



## Review article

# A theoretical review on the role of knowledge sharing and intellectual capital in employees' innovative behaviors at work

Jinhong Xu <sup>a,\*</sup>, Wei Wei <sup>b</sup><sup>a</sup> School of Finance and Economics, Shenzhen Institute of Information Technology, Shenzhen, 518360, China<sup>b</sup> School of Innovation and entrepreneurship, Shenzhen Institute of Information Technology, Shenzhen, 518360, China

## ARTICLE INFO

## Keywords:

COVID-19 pandemic  
Intellectual capital  
Innovative work behaviors  
Knowledge sharing

## ABSTRACT

With the rapid growth of technologies, sciences, and globalization, many organizations have modified and updated their managerial policies to meet modern requirements. To survive difficulties and setbacks, especially unexpected crises like the COVID-19 pandemic, many companies turned their attention to employees' knowledge sharing, intellectual capital, and innovative thoughts and behaviors to gain wealth, value, and success. Given the severe shock that the pandemic exerted on many countries' economy, the psycho-emotional and individual aspects of work obtained unprecedented scholarly attention. However, the way knowledge sharing and intellectual capital can interact to foster and enhance innovation at workplaces has remained under-researched. To fill this gap, the present review article presented the theoretical and empirical foundations of these three factors and stressed their possible interplay. In the end, some implications and suggestions for further research were offered to managers and eager researchers to practically and scientifically examine the interplay of knowledge sharing, intellectual capital, and innovative work behaviors.

## 1. Introduction

As a pivotal element of success in organizations, knowledge has strongly been seen as a great asset that provides sustainable development and competitive advantage for firms [1]. It is integral to knowledge management systems, but its effective practice is by no means easy in different contexts and occupations because it does not emerge by itself [2]. This complex nature along with the globalization era has augmented competition among organizations and pushed their managers to modify and update their policies in light of several technological advancements Shannak et al., 2012[3]. The managers had to use new knowledge management practices and strategies in order to reach sustainable development. One such strategy is knowledge sharing, which is essential for generating success and productivity in organizations Beijerse, 1999[4]. It refers to different activities and practices that people use to transmit knowledge into information, plans, ideas, skills, goals, innovation, and insights understandable by colleagues Bukowitz & Williams, 1999[5]. It is the movement or reciprocal exchange of knowledge between employees that increases collaboration, problem solutions, and idea production at work [6]. Given the prominence of knowledge in organizations and the demand of this era, managers have to find useful ways to transfer knowledge and expertise from experts in the company to novice employees [6]. Knowledge must not be encapsulated in a single employee's mind but shared with others as a source of accomplishment in the whole organization Mohajan, 2019[7]. Otherwise, it is not possible to survive the competition with parallel companies.

\* Corresponding author.

E-mail address: [202000010@szit.edu.cn](mailto:202000010@szit.edu.cn) (J. Xu).

<https://doi.org/10.1016/j.heliyon.2023.e20256>

Received 9 February 2023; Received in revised form 29 August 2023; Accepted 16 September 2023

Available online 20 September 2023

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The act of knowledge sharing has been found to influence the productivity, cost management, sales growth, revenue, and working culture of an organization [8,9]. Another critical area that knowledge sharing and positive organizational culture that underscore the exchange of knowledge among different parties can influence and interact with is intellectual capital. It is a necessary condition for organizational success and value creation [10]. By definition, intellectual capital is defined as the knowledge, experience, techniques, technology, relationships, and skills that produce wealth and competitive advantage for a company in the market Edvinsson & Malone, 1997. It is a broad term that entails firm-specific resources, which bring about the value and are hardly imitable [11]. It resides in the actions and skills of employees and strongly affects a firm's performance, knowledge sharing, creativity, satisfaction, success, and productivity Buallay et al., 2020; [12,13]. However, the interplay of knowledge sharing and intellectual capital in facilitating or boosting employees' innovative behaviors at work has been overlooked by researchers, to date. This is inconsistent with the rapid growth of science and the economy that has forced organizations and employees to be innovative in different organizational processes, methods, and operations Shalley & Gilson, 2004[14]. The concept of innovative behavior refers to the creation and implementation of novel ideas and methods by an employee in an organization [15]. Such behaviors can be generated at the individual, collective, and organizational levels [16]. The term differs from creativity in that the latter only highlights the creation of novel ideas without their implementation [17]. Research shows that employees' innovative behaviors at work can increase competitive advantage, task performance, revenue, leadership skills, collaboration, creative willingness, and psychological capital (Amabile, 1988; [16]; Harari et al., 2016 [18]). Other than these positive outcomes, innovative behaviors have been identified to reduce negative emotions like conflicts in the workplace [19].

