Editorial: Intertwining of information systems and knowledge risk in the uncertain business environment

The knowledge risk can be defined as the probability and severity of adverse effects associated with any activity engaging or related somehow to the knowledge (Durst and Zieba, 2019). The operational dimension of knowledge risks pertains to all the risks arising from an organization's day-to-day operations and overall functioning, such as entering into collaborative agreements, outsourcing certain business functions or applying incorrect or outdated knowledge during business operations (Adar and Wuchner, 2005; Durst, 2019). It is important to actively manage knowledge risks while acknowledging that some of them cannot be eliminated (Adar and Wuchner, 2005; Durst, 2019). Knowledge risk management, however, provides ways to deal with knowledge at risk, such as knowledge loss – the result of personnel removed, for example, by turnover or death, or any other reason that the person is no longer part of the organization or cannot be reached. The literature on knowledge management emphasizes the positive aspects of the discipline; it hardly covers the negative aspects, such as when knowledge is misunderstood, repressed or misused for personal or organizational reasons (Burgin and Mikkilineni, 2021; Di Vaio *et al.*, 2021; Wang *et al.*, 2023). Thus, in completing the loop, knowledge risks and knowledge risks management need to be considered together rather than studied in silos. Furthermore, only a few studies attempt to explore the two together, and thus the literature on it remains fragmented primarily. Some studies have been conducted about knowledge loss (Norman, 2004; Parise, 2007; Schmitt *et al.*, 2012); knowledge leakage (Ahmad *et al.*, 2014; Annansingh, 2012; Mohamed *et al.*, 2007; Parker, 2012); spillover effects (Fernandes and Ferreira, 2013); and privacy (Arshad and Ismail, 2018; Hernaus *et al.*, 2018; Wang *et al.*, 2018; Khalil *et al.*, 2022). Yet, studies combining knowledge risk, knowledge risk management and information systems (IS) with an uncertain business environment by considering the "people" and "processes" seem to be an under-researched area in the literature.

IS have been exposed to a fast-changing environment (Arogundade *et al.*, 2020). IS and knowledge risks play a central role in the uncertain business environment (Hammoda and Durst, 2022; Massingham, 2010). Knowledge has generally been seen as a positive asset that organizations ought to maximize. Nevertheless, several researchers recently argued that organizations must also consider knowledge risks, given the increasing number of these risks and the increasing complexity of organizational environment (Choi *et al.*, 2021; Gioe and Hatfield, 2021; Nauhria *et al.*, 2018). Some of the examples include knowledge concealment (Cooke and Leydesdorff, 2006; Saeidpoursarcheshmeh *et al.*, 2021); the hoarding of knowledge (Oliveira *et al.*, 2021); and unlearning or intentionally forgetting the learned facts (Albana and Yeşiltaş, 2021; Durst, 2019). Therefore, the focus on "people" and "processes" by intertwining of IS and knowledge risk in the uncertain business environment is under-researched as many authors suggest the need for identifying the antecedents, mediators, moderators, consequents and control variables associated with IS and knowledge risks while

neglecting the two concepts of "people" and "processes" (Di Vaio *et al.*, 2021; Gioe and Hatfield, 2021; Oliveira *et al.*, 2021).

As an example, Anaza and Nowlin (2017) considered the importance of identifying the effects of recognition and financial rewards in knowledge risk management by focusing on people, while Gagné *et al.* (2019) emphasized the importance of measuring time pressure or excessive workload as a moderator by focusing processes. Hence, this special issue will reveal the management of possible IS that may help to mitigate the knowledge risks in the unstable business environment by considering the dual aspects of "people" and "processes."

