Research

The impact of online social capital on innovative job performance: mediated by work engagement

Walton Wider[1,2,3] · Muhammad Ashraf Fauzi[4,5] · Nur Muneerah Kasim[6] · Muhammad Fakhrul Yusuf[4] · Siti Aminah Harun[7] · Siti Quyume Azira[8] · Jem Cloyd M. Tanucan[9] · Syed Far Abid Hossain[10]

Abstract

The present study investigates how online social capital developed through social media (SM) usage influences employees' innovative job performance in the Malaysian public sector, with work engagement as a mediator. It addresses a limited understanding of how online connections specifically network ties, shared vision, and trust, function digitally to enhance engagement and innovation. Employing a quantitative, cross-sectional survey, data from 313 Malaysian public sector employees were analyzed using Partial Least Squares-Structural Equation Modeling (PLS-SEM). Established scales measured online social capital, work engagement, and innovative job performance. Results show that network ties and trust significantly enhance work engagement, subsequently improving innovative job performance. Work engagement mediates the relationships between network ties and innovative job performance, as well as trust and innovative job performance. In contrast, a shared vision neither influences work engagement nor indirectly affects innovative performance. These findings highlight that the quality of digital social relationships, rather than shared workplace norms, drives employee involvement and innovation. This study contributes to organizational behavior literature by integrating online social capital and work engagement research in a public sector setting. It underscores the strategic importance of SM platforms in building meaningful digital connections, providing evidence that online trust and network ties serve as catalysts for enhancing employee engagement and innovative performance. The insights gained inform policymakers, industrial leaders, and researchers on optimizing workforce potential within technology-driven environments, ultimately supporting more effective public service innovation.

Keywords Online social capital · Social media usage · Work engagement · Innovative job performance · Public sector · Economic growth

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✉ Muhammad Ashraf Fauzi, ashrafauzi@umpsa.edu.my | [1]Faculty of Business and Communications, INTI International University, Nilai, Malaysia. [2]Department of Applied Economic Sciences, Wekerle Sandor Uzleti Foiskola, Budapest, Hungary. [3]Faculty of Management, Shinawatra University, Pathum Thani, Thailand. [4]Faculty of Industrial Management, Universiti Malaysia Pahang Al-Sultan Abdullah, Gambang, Malaysia. [5]Centre for Advanced Industrial Technology, Universiti Malaysia Pahang Al-Sultan Abdullah, 26600 Pekan Pahang, Malaysia. [6]Faculty of Education and Social Sciences, Universiti Selangor, Batang Berjuntai, Malaysia. [7]Faculty of Art and Social Science, International University of Malaya-Wales, Kuala Lumpur, Malaysia. [8]Faculty of Education and Humanities, UNITAR International University, Petaling Jaya, Malaysia. [9]College of Education, Cebu Technological University, Cebu, Philippines. [10]BRAC Business School, BRAC University, Dhaka, Bangladesh.

1 Introduction

Technological innovations like social media have replaced the traditional way people communicate, interact, and share content. It's undeniable that social media (SM) has grown into an effective tool for facilitating collaboration and disseminating information because of its ability to ease the sharing of knowledge in both personal and professional contexts [1]. The emergence of SM platforms has evoked organizations to pursue their goals and business activities, leading to the trend of SM use in the workplace [18, 24, 56]. As a result, many organizations have adopted SM as a standard practice for dealing with work-related issues.

Organisations routinely use SM instruments as part of their new management practices, from generating creative work concepts to increasing transparency in internal communications, collaboration, and knowledge sharing [11]. Moreover, organisations have been incorporating these SM technologies to support their employees at individual and team levels in increasing operation, performance, and output activities [9, 47]. As a result of this, organisations are actively using many of the social media platforms that are currently available to meet their official objectives. These platforms include Facebook, WhatsApp, Twitter, Blogs, WeChat, DingTalk, YouTube, and Photo-sharing sites [38, 71].

Traditionally, virtual friends use SM platforms for social interaction to obtain social support and a sense of belonging. According to Hussenoeder [36], an individual can directly or indirectly obtain resources in the form of expertise, opinion, or support through SM. In an organizational context, the benefits of social capital through SM also arise and may support the idea of co-creation at work, organizational knowledge management, and improved, innovative job performance [77, 88]. Besides, social interaction through SM will create a sense of belonging among employees. Consequently, the sense of belonging in SM can lead to the development of social capital among users [64]. The benefits of social capital through SM also arise and may support the idea of co-creation at work, organisational knowledge management, and improved innovative job performance [2, 77]. Hence, SM platforms can provide continuous resources for employees through online social capital with strong connections and relations between employees, employers and stakeholders [46, 89].