Although these studies have been insightful, the role of knowledge-sharing tendency and intellectual capital of employees in being innovative or not at the workplace has hitherto been ignored. The relationship among these three variables is essential in that when innovation and innovative behavior exist frequently in a firm, the degree of the intellectual capital of the company enhances as well. Consequently, the exchange of knowledge and ideas among colleagues becomes critical and cost beneficial, especially during a crisis such as the COVID-19 pandemic. Hence, elucidating the importance and urgency of employee knowledge sharing capacities and intellectual capitals is pivotal for companies and organizations' success Alnatsheh et al., 2023[20]. This is not limited to the COVID-19 pandemic era, but applicable in any sort of crisis. These practices (i.e., knowledge sharing and intellectual capital development) can be used before, during, and after pandemics and emergencies. However, the research basis of this interplay of variables has remained unnoticed. This gap may have had different realizations in the workforce's behaviors and practices in the pre-pandemic time, period of pandemic, and post-pandemic that changed the life and work style of all people. Nevertheless, inspecting how employees' knowledge sharing and intellectual capital could foster their innovative behaviors at work received scant attention. To cast some light on that, the present study offered a theoretical review of their definitions, dimensions, empirical studies, and linkage.

## 2. Background

### 2.1. The concept of knowledge sharing in organizations

Knowledge is one of the most important factors in producing success and competitive advantage in organizations Alnatsheh et al., 2023; [21]. It is required to reach sustainable development like other influential factors (e.g., resources, properties, money, etc.). As a result, with the growth of technologies and the shift of demands in the globalized world, managers found it necessary to provide the ground for sharing and transferring knowledge among the workforce in a firm Argote & Ingram, 2000[22]; [23,24]. Although the conceptualization of knowledge in the context of business and work has been clear by dividing it into two types, namely explicit knowledge and tacit knowledge Mohajan, 2019; [25], the term knowledge sharing has remained debatable in definition [26]. Part of this incongruence is due to similar concepts that are used in place of knowledge sharing such as knowledge transfer, knowledge management, and knowledge exchange. These terms are not the same as knowledge sharing in that knowledge transfer treats new knowledge as an observable object, which can be transferred from one person to another and knowledge management is a broad concept that encompasses knowledge sharing and underscores social interaction [27,26]. Moreover, knowledge exchange differs from knowledge sharing in that it entails both knowledge sharing and knowledge seeking Alnatsheh et al., 2023; [28].

Owing to definitional insufficiency, some scholars began defining the concept of knowledge sharing. For example, Grant (1996) [29] considered knowledge sharing as a process of reinforcing organizational effectiveness by enhancing the use of knowledge that is shared by the workforce. For Chkravarthy et al. [30], knowledge sharing was a process of a work unit at the workplace to access valuable knowledge of other work units that are vital to increase organizational effectiveness. Moreover, Bock and Kim [31] defined the term as the transfer or spread of individual knowledge in an organization. In other words, knowledge sharing is the movement of knowledge among employees and colleagues in an organization that increases the sense of collaboration with others for solving problems, developing novel ideas, or running policies or procedures [6]. In organizational contexts, knowledge sharing is the use of activities that intend to convey or spread knowledge from an individual or group to another [32,33]. It can happen through written correspondence or face-to-face communications with others that facilitate capturing knowledge [34].

Knowledge sharing is a critical element of those companies that follow a circular economy system (CES) that intends to reduce waste and makes the most of resources as opposed to the traditional linear economy. Firms with CES have a 3 R policy, namely reduce, reuse, and recycle Geissdoerfer et al., 2017[35]. Concerning its practical representation, knowledge sharing usually occurs in two forms; intra-firm knowledge sharing and inter-firm knowledge sharing [36]. The former occurs in the same organization via meetings, discussions, and social networks Vij & Faroop, 2014[37], while the latter happens across different organizations and permits companies to produce value, share R&D, gain leadership, and access markets [36].

