep.2021.03.008>
- Zhang, S., & Wang, X. (2022). Does innovative city construction improve the industry–university–research knowledge flow in urban China? *Technological Forecasting and Social Change*, 174, 121200. <https://doi.org/10.1016/J.TECHFORE.2021.121200>
- Zolduoarrati, E., Licorish, S. A., & Stanger, N. (2022). Impact of individualism and collectivism cultural profiles on the behaviour of software developers: A study of stack overflow. *Journal of Systems and Software*, 192, 111427. <https://doi.org/10.1016/j.jss.2022.111427>