However, the debate on whether or not online social capital is qualitatively or quantitatively better or worse than offline social capital has received scant attention to date [72, 89]. While existing studies predominantly focused on the aspects of the adoption intention of SM, the process regarding how SM platforms influence the development of online social capital has scarcely been discussed. Specifically, there needs to be more knowledge concerning the abilities of online social capital on employee job innovative performance [2, 39]. Hence, the present study is imperative to offer a more comprehensive elucidation of the advantages of online social capital on employees'inventive performance due to social interaction and connection on SM platforms. The exploration of this mechanism holds significant importance as it can enhance organisations'comprehension of the influence of SM usage in the workplace on developing social capital within the organisational setting. Therefore, this understanding is vital in the context of contemporary technology-driven workplaces.

2 Literature review

2.1 A theoretical perspective of social capital

Social capital is a strategic and essential resource individuals can acquire through social connections [72]. In the context of an organization, Hitt and Duane [31] define social capital as the social relationships or networks among individuals within an organization, including employees, leaders, and colleagues from various work units and departments. Swanson et al. [75] addressed that the manifestation of social capital within an organization occurs when its members have cultivated trust and shared goals in pursuing it. As Nahapiet and Ghoshal [53] introduced, social capital is a multifaceted concept with three dimensions: structural, cognitive, and relational. Hauser et al. [32] mentioned that the three dimensions of social capital are elements of an organization's social connection that facilitate the sharing and combining resources.

The structural dimension is the first, which connects the organization members and allows them to communicate. This is known as the structural dimension [53]. The sub-dimensions of structural are network ties, network structure, and suitable organization. The fundamentals of structural SC begin with network ties that provide access to resources.

It manifests the strength of social relationships, which builds on solid formal and informal relationships that depend on communication intensity, familiarity, and the organization of networks [7]. Next, a network structure is an essential aspect of the development of intellectual capital and acts as ties that provide a medium for information transmission. In a network structure, an individual with a rich network has benefits in information exchange due to the impact on the level of contact established. The third sub-dimension of the structurally suitable organization is focused on the social setting (organization, family, religious affiliation) that purposely provides valuable resources by producing a potential network of access to people and their resources.

The second dimension of SC is cognitive, which depicts the common understanding between members of an organization who share a common mission, vision, and language [2]. Sharing may produce two main aspects of cognitive dimensions: shared codes and ethics, and shared narrative. Firstly, shared codes and ethics are crucial for effective social interaction. The group-specific communication code can enhance the social relation, perception, and combination capability within a firm/organization. Sharing a common language, concept, knowledge, and information can increase employee communication. Next, the shared narrative goes beyond shared codes and ethics and focuses on symbolic actions such as words through social interaction. The narrative is a natural socialization process that enables individuals to comprehend their actions and those of others, which allows them to work together cooperatively.

The third dimension of social capital is relational, comprised of four sub-dimensions: trust, norms, obligation and expectation, and identification. The relational dimension refers to the resources people are willing to exchange because of a focus on a particular relationship, such as friendship and respect [12]. The first sub-dimension is trust, which developed in familiar network ties that emerged from continuous socialization with varied interaction partners [78]. In particular, work cooperation is developed from relationships with high trust, indicated by a willingness arising from confidence among the members [53]. Next, the second sub-dimension is a norm that can establish a strong foundation and may significantly influence the exchange of knowledge for work cooperation. Then, obligation and expectations, a social system that heavily relies on reciprocal actions generates obligations and expectations among its participants. This sub-dimension is more likely to influence those involved in cooperative work with different organizations for resource exchange. Lastly, the sub-dimension is identification. Through group work, an individual will perceive themselves as a group member. Identification with a group can enhance cooperation and produce outstanding collective processes and results [53].

These three dimensions are elements of an organization's social structure that facilitate the sharing and combining resources [32]. Therefore, it is necessary to satisfy all three dimensions for social capital to be realized in the workplace. Table 1 lists the characteristics of each dimension of social capital.