## 2.2. Factors Influencing Knowledge Sharing

For successful knowledge sharing, a mix of factors plays a role (Fig. 1). The first influential factor is individual and personal characteristics such as motivation, trust, self-interest, enjoyment, and selfless care [38,39]. Moreover, individual’s level of awareness of the benefits of sharing knowledge with others, willingness to share knowledge and communication skills considerably affect the tendency and implementation of knowledge sharing in organizations [40]. The second group of factors pertains to organizational factors such as organizational culture, job security, management style, trust, office policies, workforce training, and infrastructures [40,26].

Factors concerning the very nature of knowledge are the next influential factors in sharing knowledge. They include the value, clarity, and usefulness of the knowledge as well as the sticky essence of knowledge, in general Kharabsheh, 2007[41]; [2]. The fourth group of factors relates to technology and technological requirements in an organization such as IT systems, IT support, willingness to work with technology, being a technophile, and digital literacy level of the workforce Gorry, 2008[42]. In addition to these scientifically approved factors, personality-related factors, contextual factors, and cultural variations among colleagues can also be considered as important factors in sharing knowledge in and outside firms.

## 2.3. A Model of Knowledge-Sharing Research

After a deep review of the literature on knowledge sharing, Wang and Neo [28] designed and introduced a seminal model for researching knowledge sharing in organizations. Their model includes five different areas with associations with one another (Fig. 2). The topics explained in each area influence knowledge sharing directly or indirectly. Variables investigated in the past research and those recommended for future research are also depicted in the right part of the Figure and shaded boxes.

It is also noteworthy that the overlapping areas indicate aspects examined in previous studies but require further research. This model is by no means fixed but subjected to change and development across contexts, cultures, and type of occupations. Therefore, future studies can complement or even change this model.

## 2.4. The definition of intellectual capital

As a crucial element of organizational performance, success, and staff well-being, intellectual capital has long been considered as a value generator for firms Alnatsheh et al., 2023[20]; [10]. It has been given several definitions by different researchers. For instance, Edvinsson and Malone [43] defined intellectual capital as the ownership of knowledge, practical experience, administrative technology, customer relations, and specialized skills that afford a company a competitive edge in the market. Likewise, Stewart [44] described the term as the information, intellectual assets and materials, knowledge, main techniques, customer relations, and experience that can bring about wealth. Furthermore, Sullivan [45] maintained that intellectual capital includes knowledge-based resources that lead to a sustainable competitive advantage in an enterprise. For Youndt et al. [46], it is the knowledge that companies and organizations use for competitive advantage. In a more recent study, Dumay [47] referred to intellectual capital as an organization’s overall possession of intellectual material, intellectual assets, knowledge, periods, and information for creating value. In sum, intellectual capital can be defined as a range of intellectual properties that a person or an organization possesses and uses to generate value, wealth, and competitive advantage.

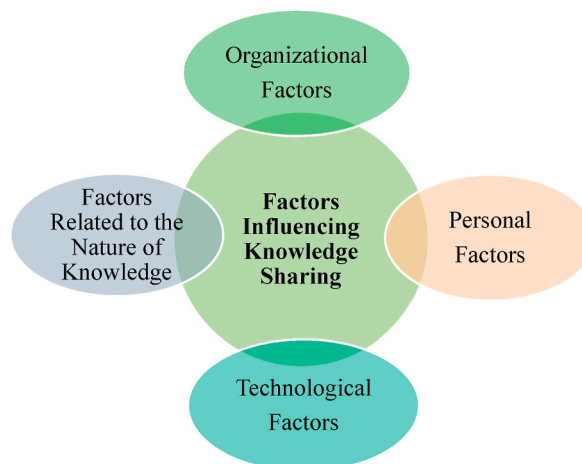


Fig. 1. Factors influencing knowledge sharing in organizations.

