

EDITORIAL

The role of new ICT-based systems in modern management special issue editors:

Nima Jafari Navimipour^{1,2} , Shaohua Wan³ , Srinivas Subbarao Pasumarti⁴ and Maria Fazio⁵

¹Future Technology Research Center, National Yunlin University of Science and Technology, Douliou, Taiwan, ²Department of Computer Engineering, Faculty of Engineering and Natural Sciences, Kadir Has University, Istanbul, Turkey, ³School of Information and Safety Engineering, Zhongnan University of Economics and Law, Wuhan, China, ⁴School of Management, Dr. Viswanath Karad MIT World Peace University, Pune, India and ⁵University of Messina, Messina, Italy

Corresponding author: Nima Jafari Navimipour; Email: JNNima@yuntech.edu.tw

(Received 7 January 2023; accepted 26 February 2023)

Abstract

In this special issue, we have collected eight articles that offer new points for research on information and communications technology (ICT)-based systems. We focused on the intuitive nature of the relationship between new ICT-based systems and contemporary management, forming an integrative unit of analysis instead of focusing solely on new ICT-based systems and leaving contemporary management as a moderating or mediating factor. This special issue promoted interdisciplinary research at the intersection of new ICT-based systems and contemporary management, including cybernetics systems and knowledge management, service managing and the Internet of things, cloud and marketing management, business process re-engineering and management, knowledge management, and strategic business management, among others.

Keywords: ICT; blockchain; nature-inspired algorithms; modern management; big-data; modern business; cloud computing; information systems; IoT; support rapid manufacturing; supply chain management system; customer relationship management systems

Introductions

Information and communications technology (ICT) advancements allow for firms, factories, hospitals and companies to be flexible, adaptable, and nimble (Panda & Rath, 2018; Vahdat, 2021). These firms attempt to develop new digital competencies in order to maintain competitive advantages in markets that are constantly evolving or in the management of complex organizational difficulties. ICT advancements allow for firms to be flexible, adaptable, and nimble. ICT solutions enable innovative management, reduce costs, and increase the speed of information and knowledge transmission. People can access a wealth of data through a data lake or warehouse to improve the quality of their decision-making and allow for multiple angles of analysis. ICT tools are useful and advantageous in various management facets (Galbreath, Lucianetti, Tisch, & Thomas, 2022). For instance, they can lower the mistake rate, improve communication quality, make information more readily available, strengthen the mental models and team efficacy, aid in diagnosis and monitoring, provide decision assistance, and facilitate the execution of guidelines and recommendations. The quick adoption and development of technology are, nonetheless, characterized by the influence of businesses. In addition, advanced ICT has enabled outsourcing of many business services, such as production, marketing, and service, that were once deemed vital to a company's operations, enabling the implementation of strategic supply chains.

As the amount of data in the digital environment continues to grow, it is anticipated that computers will perform increasingly intelligent activities. Therefore, Information Systems (IS) must do more jobs to give decision-makers more time to perform cognitively rewarding tasks (Galbreath, Lucianetti, Thomas, & Tisch, 2020). Humans have been able to generate, process, and exchange an ever-increasing amount of information in novel ways due to the exponential advancements in ICT during the past two decades. Human civilization, company assets, the information universe, and the physical world can be networked and integrated using innovative and complex technologies such as grid and cloud computing (Coutinho, Cretan, & Jardim-Goncalves, 2013; Li, Zhong, Wang, & Cao, 2013). The *Journal of Management & Organization* has been an outlet of choice for several important contributions advancing the ICT-based systems literature. Kars-Unluoglu and Kevill (2021) explored 'how do the emotions of key strategists enable and/or hinder capability development?'. Also, Xu and Wang (2021) proposed an extended robot lawyer technology acceptance model, which their model highlights two dimensions: 'legal use' and 'perception of trust.' Furthermore, Jucevičius and Jucevičienė (2022) concentrated on the significance of moving the Collaborative Dynamic Capabilities vision from a firm-centric to a network-centric perspective, with its emphasis on the boundary-spanning Strategic Communities. Moreover, Hamouche (2021) addressed the impact of the COVID-19 crisis on HRM. This paper is a general literature review that aims at broadening the management research scope by exploring the effects of COVID-19 on HRM. Thus, the *Journal of Management & Organization* is a natural home for this special issue on ICT-based systems in modern management. The sections that follow provide an overview of the articles contained in this issue. We finish with our recommendations for future research.