2.2 Online social capital

In the digital age, internet functionalities have emerged as a potential alternative to building social capital. A growing number of studies examine how using ICTs as a new platform influences the development and maintenance of social capital [42, 70, 72]. This phenomenon has expanded to include SM's role in forming social capital online, which facilitates social interactions in a virtual space [39]. The utilization of online social interactions serves as a means for individuals to actively pursue information, exchange knowledge, and obtain emotional and social support, as well as tangible aid, regardless of time and space [89]. In addition, numerous studies have examined how the use of SM by employees influences their social capital within their contact networks [39, 45, 88]. Consequently, social capital has emerged as a crucial

Table 1 The dimensions of social capital. Source: Nahapiet & Ghoshal [53]

Dimension	Characteristic (sub dimension)
Structural	Network ties
	Network structure
	Suitable organization
Cognitive	Shared codes and ethics
	Shared narratives
Relational	Trust
	Norm
	Obligation and expectations
	Identification

aspect for comprehending the application and implications of SM use, particularly in an organizational context. Therefore, social capital generated from online interaction can retain and even obtain more social capital resources.

In this study, since social capital has value in cognition and relationships beyond the structural component, Kwon and Adler [41] mentioned that it must be recognized as a multidimensional concept to improve understanding of social connections. The present study conceptualized social capital with three dimensions by Nahapiet and Ghoshal [53]: cognitive, structural, and relational. As Swanson et al. [75] stated, social capital must be achieved by encouraging organizational members to share similar cognitive, relational, and structural characteristics to accomplish an organization's goals and objectives. In light of this, the present study adapted the network ties, shared vision, and trust to gain a comprehensive view of SM use in influencing employees' social capital and job performance.

2.2.1 Network ties

The network tie is a main component of structural social capital in an organization. It refers to the relationship's strength and breadth and the frequency of communication among employees [3]. The growing adoption of digital technologies over the past few decades has made it possible to use SM to cultivate network ties within organizations. Moreover, SM can assist employers in bringing together workers who share common interests and backgrounds, which can help develop and maintain professional networks and discover new chances for collaboration [12]. In addition, by bridging the gap between employees who work remotely or in various locations, using SM may assist them in forming relationships with coworkers with whom they may not have regular physical contact [69]. Consequently, SM use at work has altered how employees establish network ties among organizational members. Hence, network ties are a relevant subdimension of structural social capital to explore its role in an online context.

2.2.2 Shared vision

In this study, a shared vision is a selected subdimension of cognitive social capital. A shared vision can be defined as a state that emerges when team members utilise the same resources, have access to the same knowledge/information and work procedures, and embrace a similar workplace culture [2, 34]. In organizations, a shared vision enables employees to share and have a clear understanding of the organization's common collective missions, goals, and objectives that are easily attainable through teamwork [12, 13], which may lead to a higher level of understanding and cooperation among the employees. Furthermore, it is necessary to establish a shared vision to increase employees' motivation, sense of meaning and purpose, and improve spirit at work [77].

With the continuous use of SM at work, the virtual community created by SM has allowed for the promotion of a shared vision within an organisation without relying on traditional communication. Besides, several empirical studies have found a connection between SM use and shared vision of cognitive and social capital in a workplace [2, 12, 35, 39, 45, 77]. Adopting SM use at work allows people to engage actively in informal social interactions through integrated collaboration, creating a shared vision for team members [12]. Therefore, employees with the same vision have a clear interpretation of the organization's objective and a shared common knowledge and perspective, which results in enhanced work performance.

2.2.3 Trust

In social capital, trust is the most widely studied core component of the relation dimension [32, 45, 73]. Trust is defined as the willingness of a party to be vulnerable and entails the expectation that the other will perform a particular action irrespective of the trustor's ability to monitor or control them [49]. Generally, trust develops in familiar network ties that emerge from continuous socialization with varied interaction partners [78]. Trust has become a key component in the workplace environment, either at an employee level [19] or at an organizational level.

Recently, SM has been widely adopted for work-related purposes [38], and these platforms can be a great medium to build rapport and trust among them. By facilitating communication among employees, SM can encourage employees to become more acquainted with one another and, potentially, build more trustworthy relationships [50]. In addition, SM is a platform that cannot support social contact and exchange between members of an organization across time and geography, employees have formed a deeper mutual understanding informally, which generates trust [39]. Without requiring face-to-face interaction, SM facilitates the development of trust among employees. Therefore, using various media, including SM, makes it much easier to increase mutual trust and understanding among employees in the workplace.