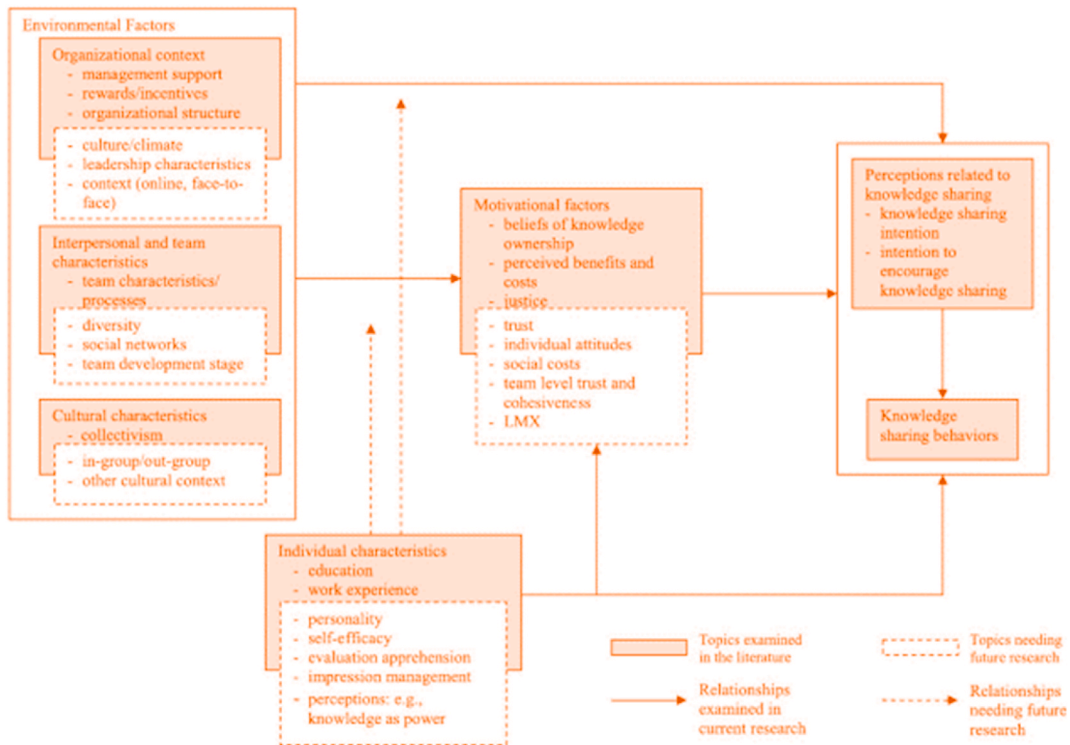


Fig. 2. A Model of Knowledge-Sharing Research ([28], p. 116).

2.5. The underlying components of intellectual capital

The concept of intellectual capital is a complicated and multi-dimensional variable (Fig. 3). It involves three core components of *human capital*, *structural capital*, and *relational capital* [48]. All these three components can occur at individual and organizational levels with different meanings. At the individual level, the first component refers to a person’s total tactical knowledge, intellect, technology, and experience. This dimension is accrued by one’s personal learning and working [49]. However, at the organizational level human capital concerns the tactical knowledge nested in the minds of the workforces Bontis, 1999[50]. The second component, at the individual level, refers to an employee’s subjective knowledge of routines, principles, standards, and methods at work, which is shaped throughout the process of thinking and cognition, while at the organizational level it pertains to a job’s organizational routines Bontis, 1999[50].

Finally, individual relational capital is defined as the knowledge integrated into the relationships with others in and outside an organization that helps an employee to grasp information, resources, and support Cai et al., 2017[51]. More technically, relational capital can be intra-organizational and extra-organizational Inkinen et al., 2017[52]. Regardless of these divisions, it is vital to mention that all these components are equally essential to the performance and productivity of staff at workplaces [53].

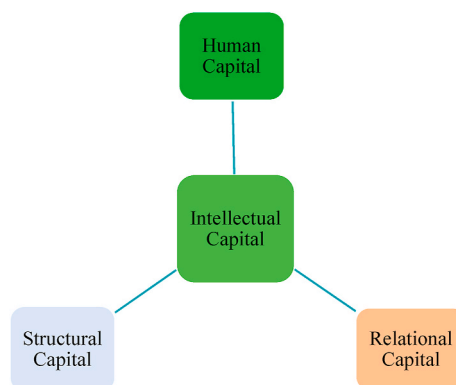


Fig. 3. The components of intellectual capital.