The main aim of this special issue is to combine IS and knowledge risk in the uncertain business environment by considering the "people" and "processes." Organizations are exposed to different knowledge risks (Lee *et al.*, 2021). Recent researchers suggest that IS and knowledge risk management tools play a main role in overcoming the risks in the uncertain business environment (Di Vaio *et al.*, 2021; Gioe and Hatfield, 2021; Lee *et al.*, 2017; Shabbir and Gardezi, 2020). To understand the difference between knowledge management and information management, it is best to say that knowledge management focuses on people (Burgin and Mikkilineni, 2021; Mbassegue *et al.*, 2016), while information management focuses on processes (Lee *et al.*, 2017; Mbassegue *et al.*, 2016). However, recent researchers have not responded to these two concepts of IS and knowledge risk in the uncertain business environment by considering the "people" and "processes" (Choi *et al.*, 2021; Di Vaio *et al.*, 2021; Shabbir and Gardezi, 2020).

Brief overview of research papers

The first paper "Bright and dark side of knowledge management practices in firms using information systems: Examining different moderating impacts" examines both the bright and dark sides of the knowledge management process. They decipher the impact of knowledge sharing and hiding on the employee's creativity and eventually on firm innovativeness. The authors also check the moderation by incentive focus, preventive focus and enterprise social networking adoption on the employee's creativity and firm innovativeness. Partial least squares–structural equation modeling was used to analyze data collected from Indian firms. The results show a significant moderation by all three proposed moderators. Also, knowledge sharing positively influences (bright side) employee creativity, while knowledge hiding has a negative influence (dark side).

The second paper "The role of knowledge management in driving academic advancement: empirical examination from the lens of the social cognitive theory" investigates the relationship between researchers' competencies (based on attitudes, skills and knowledge), academic affiliation and knowledge management and their effect on the growth of scholarly international publications. The social cognitive theory provides the theoretical underpinning for the study. Data is collected from stakeholders involved in research activities in educational institutes. The findings show that researchers' competencies and academic affiliation positively influence scholarly publication growth, while knowledge management is a significant moderator. The study provides empirical evidence on improving research productivity and international publication in educational institutes.

The third paper "The interplay of knowledge management, operational and dynamic capabilities in project phases" uncovers the challenges that the project delivery organizations phase while they try to develop competitive advantage over new entrants. For this, this paper uses a case study methodology in exploring knowledge conversion

transactions while studying project delivery organization in the engineering industry. The model proposed in the study is based on a study by Nonaka and Takeuchi (2005). The extension of the SECI knowledge management model is this paper's key contribution. It provides an overview of the relevant constructs that are related to the knowledge management processes of project delivery organizations. This study also provides a detailed overview of how organizations use knowledge configuration to achieve competitive advantage. Using the case, this paper provides insights into sensing, seizing and sharing knowledge during a project life cycle.

The fourth paper "Applying deep learning to predict innovations in small and medium enterprises (SME): the dark side of knowledge management risk" studies the dark side of knowledge management in small and medium enterprises in Portugal toward innovation. This paper fills the research gap on innovation in uncertain environments for SMEs using predictive models. The focus lies on spinner innovation model factors in uncertain environments. Data collected via survey was analyzed using deep mining techniques. Authors work to identify and test the factors that are crucial to understanding the innovation can be predicted in uncertain business environments. Findings show that knowledge creation, knowledge transfer and public and private knowledge management are key factors for innovation under uncertainty.

The fifth paper "The dark side of HR blog in the workplace: investigating the employees' trust factors affecting using HR blog" discusses the trust issues of employees when they use HR blogs. Using social exchange theory as theoretical background, they uncover the causes that affect employee trust toward HR blogs, a two-way exchange process. A qualitative research design was used. The authors conducted semi-structured interviews with employees and managers of HR blogs. Findings show that there is a lack of trust in using HR blogs. Key factors include but not limited to are functionality, lack of feedback, lack of tangible outcomes and lack of guidelines for using the HR blog. Practical implications provide strategies to restore employee trust in HR blogs at the workplace.