3 Hypothesis development

3.1 Online social capital and work engagement

3.1.1 Network ties and work engagement

Network ties have facilitated the exchange of information and material among employees, enabling them to engage in collaborative activities such as processing and providing feedback on each other's work [77]. The concept of online network ties between organization members can be realized through SMs, given that their primary job is to focus on networks and resources. This has manifested in the improvement of social capital within the workplace. SM can help employees receive resources such as expertise, opinions, or support more efficiently from online network linkages, resulting in higher work engagement [12, 37]. Due to technology's ability to support the formation and maintenance of social networks and increase the quantity and diversity of embedded resources [36] via interactions within a social network, employee involvement and focus on assigned tasks may result in high work engagement. Several studies have demonstrated that employees who used SM to strengthen their network ties exhibited high levels of work engagement due to receiving social support and resources from each other [39, 57]. Hence, establishing network ties among employees can be facilitated by online platforms, thereby fostering elevated levels of work engagement. The first hypothesis is depicted as follows:

H1 Network ties have a positive effect on employee's work engagement.

3.1.2 Shared vision and work engagement

The concept of shared vision arises when team members effectively utilize common resources, possess equal access to knowledge and information, adhere to similar work procedures, and embrace a similar workplace culture [2, 34]. Traditionally, employees have relied on face-to-face communication to develop and sustain social capital [83]. However, using SM platforms in professional settings has encouraged the formation of a virtual network, enabling the promotion of a shared vision within an organization [39]. The common interests, goals, and vision of members in a virtual community can bring them together and enable them to realize the significance of resource exchange and obtain more opportunities to participate [12]. Furthermore, shared vision facilitates effective communication of individuals'expertise in a manner that others can comprehend, leading to mutual understanding and ultimately enhancing their commitment and enthusiasm towards work responsibilities [7]. In light of this, the present study explores the attainment of a shared vision through collaboration and interaction facilitated by online networking platforms that can enhance employee work engagement. Therefore, the second hypothesis is presented as follows:

H2 Shared vision has a positive effect on employee's work engagement.

3.1.3 Trust and work engagement

Trust can be established in a solid interpersonal relationship from familiar network ties due to interactions and ongoing socialization with diverse individuals [25]. Social media platforms play a crucial role in promoting knowledge sharing and maintaining connections within an organization, regardless of time and geographical constraints [12, 32], which leads to mutual trust and understanding among employees in the workplace. This online mutual trust in relational social capital has promoted high levels of work engagement [37, 52, 74]. These high work engagements can be attributed to a strong mutual trust, a sense of safety in the workplace, a strong feeling of belonging, and the perception of work as meaningful [6, 37]. Thus, the third hypothesis is denoted as follows:

H3 Trust has a positive effect on employee work engagement.

3.1.4 Work engagement and innovative job performance

Work engagement has become the main focus of research in organizational behaviour in recent years because of its positive impact on employees and organizations [22]. According to Demerouti et al. [20], work engagement related

to the extent to which individuals execute their work and complete their tasks depends on their engagement level. Moreover, the significance of work engagement lies in its association with high levels of employee creativity, exemplary organizational citizenship behaviour (OCB), and outstanding task performance [54, 80], which ultimately lead to the satisfaction of client requirements [5]. Studies using meta-analysis have discovered that work engagement was positively associated with employees' work-life balance, innovative work behaviour, and job performance [66, 86]. Moreover, empirical evidence indicates that employees who demonstrate high work engagement make significant contributions to the development of an innovation culture, resulting in enhanced creative output and improved task performance [4, 80, 82]. Employees who are enthusiastic about their profession are more likely to be open to new experiences and curious about new opportunities and challenges, which undoubtedly leads to the generation of more original and insightful ideas and produces better innovative performance [10, 59, 68]. Thus, the next hypothesis is presented as follows:

H4 Work engagement has a positive effect on employee's innovative job performance.

3.1.5 Mediation effect of work engagement toward online social capital and innovative job performance

Innovation is an important issue for people, institutions, and societies because it serves the most critical growth and progress factors in a competitive environment and is associated with flexibility and production [87]. Scholars have discovered that the rise of SM platforms has created a new type of online social capital. The strength of online social capital can contribute to employee innovation by empowering them to participate in collaborative and conversational knowledge management, which restrains knowledge manipulation [15, 39, 42, 44, 46, 84]. Hence, this study argues that using SM in developing and strengthening network ties, shared vision, and trust through work engagement will enhance innovative job performance among employees in the public sector.