Overview of papers included in the special issue

In the first paper, Wang, Xu, and She (2022) discovered the relationship between technical factors, financial factors, environmental factors, security of cloud-based IS, and the agile development of industrial business process management. Their study was a quantitative analysis. The analytical tool utilized here were SEM and smart PLS applications. The empirical outcomes showed that cloud-based IS help companies agilely develop Industrial BPM (IBPM). Also, they showed that the technical, financial, environmental, and security of the cloud-based IS could positively influence the agile development of IBPM.

In order to maximize energy efficiency and design time, Chen, Hao, and Nazif (2022) offered a revolutionary way for scheduling design products in production management systems (combined particle optimization algorithm and shuffled frog leaping algorithm). They showed that the problem with particle optimization algorithms was that they might become trapped in local optimization and require considerable time to converge to global optimization. These issues have been resolved in this paper by utilizing the combined frog leaping algorithm local search. The suggested method was simulated using the programming environment MATLAB. The results demonstrated that their proposed strategy minimized energy consumption and product design time more effectively.

Furthermore, Zhou, Xia, and Dai (2022) examined the application of meta-heuristic methods in resources, energy, and data management. The bibliometric method was utilized to concentrate on the history of papers and the study topic. In addition, the formed clusters highlighted the leading authors in this discipline. The findings demonstrated that optimization methods inspired by nature contribute significantly to cost, resource, and energy efficiency. The genetic algorithm is the most significant and commonly employed technique in the preceding literature. This inquiry ultimately revealed that bibliometric methods paired with advanced data analytics properties are a feasible tool for identifying and showing the value of a database.

Ardebili, Latifian, Aziz, BinSaeed, Alizadeh, and Kostyrin (2022) examined cloud infrastructures for employee attendance management in which the articles are categorized into three

groups. The findings indicated that the industry's most essential biometric technologies are fingerprint, facial recognition, and mobile apps. In addition, the results demonstrated that cloud infrastructure has a substantial and good effect on the management of staff attendance systems. In addition, the results indicated that the radio frequency identification authentication technique safeguards the privacy of tags and readers from database memory. When references function correctly, they benefit individuals and society by making workplaces more productive and secure.

Also, Qi, Sun, and Hosseini (2022) introduced a modern system for organizational big-data management. Their article examined current studies on employing cloud computing to manage data created by organizations. The results showed that combining big data and cloud computing has a number of advantages, the most significant of which are improved global trade and increased business productivity. This study also brought attention to several risks in the complex computer environment. The results indicated that the cloud computing can significantly improve corporate management.

Philip and Kosmidou (2022) examined configurations of proactive personality and ICT-enabled technostress creators as drivers of job crafting for workers. Adhering to configuration theorizing, the study was conducted using fuzzy set qualitative comparative analysis. They showed that a proactive mentality was required for job crafting to occur within the framework of ICT demands, according to survey responses from 335 full-time workers. The sufficient criteria for job crafting were revealed in four combinations of workers. By include ICT as a contemporary job demand, the research provided updated the Job Demands-Resources hypothesis. This study provided a unique interpretation of previous regression-based findings regarding the relationship between proactive personality traits and job crafting.

By combining two perspectives on blockchain in SCM, Li, Zhu, and Darbandi (2022) provided comprehensive knowledge in this field using a bibliometric approach. They examined the global research trend in linked fields. From 2016 to early 2021, they gathered 400 papers relating to the research topic from the Web of Science. To maintain the quality of the data collection, they excluded research in the form of technical reports, editorials, comments, and consultancy pieces. VOSviewer was utilized to generate visualization maps from text and bibliographic data. The investigation discovered useful information, such as annual publishing and citation patterns, the leading study topic, the leading authors, and the organizations that provide the most financing for this field.