The sixth paper "Investigating the dark side of mobile bookkeeping applications: a moderated – mediation" studies the resistance barriers to adopting mobile bookkeeping applications. They focus on factors like usage, value, tradition, risk, compatibility and complexity. Furthermore, they explore the mediating role of technostress between barriers and user resistance. Innovation resistance theory is used as a theoretical underpinning for the study. Analysis of the data was done using SEM. Data analysis showed usage, risk and tradition as key barriers causing user resistance. Technostress is a key mediator, which itself gets moderated by self-efficacy.

The seventh paper "The dark side of online transition of exams in higher education: a perspective of an emerging nation" highlights the issues with online assessments conducted in a post-Covid world using Kolb's experiential learning mechanism. Using the data collected from university students studying business and STEM courses, the authors explore the relationships between the key factors that affect student perceptions regarding online assessment. They found trustworthiness and apprehensible education as the important factors influencing students' perception of online assessments. They suggest a robust infrastructure will help students transition to an online evaluation mode.

Discussion on research papers
The papers in this special issue research are on SMEs in Portugal, higher education in Sri Lanka, the use of HR blogs in Saudi Arabia or the use of a single case to study project

delivery organizations in a single industry. Though these papers give us new perspectives, their respective research domains lack generalizability in other contexts. Considerable scope exists for future researchers in replicating the studies and finding the similarities and differences between the findings of studies published in this special issue and findings from similar studies for the replication in different geographies. For example, SMEs are not limited to a specific country, and future researchers can replicate the study in different geographies. One country of particular interest for future researchers can be India, where the government is giving a heavy push to the SME sector. Researchers working in developed countries like India would like to consider knowledge management issues and risks which can be considerably higher given the weak laws compared to some other developed countries (Nauhria *et al.*, 2018). Similarly, the educational institutes in India are giving a push for the online medium of education by launching online modules of their on-campus courses, but satisfaction from the assessment methods followed in India can be different from the one in Sri Lanka. Such comparative studies conducted by future researchers will help in strengthening the knowledge about information and innovation management and knowledge management and its risks on a universal or global level (see Table 1) (Norman, 2004; Shabbir and Gardezi, 2020).

Furthermore, papers in this issue focus on uncertainty during crises like Covid-19 where knowledge management is endangered, and risks are significantly higher for knowledge loss. Covid-19 was a peculiar case and may be treated as an outlier or a new normal for the future. Future researchers who think that Covid-19 was an outlier and the knowledge management risks will be less in the future can take longitudinal research and see how organizations are evolving in a post-Covid world. Have the organizations reverted to the old way of knowledge and risk management or have they taken instances such as Covid-19 as a new normal and have adopted strategies that will make them more resilient (see Table 1)?

Finally, the researchers in the same geographical region as the authors of the articles in the special issue can check the problem in different industries. For example, innovation is not limited to SME firms, but is equally important or it is given more emphasis by organizations that are medium and large scale as a source of competitive advantage (Mbassegue, 2016; Parker, 2012). Future research can be done using data collected from different industries that apply the same research methodology used in our issue articles and check the robustness of the findings (see Table 1).

Context	Scope for future extension
Geography	Future research in different geographies will improve the generalizability of the findings in this issue (cross-cultural domain)
Disruptive situations	Future research with and without disruptive situations will enrich the knowledge management domain in post-Covid world
Different industry	Future research in different industries will provide an opportunity for cross industries findings to be helpful for conglomerates
Source: Developed by authors	

Table 1.
Summary table on the future ideas stemming from this issue

Conclusion

This special issue will be of significant importance to the practitioners and policymakers within academic institutions by allowing them to understand the combined effect of IS and knowledge risks in the uncertain business environment by considering the dual aspects of "people" and "processes."

Abhishek Behl
Management Development Institute Gurgaon, Gurgaon, India
Achint Nigam
Department of Marketing, Birla Institute of Technology and Science, Pilani, India, and
Justin Zhang
MIS and Business Analytics, University of North Florida, Jacksonville, Florida, USA

References

Adar, E. and Wuchner, A. (2005), "Risk management for critical infrastructure protection (CIP) challenges, best practices and tools", *First IEEE International Workshop on Critical Infrastructure Protection (IWCIP' 05)*, November, *IEEE*, p. 8.