Using SM can strengthen online network ties that promote high work engagement due to increased intrinsic motivation, indirectly enhancing employee creativity, innovation, and improved job performance [90]. Furthermore, through virtual interaction and collaboration, employees can establish a shared vision that fosters high levels of work engagement, including high commitment, passion, enthusiasm, dedication, and vitality, which are associated with exceptionally innovative job performance. In addition, employees who believe their relationship with coworkers is mutually beneficial are more likely to establish mutual trust, resulting in high levels of engagement at work [37], and as a consequence, employees are enthusiastic about generating exceptional, innovative output. Therefore, this study argues that dimensions of social capital comprise network ties, a shared vision, and trust through SM usage, which can enhance innovative job performance mediated by work engagement. The following hypotheses are presented as follows:

H5 Work engagement mediates the relationship between network ties and innovative performance.

H6 Work engagement mediates the relationship between shared vision and innovative performance.

H7 Work engagement mediates the relationship between trust and innovative performance.

Therefore, a conceptual framework was proposed, and seven hypotheses were constructed in Supplementary Fig. 1 below. The framework shows the relationship between online social capital and innovative job performance mediated through work engagement.

4 Methods

The research design of this study is a quantitative approach, and it is pertinent to the research objectives, which also emphasize quantifying and analyzing variables in the form of numerical data using specific statistical techniques and software. Moreover, a cross-sectional research approach is used to investigate the objectives of this study. This study employs a cross-sectional design due to the research timeframes and the availability of government employees, which enables the researcher to collect data at a specific and single time.

Fig. 1 Proposed Conceptual Framework
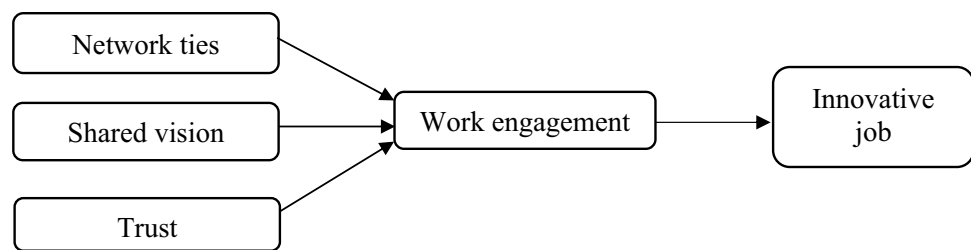
4.1 Sampling

The target population of this study was the federal government and federal statutory bodies as a population of interest. The reason is due to the role of government employees in providing services with high public values [48], such as dealing with public administrations' internal processes, interacting with the external context, providing knowledge-based service, and acting as a powerful scaffolder to Malaysia's economic growth. Besides, the absence of a sampling frame of public sector employees necessitated using non-probability sampling in this investigation. Although non-probability sampling has a problem with generalizability, sample representativeness can be improved by controlling and evaluating samples based on a specific characteristic that reflects the population of interest [81]. In addition, many samples that exceed the required minimum sample size can be used to enhance nonprobability sampling through better planning [76]. Due to the applicability and practicability of drawing population samples, convenience sampling was chosen for this study.

Furthermore, the G*Power application was utilized to draw the sample size of the target population. Instead of relying on a published table or the rule of thumb, G*power is an alternate method for calculating sample size. According to the suggestion made by Hair et al. [27], a sample size of 77 was determined to be the minimal sample size. This determination was based on a power of 0.8, an effect size of $f^2 = 0.15$, and the predictor variable with the greatest value of 3.

4.2 Instrument

This study has adapted the items from existing and previously validated scales to measure all the constructs. The items in the research instrument were based on a five-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). Initially, the measures of network ties were adapted from Tsai and Ghoshal [79], the item of trust was developed based on the study of Levin and Cross [43] and the measurement for shared vision was derived directly from Chiu et al. [17]. For this study, the measurement of social capital consisting of network ties, shared vision and trust was adapted from Cao et al. [12] as they also adapted these items from Tsai and Ghoshal [79], Levin and Cross [43], and Chiu et al. [17]. Next, the 6-items of innovative job performance were adapted from Ali-Hassan et al. [2]. Lastly, the work engagement was empirically measured with 5 items from Saks [65]. Thus, the list of measurement items for the constructs is depicted in Table 2, which provides details of the variables and the number of items.