Finally, Latifi, Ebrahimi, Ranjbaran, Mirzaei, and Fakhri (2022) examined the influential factors (including innovation management, market knowledge, competitive intelligence, entrepreneurship management, stakeholder management, project management, and business project management) on the CRM efficiency for online retailing. Data were acquired from the employees in a big online shopping in Iran. Based on Morgan's table, 248 samples were picked at random, and questionnaires were distributed to employees, of whom 234 responded in full. Using SPSS and PLS software, research data and hypotheses were assessed. According to research findings, innovation management, market knowledge, and competition intelligence directly impact the effectiveness of CRM systems for online retailing. Through the mediator variable of entrepreneurial management, stakeholder management, project management, and business project management were also effective in the efficient CRM systems for online retailing.

Looking ahead: future research on ICT-based systems in modern management

The empirical analysis of the ramifications of various forms of new technologies for large data sets using cloud computing remains a vital topic of study. With the expansion of ICT in recent years, advanced gadgets and systems have been developed to assist human resources, make them more precise and simpler for businesses, and record personnel traffic using innovative platforms like cloud computing. Online attendance systems that utilize cloud computing which is freely available from anywhere, are less expensive than conventional methods. Several of the articles in this issue examined cloud computing-based innovative technologies. For example, Qi, Sun,

and Hosseini (2022) studied how to facilitate big-data management in modern businesses and organizations using cloud computing. Ardebili *et al.*, (2022) analyzed and studied employee attendance management systems based on cloud computing. Also, Wang, Xu, and She (2022) studied the effect of cloud-based IS on the agile development of industrial business process management. Future research could investigate the economics of using novel technologies in a smart remanufacturing system in order to explain its viability and profitability. Integrating the proposed structure with other technologies for networked information exchanges, such as big data analytic tools and blockchain technology, could be a fruitful subject for future research. Researchers can examine the proposed model by Wang, Xu, and She (2022) with a comparative approach in other companies. As all three studies of these large fields of research witness the significance of new cloud-based technologies, it would be prudent for researchers to investigate a new area of study so that the field can continue to develop insights that can be implemented in the real world.

The development of information technology, the broad globalization of businesses and organizations, and even daily living have posed challenging problems for resource and energy management and product data management. To attain near-optimal results, meta-heuristic strategies must be utilized. A number of the articles in this issue examined meta-heuristic techniques. In particular, we would like to highlight the study by Chen, Hao, and Nazif (2022), which offers complete transparency and replicability and can be expanded on as research on IoT and product development further accumulates. In a similar vein, the systematic literature review and bibliometric analysis of Zhou, Xia, and Dai (2022) can be revisited as research accumulates. In both cases, it would be anticipated that further research will find solutions to the mentioned unresolved issues by these authors.

Also, based on the breadth of the topic of this special issue, discussions and research hints are presented about blockchain, technostress, and customer relationship management. Since hackers have attacked security and privacy protection in new technologies, researchers are requested to pay attention and research the security areas in this technology. For example, Li, Zhu, and Darbandi (2022) investigated blockchain-enabled IoT technology for designing a secure supply chain management system. The finding of this paper can be extended in the future to provide the implementation platforms and infrastructures.

On the other hand, Philip and Kosmidou (2022) reviewed how proactive personality and ICT-enabled technostress creators configure job crafting. Despite the contributions, its limitations – a cross-sectional single-source design and a US-only sample – are mentioned and should be taken into account when interpreting the findings. The development of information technology, the broad globalization of businesses and organizations, and even daily living have posed challenging problems for resource and energy management and product data management. To attain near-optimal results, meta-heuristic strategies must be utilized. A number of the articles in this issue examined meta-heuristic techniques in this field. Finally, Latifi *et al.* (2022) examined CRM systems for online retailing. The main limitation of this study is a limited sample of research for customers in online retailing. The investigated factors cannot be guaranteed to be beneficial in other contexts. This study's research design is cross-sectional. Since cross-sectional data on the relationship between variables are obtained at a single point, they are collected at different times. Also, due to a lack of time and funds, this study collects research data using a single sample. Additionally, other parameters must be considered during model evaluation. Future research would benefit greatly from examining the effectiveness of CRM systems for online shopping from multiple angles. In addition, a comprehensive sample for data collection can be utilized to identify other aspects that influence the efficiency of CRM systems for online retailing. Future research can also examine organizational culture, knowledge management, and innovation management to realize effective and efficient CRM systems for online retailing.