Ahmad, A., Bosua, R. and Scheepers, R. (2014), "Protecting organizational competitive advantage: a knowledge leakage perspective", *Computers and Security*, Vol. 42, pp. 27-39.

Albana, M.J. and Yeşiltaş, M. (2021), "Impact of linguistic ostracism on knowledge sharing, hiding and hoarding and the moderating role of cultural intelligence", *Kybernetes*, Vol. 51 No. 3, pp. 1180-1198.

Anaza, N.A. and Nowlin, E.L. (2017), "What's mine is mine: a study of salesperson knowledge withholding and hoarding behavior", *Industrial Marketing Management*, Vol. 64, pp. 14-24.

Annansingh, F. (2012), "Exploring the risks of knowledge leakage: an information systems case study approach", *New Research on Knowledge Management Models and Methods*, pp. 269-286.

Arogundade, O.T., Abayomi-Alli, A. and Misra, S. (2020), "An ontology-based security risk management model for information systems", *Arabian Journal for Science and Engineering*, Vol. 45 No. 8, pp. 6183-6198.

Arshad, R. and Ismail, I.R. (2018), "Workplace incivility and knowledge hiding behavior: does personality matter?", *Journal of Organizational Effectiveness: People and Performance*, Vol. 5 No. 3, pp. 278-288.

Burgin, M. and Mikkilineni, R. (2021), "From data processing to knowledge processing: working with operational schemas by autopoietic machines", *Big Data and Cognitive Computing*, Vol. 5 No. 1, p. 13.

Choi, T.Y., Narayanan, S., Novak, D., Olhager, J., Sheu, J.B. and Wiengarten, F. (2021), "Managing extended supply chains", *Journal of Business Logistics*, Vol. 42 No. 2, pp. 200-206.

Cooke, P. and Leydesdorff, L. (2006), "Regional development in the knowledge-based economy: the construction of advantage", *The Journal of Technology Transfer*, Vol. 31 No. 1, pp. 5-15.

Di Vaio, A., Palladino, R., Pezzi, A. and Kalisz, D.E. (2021), "The role of digital innovation in knowledge management systems: a systematic literature review", *Journal of Business Research*, Vol. 123, pp. 220-231.

Durst, S. (2019), "How far have we come with the study of knowledge risks?", *VINE Journal of Information and Knowledge Management Systems*, Vol. 49 No. 1, pp. 21-34.

Durst, S. and Zieba, M. (2019), "Mapping knowledge risks: towards a better understanding of knowledge management", *Knowledge Management Research and Practice*, Vol. 17 No. 1, pp. 1-13.

Fernandes, C.I. and Ferreira, J.J. (2013), "Knowledge spillovers: cooperation between universities and KIBS", *R&D Management*, Vol. 43 No. 5, pp. 461-472.

Gagné, M., Tian, A.W., Soo, C., Zhang, B., Ho, K.S.B. and Hosszu, K. (2019), "Different motivations for knowledge sharing and hiding: the role of motivating work design", *Journal of Organizational Behavior*, Vol. 40 No. 7, pp. 783-799.

Gioe, D.V. and Hatfield, J.M. (2021), "A damage assessment framework for insider threats to national security information: Edward Snowden and the Cambridge five in comparative historical perspective", *Cambridge Review of International Affairs*, Vol. 34 No. 5, pp. 704-738.

Hammoda, B. and Durst, S. (2022), "A taxonomy of knowledge risks for healthcare organizations", *VINE Journal of Information and Knowledge Management Systems*.

Hernaus, T., Cerne, M., Connelly, C., Vokic, N.P. and Škerlavaj, M. (2018), "Evasive knowledge hiding in academia: when competitive individuals are asked to collaborate", *Journal of Knowledge Management*, Vol. 23 No. 4, pp. 597-618.