4.3 Data collection procedure

The initial stage of the data collection procedure was completed with a pretest and a pilot study for the validity and reliability of the questionnaire. Next, the online self-administered questionnaire was performed for the actual data collection. The questionnaires were distributed through email within six months, from November 2021 to May 2022. A total of

Table 2 The list of measurements

Constructs	Number of items	Source adaption
Network ties	4	Tsai and Ghoshal [79], Cao et al. [12]
Shared vision	3	Levin and Cross [43], Cao et al. [12]
Trust	5	Chiu et al. [17], Cao et al. [12]
Innovative job performance	6	Ali-Hassan et al. [2]
Work engagement	5	Saks [65]
Total	45	

2190 emails were sent to targeted respondents, and the respondents were required to fill in a Google form attached to the email. A follow-up email was also sent to the participants to increase the response rate. However, only 317 responses were obtained in six months, a response rate of 14.47%, which is relatively low. This study received a low response rate because the respondents might have delayed or forgotten to respond to surveys embedded in the email. Furthermore, due to the hierarchical nature of the government power structure, most potential respondents did not respond because there was no direction or orders from the authority figures in the field or target respondents [8].

5 Results

5.1 Descriptive analysis

For this analysis, Table 3 presents the demographic information of the 313 respondents. In gender distribution, 38.7 per cent (121) of male employees and 61.3 per cent (192) of female employees responded to this questionnaire. For the respondents' years of working category, most participants have experienced working for 11–15 years (28.4 per cent), followed by 70 employees who have worked for 6–10 years (22.4 per cent), then 19.8 per cent of employees have worked for 16–20 years in government sector. Regarding SM usage at the workplace, 86.9 per cent (272) of employees frequently utilized WhatsApp for professional purposes.

5.2 Measurement model assessment

The PLS-SEM approach was applied to the data analysis using SmartPLS 3.0 to test the research hypotheses for the inferential analysis. The first data analysis stage is a model assessment analysis, which evaluates indicator reliability, internal consistency and reliability, convergent validity, and discriminant validity [29, 67]. This study assessed the convergent validity by determining the factor loadings and the average variance extracted (AVE), in which the values of factor loading, or outer loading, are above the threshold of 0.6 [28]. Meanwhile, for the reliability of the constructs, the value of a construct's Cronbach's alpha and composite reliability [16] should surpass 0.7 [28]. Table 4 demonstrates that convergent validity has been established as the factor loadings and AVE values are above the criterion of 0.6. In addition, all of Cronbach's alpha and composite reliability values exceeded a threshold value of 0.7, with Cronbach's alpha spanning from 0.876 to 0.954 and composite reliability extending from 0.914 to 0.97. Hence, the measurement model demonstrated satisfactory validity and reliability.

For PLS-SEM, Henseler, Ringle, and Sarstedt [33] suggested that the Heterotrait-Monotrait ratio of correlations (HTMT) is an appropriate procedure for discriminant validity assessment to ensure that reflective constructs are distinct from each other and that indicators exhibit a stronger relationship with their construct in a hypothesized model [30]. Franke

Categories	Type	Frequency (n)	Percentage (%)
Gender	Male	121	38.7
	Female	192	61.3
Years of working	5 years and below	45	14.4
	6–10 years	70	22.4
	11–15 years	89	28.4
	16–20 years	62	19.8
	21–25 years	24	7.7
	26–30 years	11	3.8
	More than 30 years	11	3.5
SM platforms	WhatsApp	272	86.9
	Telegram	2	0.6
	Facebook	25	8.0
	Twitter	3	1.0
	Instagram	3	1.0
	Others	8	2.6

Table 3 Demographic Information of the Respondents

Table 4 Result of reliability and validity analysis

Construct	Items	Indicator reliability	Internal consistency reliability		Convergent validity
		Outer loadings	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
		> 0.60	> 0.70	> 0.70	> 0.50
Network Ties	NT1	0.864	0.876	0.914	0.728
	NT2	0.870			
	NT3	0.795			
	NT4	0.882			
Shared Vision	SV1	0.944	0.954	0.9701	0.915
	SV2	0.968			
	SV3	0.958			
Trust	TR1	0.816	0.893	0.921	0.700
	TR2	0.859			
	TR3	0.830			
	TR4	0.828			
	TR5	0.849			
Work Engagement	WE1	0.825	0.906	0.930	0.726
Innovative Job Performance	WE2	0.753			
	WE3	0.877			
	WE4	0.880			
	WE5	0.916			
	IJP1	0.913	0.946	0.957	0.789
	IJP2	0.909			
	IJP3	0.789			
	IJP4	0.933			
	IJP5	0.883			
	IJP6	0.896			