These dimensions are not fixed across cultures and businesses, hence empirical studies are needed to test these three dimensions with different samples to see if they apply in a given context or not. Moreover, it is possible that the collection of more data from various sources can lead to other dimensions for the concept of intellectual capital, which is dynamic and context-sensitive [54]. Given its significance and power to influence various aspects of one's job performance, intellectual capital can join knowledge-sharing skills and tendencies of the employees and foster innovation and innovative behaviors among workforces in a firm.

## 2.6. Innovative behaviors at work

The rapid growth of science and technology together with a 'new generation' of employees, who work in their organizations through new-age techniques and concepts have urged innovation at workplaces to produce value and competitive advantage [17,55]. In order to gain wealth, value, and competitiveness organizations should be ready for unexpected situations, which are full of risks, uncertainties, and pressures as it is the case during the COVID-19 pandemic. With the outbreak of this deadly disease, many countries had to lockdown many business or resort to social distancing. At this time, the role of employees' innovation and innovative behaviors found unprecedented prominence in organizations. Since innovation is the outcome of social and personal interactions, it is directly and strongly affected by environmental circumstances [56,57]. Innovative behaviors appear in workplaces when employees generate, promote, and realize new ideas, products, and processes [17]. It differs from the creativity that solely emphasizes the generation of new ideas [19]. Innovative behavior intends to produce, improve, and apply a pioneering thinking at the workplace to obtain success [56]. Consequently, the term not only refers to the birth of an innovative idea but also its development and use [58]. This process is not easy since it requires the person to go through different stages like searching for opportunities, producing ideas, scientific supporting, and uses Kleysen & Street, 2001 [59].

In a similar manner, during hard times as the pandemic, the conditions for encouraging employees to be innovative have totally changed requiring new management practices [60]. In many organizations, employees had to work at home and find new methods to work properly from home. In such tense and challenging working conditions, the workforce's innovative work behavior gained more significance Taştan, & İşıaık, 2021 [61]. Moreover, given the economic shock many firms had no option but to reduce the number of their employees. Hence, mostly retained creative individuals, who were thought to be strategically beneficial for the organizations Riggio, 2012 [62]. This imposition helped in developing a workplace that forced employees to share their knowledge and expertise with others and behave innovatively so that the organization can regain the reduced wealth during the outbreak.

## 2.7. The positive and negative impacts of employees' innovative behaviors

Innovative work behaviors are contended to have both dark and bright sides [55]. However, many studies and attempts have mostly highlighted the positive impacts of being innovative in workplaces. The positive impacts of innovation include constructive conflict, enhanced well-being, better performance, and positive attitudes toward a job. Innovative behaviors can also improve task performance and organizational citizenship behaviors [63]. Conversely, the negative effects of innovative behaviors comprise destructive conflict, lowered performance, negative job attitude, and stress as pinpointed by Janssen et al. [19]. Moreover, Gino and Ariely [64] argued that a creative personality and a creative mindset could end in unethical behaviors by increasing an employees' ability to rationalize his/her behaviors at work. High innovation has also been claimed to negatively affect spousal relationships as it limits time spent with family [65]. In sum, by having innovative work behaviors, employees may gain profits at times, but pay the price and lose something for doing innovative activities at other times [19]. It all depends on the context and occupational atmosphere.

## 2.8. Factors affecting employees' innovative behavior

Like many other factors related to human behavior and work, the innovative behaviors of employees are shaped and affected by several factors at both individual and organizational levels [56]. At the individual level, an employee's sense of commitment to a job and psychological capital plays an essential role. Organizational commitment is a mental state in which one is more willing to maintain membership and work for an organization Dahmardeh & Nastiezaie, 2019 [66]. It is believed that those employees, who respect their profession, feel committed to it, and really love continuing it are more likely to actively produce innovation and show innovative work behaviors [67]. This sense of attachment to a job is highly dependent on one's emotional commitment, as a representation of motivation to work innovatively (Tao & Kang, 2012 [68]). Another important individual factor relates to employees' psychological capital, which refers to a set of mental resources that one can use to promote his/her job performance (Luthans et al., 2007 [69]). It is a positive state of human development, which manifests itself in high levels of hope, self-efficacy, resilience, and optimism (also known as HERO). The assumption is that an employee, who is hopeful, confident in his/her capabilities, tough in the face of challenges (e.g., pandemic), and looks on the bright side generates innovative behaviors more easily [56]. Other personality factors can also be influential. At the organizational level, at least, four main factors determine innovation. They include *workplace innovation atmosphere*, *leadership*, *social capital*, and *job characteristics*. The first factor refers to an employee's perception about the extent to which an organization provides a positive and supportive environment, which is appropriate for learning and innovation (Lian, 2013 [70]).