Khalil, A., Shankar, A., Bodhi, R., Behl, A. and Ferraris, A. (2022), "Why do people resist drone food delivery services? An innovation resistance theory perspective", *IEEE Transactions on Engineering Management*.

Lee, J.H., Lee, J.M., Kim, W.K. and Kim, H.G. (2017), "A study on perception of swimsuit using big data text-mining analysis", *Korean Journal of Sport Science*, Vol. 28 No. 1, pp. 104-116.

Lee, R.W., Yip, J.Y. and Shek, V.W. (2021), *Knowledge Risk and Its Mitigation: Practices and Cases*, Emerald Group Publishing.

Massingham, P. (2010), "Knowledge risk management: a framework", *Journal of Knowledge Management*, Vol. 14 No. 3, pp. 464-485.

Mbassegue, P., Escandon-Quintanilla, M.-L. and Gardoni, M. (2016), "Knowledge management and big data: opportunities and challenges for small and medium enterprises (SME)", Paper presented at the IFIP International Conference on Product Lifecycle Management.

Mohamed, S., Mynors, D., Grantham, A., Chan, P., Coles, R. and Walsh, K. (2007), "Unearthing key drivers of knowledge leakage", *International Journal of Knowledge Management Studies*, Vol. 1 Nos 3/4, pp. 456-470.

Nauhria, Y., Kulkarni, M.S. and Pandey, S. (2018), "Development of strategic value chain framework for Indian car manufacturing industry", *Global Journal of Flexible Systems Management*, Vol. 19 No. S1, pp. 21-40.

Norman, P.M. (2004), "Knowledge acquisition, knowledge loss, and satisfaction in high technology alliances", *Journal of Business Research*, Vol. 57 No. 6, pp. 610-619.

Oliveira, M., Curado, C. and de Garcia, P.S. (2021), "Knowledge hiding and knowledge hoarding: a systematic literature review", *Knowledge and Process Management*, Vol. 28 No. 3, pp. 277-294.

Parise, S. (2007), "Knowledge management and human resource development: an application in social network analysis methods", *Advances in Developing Human Resources*, Vol. 9 No. 3, pp. 359-383.

Parker, H. (2012), "Knowledge acquisition and leakage in inter-firm relationships involving new technology-based firms", *Management Decision*, Vol. 50 No. 9, pp. 1618-1633.

Saeidpoursarcheshmeh, M., Hajianzehaei, Z., Nikaeen, Z. and Zarei, A. (2021), "The impact of organizational politics on employee creativity with in the ministry of sports and youth with the mediating role of knowledge concealment and the role of moderator of job characteristics", *Scientific Journal of Organizational Behavior Management in Sport Studies*, Vol. 8 No. 3, pp. 62-71.

Schmitt, A., Borzillo, S. and Probst, G. (2012), "Don't let knowledge walk away: knowledge retention during employee downsizing", *Management Learning*, Vol. 43 No. 1, pp. 53-74.

Shabbir, M.Q. and Gardezi, S.B.W. (2020), "Application of big data analytics and organizational performance: the mediating role of knowledge management practices", *Journal of Big Data*, Vol. 7 No. 1, pp. 1-17.

Wang, H., Zheng, L.J., Zhang, J.Z., Behl, A., Arya, V. and Rafsanjani, M.K. (2023), "The dark side of foreign firm presence: how does the knowledge spillover from foreign direct investment influence the new venture performance", *Journal of Innovation and Knowledge*, Vol. 8 No. 3, p. 100399.

Wang, Z., Hu, J., Lv, R., Wei, J., Wang, Q., Yang, D. and Qi, H. (2018), "Personalized privacy-preserving task allocation for mobile crowdsensing", *IEEE Transactions on Mobile Computing*, Vol. 18 No. 6, pp. 1330-1341.