and Sarstedt [21] stated that a cut-off value of HTMT for conceptually distinct constructs is less than 0.85, meanwhile, conceptually similar constructs are less than 0.9, suggesting that the variables possess satisfactory discriminant validity depending on the study context. All values are below 0.85, indicating the establishment of discriminant validity among the reflectively measured constructs in this model, as presented in Table 5.

5.3 Structural model assessment

This study employed a nonparametric test using the 5000-bootstrapping technique to assess the structural model. The non-normality of the data, in which the value of both skewness ($\beta = 5.079$, $p < 0.01$) and kurtosis ($\beta = 52.102$, $p < 0.01$) exceeds the cutoff β values of Mardia's coefficient multivariate for skewness and kurtosis ± 3 and ± 20 respectively and necessitated to the implementation of bootstrapping procedures by performing the SmartPLS 3.2.8 software [26]. Hence, this study executed a bootstrapping technique to test the structural model by answering the proposed hypotheses based

Table 5 Heterotrait-Monotrait (HTMT) Ratio of Correlations

Construct	Innovative Job Performance	Network ties	Shared vision	Trust	Work engagement
Innovative Job Performance	0.888				
Network ties	0.286	0.853			
Shared vision	0.246	0.688	0.957		
Trust	0.310	0.651	0.663	0.837	
Work engagement	0.461	0.357	0.239	0.328	0.852

Table 6 Hypothesis Testing Direct Effects

Hypotheses	Relationship	Path Co-efficient (β)	Std. Dev	t-value	p-values	f^2	Decision
H_1	NT →WE	0.291	0.087	3.336	0.000	0.045	Accepted
H_2	SV →WE	− 0.094	0.099	0.955	0.170	0.005	Rejected
H_3	TR→WE	0.202	0.095	2.117	0.017	0.023	Accepted
H_4	WE→IJP	0.406	0.064	7.241	0.000	0.270	Accepted

Table 7 Hypothesis Testing Indirect Effects

Hypotheses	Relationship	Path Co-efficient (β)	Std. Dev	t-value	p-values	Decision
H_5	NT→WE→IJP	0.134	0.04	3.374	0.000	Accepted
H_6	SV→WE→IJP	− 0.043	0.045	0.971	0.166	Rejected
H_7	TR→WE→IJP	0.093	0.047	1.968	0.025	Accepted

on the path coefficient of exogenous to endogenous variables, the t-values, and squared multiple correlation (R^2) values of explained variance on the endogenous variables and statistical significance.

This study proposed seven hypotheses; four were tested for direct effects, and three were mediation hypotheses. As hypothesized for direct impact, H_1 was accepted (β = − 0.291, t = 3.336), which is that network ties positively influenced employees' work engagement. However, H_2 was rejected (β = − 0.094, t = 0.955), demonstrating that employees' work engagement was not affected by a shared vision. Next, the H_3 (β = 0.202, t = 2.117) indicates that trust has a positive influence that leads to high work engagement. Lastly, H_4 was accepted (β = 0.406, t = 7.241), as work engagement was positively associated with high innovative job performance. Table 6 presents the results of the hypotheses for direct effects.

In this study, the mediation hypotheses were further examined by employing a bootstrapping procedure that evaluates the indirect impact, as Preacher and Hayes [60, 61] suggested. Following the suggestions of Rungtusanatham et al. [63] and Memon et al. [51], this study adopted the segmentation approach to evaluating the mediation effect. As shown in Table 6 H5 was accepted, NT→WE→IJP (β = 0.134, p < 0.05) indicates that work engagement mediates the effect of network ties on innovative job performance. Next, H_6 was found rejected, SV→WE→IJP (β = − 0.043, p < 0.1); the result shows that work engagement is not regarded as a mediator for shared vision-innovative job performance relationship. Lastly, H_7 was accepted, TR→WE→IJP (β = 0.0093, p < 0.05), and work engagement was found to be a mediator in the relation of trust and innovative job performance. Therefore, five of the seven proposed hypotheses, H_1, H_3, H_4, H_5, and H_7, were accepted; meanwhile H_2 and H_6 were rejected. Tables 6 and 7 display the results of structural analysis and decision on seven hypotheses.