We hope that academics will take an interest in the work that is presented in this special edition. The following pages of this issue include the selected works that are fascinating and unique in this field.

References

- Ardebili, A., Latifian, A., Aziz, C. F., BinSaeed, R. H., Alizadeh, S., & Kostyrin, E. V. (2022). A comprehensive and systematic literature review on the employee attendance management systems based on cloud computing. *Journal of Management & Organization*, 28, 1–18.
- Chen, Y., Hao, S., & Nazif, H. (2022). IoT-enabled product development method to support rapid manufacturing using a nature-inspired algorithm. *Journal of Management & Organization*, 28, 1–23.
- Coutinho, C., Cretan, A., & Jardim-Goncalves, R. (2013). Sustainable interoperability on space mission feasibility studies. *Computers in Industry*, 64(8), 925–937.
- Galbreath, J., Lucianetti, L., Thomas, B., & Tisch, D. (2020). Entrepreneurial orientation and firm performance in Italian firms: The moderating role of competitive strategy. *International Journal of Entrepreneurial Behavior & Research*, 26, 629–646.
- Galbreath, J., Lucianetti, L., Tisch, D., & Thomas, B. (2022). Firm strategy and CSR: The moderating role of performance management systems. *Journal of Management & Organization*, 28(1), 202–220.
- Hamouche, S. (2021). Human resource management and the COVID-19 crisis: Implications, challenges, opportunities, and future organizational directions. *Journal of Management & Organization*, 1, 1–16.
- Jucevičius, G., & Jucevičienė, R. (2022). Enabling collaborative dynamic capabilities in strategic communities: Firm-vs. Network-centric perspectives. *Journal of Management & Organization*, 28(3), 587–604.
- Kars-Unluoglu, S., & Kevill, A. (2021). Emotional foundations of capability development: An exploration in the SME context. *Journal of Management & Organization*, 27(4), 674–693.
- Latifi, K., Ebrahimi, A., Ranjbaran, M., Mirzaei, A., & Fakhri, Z. (2022). Efficient customer relationship management systems for online retailing: The investigation of the influential factors. *Journal of Management & Organization*, 28, 1–36.
- Li, W., Zhong, Y., Wang, X., & Cao, Y. (2013). Resource virtualization and service selection in cloud logistics. *Journal of Network and Computer Applications*, 36(6), 1696–1704. <http://dx.doi.org/10.1016/j.jnca.2013.02.019>.
- Li, Y., Zhu, X., & Darbandi, M. (2022). A comprehensive and bibliometric review on the blockchain-enabled IoT technology for designing a secure supply chain management system. *Journal of Management & Organization*, 28, 1–18.
- Panda, S., & Rath, S. K. (2018). Strategic IT-business alignment and organizational agility: From a developing country perspective. *Journal of Asia Business Studies*, 12, 422–440.
- Philip, J., & Kosmidou, V. (2022). How proactive personality and ICT-enabled technostress creators configure as drivers of job crafting. *Journal of Management & Organization*, 28, 1–21.
- Qi, W., Sun, M., & Hosseini, S. R. A. (2022). Facilitating big-data management in modern business and organizations using cloud computing: A comprehensive study. *Journal of Management & Organization*, 28, 1–27.
- Vahdat, S. (2021). The role of IT-based technologies on the management of human resources in the COVID-19 era. *Kybernetes*, 51, 2065–2088.
- Wang, J., Xu, Y.-P., & She, C. (2022). Effect of cloud-based information systems on the agile development of industrial business process management. *Journal of Management & Organization*, 28, 1–18.
- Xu, N., & Wang, K.-J. (2021). Adopting robot lawyer? The extending artificial intelligence robot lawyer technology acceptance model for legal industry by an exploratory study. *Journal of Management & Organization*, 27(5), 867–885.
- Zhou, Y., Xia, W., & Dai, J. (2022). The application of nature-inspired optimization algorithms on the modern management: A systematic literature review and bibliometric analysis. *Journal of Management & Organization*, 28, 1–24.