Innovative behaviors is not solely governed by internal and cognitive factors but external factors like leadership. Leadership enhances employees' innovative behavior by direct inspiration or specifying the aim of innovation for them [71]. Innovation is also determined by the social world and interactions that employees have with others in and outside an organization Madjar, 2005 [72]. This interaction increases mutual understanding and trust among employees, which are conducive for knowledge sharing and generate new ideas and visions of their profession [73]. Such interactions and relationships with others form an employee's social capital, which

is critical for sharing knowledge, have creative thinking, and be innovative at work [56]. Furthermore, innovative behaviors can also be influenced by working experience and inherent characteristics of a given job. Those employees, who are familiar with a profession and its requirements, take the risk of being failed in innovation more frequently, hence they have more confidence in showing innovative work behaviors Lian et al., 2013[70]. Other features include job routines, working hours, payments, and so forth. It is also worth noting that these factors are by no means fixed across contexts and cultural differences, demographic factors, and societal level (i.e., being under-developed, developing, and developed) play a significant role in the manifestation and growth of novelty and innovative behaviors.

## 2.9. Previous studies

Given the significance and role of knowledge sharing, intellectual capital, and innovative work behaviors of employees in organizations, there have been conducted various research studies in the past decades. Regarding knowledge sharing, prior research indicates that it has a close association with a firm's success and performance [36]. Moreover, it has been found that knowledge sharing can lead to knowledge application, innovation, and finally the competitive advantage of a company [74]. It is an essential factor within and across organizations to use and focus on knowledge-based resources [75]. It can reduce production costs and facilitate new projects' development, group performance, innovative abilities, and the overall performance of a firm, especially its sales growth and revenue (e.g., [9,38]). In a study in South Korea, Kang et al. [26] analyzed the perceptions of 323 public employees and concluded that four variables, namely training, reward systems, management support, and openness in communication strongly affect employees' knowledge sharing and work performance. Similarly, in Boston, Allen et al. [76] studied 70 biotech firms and startups concerning the role of knowledge sharing in their success. They found that sharing knowledge among employees develops the success rate of the firms. This variable has also been highlighted during the COVID-19 pandemic. In a survey study in the US, Lee et al. [77,78] inspected 490 full-time employees across different industrial sectors during the pandemic to see the role of leadership and communication in knowledge sharing at workplaces. The results showed that diversity-oriented leadership styles and a transparent internal communication in organizations contribute to employees' knowledge sharing.

When the employees in an organization have a high willingness to share their knowledge and expertise with others, the intellectual capital of that organization raises, as well. In a structural equation modelling study, Oliveira et al. [79] examined a sample of 351 Brazilian and 135 Portuguese firms and argued that knowledge sharing and intellectual capital have a close relationship. Likewise, intellectual capital has been claimed to facilitate and improve a firm's performance and perceived wellbeing among employees [10]. In another study, Longo and Mura [12] examined 1117 employees, working in an Italian, food product company and found that intellectual capital is positively correlated to employees' job satisfaction and retention level. Research also shows that an organization's intellectual capital level influences its success and performance, too [13]. In a recent study, Buallay et al. [80] investigated the relationship between intellectual capital and productivity of employees, working for 198 firms in Saudi Arabia and Bahrain. The results of their study demonstrated a positive and significant relationship between intellectual capital and employees' productivity. Furthermore, in Iran, Alipour [81] identified a positive relationship between intellectual capital and financial performance of 39 insurance companies. Additionally, in a survey study, Huang and Jim Wu [82] explored the impact of intellectual capital on knowledge productivity of the Taiwanese biotechnology industry and pharmaceutical manufacturers and contended that intellectual capital has positive and significant impact on the manufacturers' knowledge productivity. However, the relationship between knowledge sharing and intellectual capital in the context of business and work has rarely been studied. Moreover, the way these two variables can interact, during shifting environments as the COVID-19 pandemic, to create innovation at work among employees has been overlooked. Innovative behaviors at work was a crucial factor in the success and wealth of organizations, especially during the lockdown periods of the outbreak. In their study, Harari et al. (2016) argued that innovative behaviors are positively correlated to employees' task performance and organizational citizenship behaviors. Research proves that employees' innovative behaviors can produce different positive outcomes for organizations such as improved competitive advantage, performance, revenue, collaboration, creative willingness, and psychological capital (Amabile, 1988; [83]; Harari et al., 2016 [18]). They can also curb or stop negative emotions and conflicts at workplaces [19]. Although these studies are enlightening for workplaces, during hard times, they have mostly focused on the correlation of the three variables of concern in this review with different variables no their own correlation. Moreover, given the pandemic's force to change life and work style, it is now essential to augment employees' knowledge sharing skills, intellectual capitals, and innovation [23]. Past practices of these variables were much easier for employees because of their face-to-face interactions and professional development courses, where they could negotiate their views and practices Goll & Zięba, 2022 [84]. However, with the outbreak of crisis, employees and organizations should be equipped with necessary skills to remain successful and competitive despite physical distance. This readiness is crucial for a firm's adjustment, operation, and sustainable development Alnatshet al., 2023[20]. Research is needed in this domain to disclose the changes of the three constructs before, during, and after the outbreak. The first step for that is justifying the theoretical connections among them. To fill this gap, this review article intended to present the theoretical and empirical bases of knowledge sharing, intellectual capital, and innovative behaviors along with their a description of their possible interaction at workplaces.

## 3. Conclusion and implications

In this theoretical review study, it was claimed that employees' knowledge-sharing skills and willingness, intellectual capital, and innovative behaviors at work have close associations with one another. In a working environment in which the workforces are willing to share their novel ideas and knowledge with colleagues, especially during a crisis as the pandemic, the intellectual capital of both

employees and the firm enhances, too. Consequently, this interplay facilitates and improves innovation and innovative work behaviors of the employees. Hence, it can be asserted that in tough situations, it is essential for managers to pave the way for the materialization of these three factors that determine the value, wealth, revenue, and competitive advantage of their firms. Knowledge should not be stored in one's mind but transferred to others. This is pivotal to form intellectual capital in a company, which in turn, fosters and motivates employees to manifest more novelty at workplaces as an optimum activity during a crisis. Given these propositions, this review article can be beneficial for managers at companies in that they become aware of the importance and power of knowledge sharing and intellectual capital in generating positive outcomes and competitive advantage for their firms. They can use different strategies and motivators to urge employees to share their novel ideas with other colleagues as a precondition to survive from hard times and gain wealth and value. Human resource managers can also use this study to select job applicants based on their skills and enthusiasm to share knowledge and innovative ideas that are essential for an organization's success.

Employees can also find this review helpful in that they realize the value of team work and joint-construction of value, wealth, and competitive advantage for their firm. They may become more willing to share knowledge and thoughts and increase the intellectual capital of their organization. Finally, this study can be invaluable for researchers, who are interested in running studies on the psycho-emotional aspects of working. The existing literature is scant in this regard and the majority of studies are correlational and one-shot. Hence, future scholars can move ahead and run mixed-methods studies and qualitative studies to obtain a deeper understanding of knowledge sharing, intellectual capital, and innovative behaviors at work. The perception of managers, staff, and customers about these three constructs can also be studied. The future of this line of research can concentrate on the dynamics of the construction and reconstruction of each construct of concern in this study using innovative approaches to glean and analyze the data. The variations of their nature and manifestations across different jobs and disciplines could also be explored by future researchers. Lastly, cross-cultural and comparative studies can be done on these three variables to see the role of culture and job particularities on their formation and materialization. This review provided useful insights, yet there are many uncharted areas of research left to future researchers.

### Fund projects

Shenzhen Education Science 2020. Annual Planning Project, "Shenzhen Community Elderly Education Supply Research under the Background of Aging" (No.:ybyzz20009).

### Author contribution statement

All authors listed have significantly contributed to the development and the writing of this article.

### Data availability statement

No data was used for the research described in the article.

### Additional information

No additional information is available for this paper.

### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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