6 Discussion

The present study was conducted to understand the roles of online social capital in promoting innovative job performance through the mediator, work engagement. Firstly, the findings have shown that network ties and trust in social capital had a beneficial impact on the work engagement of government employees in Malaysia, consistent with previous research [39, 40, 57]. The usage of SM has led to the development of network ties and trust among employees, which contributes to good relationships and communication in the workplace, subsequently increasing the work engagement of employees. Besides, several studies mentioned that employees can receive social support and resources from their supervisors and colleagues virtually, without being restricted by time or location, if they possess a high level of online social capital, which is defined by strong network ties and trust in the workplace (Fujita et al., 2016 [72]). As Richardson et al. [62] stated, social capital is the most valuable form of capital that provides access to group resources for the collective benefit of the organization. This indicates that establishing network ties and trust through social media can lead to high work engagement, as employees are eager, enthusiastic, and committed to work responsibilities and duties.

The next finding discovered that a shared vision of online social capital does not influence the employees' work engagement. This finding does not support previous studies [7, 12, 77]. Initially, a shared vision of social capital can emerge when team members utilize the same resources, have access to the same knowledge/information and work procedures, and

embrace similar workplace culture [2, 34]. However, the present study surprisingly found that government employees perceived a shared vision had no influence on work engagement, as they may have an in-depth understanding of their work procedures and culture due to specific regular assigned work tasks and responsibilities. Furthermore, most government employees in Malaysia who responded to this study have vast and long work experience in their respective fields,this condition may influence employees'shared vision as they are well informed about their shared common goals and aspirations. This suggests that a shared vision of social capital had no impact on employees'work engagement.

Further, this study established a significant relationship between work engagement and employees'innovative job performance, aligning with previous studies by Cheng et al. [15], Gawke et al. [23], Kasim et al. [39], and Orth & Volmer [58]. This finding indicates that work engagement is crucial in motivating individuals to be excited about their duties, resulting in high-level innovative job performance. According to Cheng Et al. [15], high work engagement is influenced by intrinsic motivation, and employees' creativity and innovation are also influenced by intrinsic motivation. This implies that individuals with high intrinsic motivation will show a high work engagement and undoubtedly produce high creative and critical thinking. Hence, employees with high work engagement levels are associated with outstanding job performance due to their ability to showcase innovative and analytical thinking skills in generating, embracing, advocating, and implementing new ideas [85].

For the mediation hypotheses, this study found that the relationship between network ties and innovative job performance was mediated by work engagement. The usage of SM can assist employees in strengthening the network ties among government employees, as they can share their resources, such as moral support, knowledge sharing, and communicate with colleagues and employers through the virtual platform [1]. Based on this study, the government employees believed that strong network ties could promote high work engagement as they are more emotionally attached and enthusiastic toward their work tasks, subsequently producing highly innovative job performance. Furthermore, this study found that work engagement acts as a mediator in the relationship between trust and work engagement. Trust can be established through an SM that emerges from familiar network ties due to ongoing interactions with diverse individuals. Employees who believe their relationship with colleagues is mutually beneficial are more likely to develop mutual trust [37], resulting in increased work engagement levels that promote exploring and implementing innovative ideas. This indicates that work engagement plays a vital role as a mediator, which provides an indirect effect on the relationship between online social capital (network tie and trust) and innovative job performance.

The last hypothesis shows that work engagement has not mediated the relationship between a shared vision and innovative job performance. The present study discovered that government employees may perceive that shared vision has no role in influencing work engagement since they may have an in-depth understanding of their work procedures and culture. This situation might be due to specific assigned work tasks and routines, leading to career stagnation that decreases employee engagement. The effect of career stagnation has reduced the employees' commitment and led to a decrease in innovative job performance in public service [55].

The findings of this study also might be influenced by the socio-cultural factors in the Malaysian public sectors. The socio-cultural and institutional factors shaping social capital in the Malaysian public sector are deeply rooted in ethnic diversity, community networks, bureaucratic structures, and political governance. While efforts have been made to enhance social trust and collaboration, challenges like ethnic-based policies, political influence, and bureaucratic inefficiencies continue to impact the strength of social capital in public administration. In addition, the current size of the Malaysian public sector comprises 1.6 million staff serving 28.68 million people; however, ethnic Malays comprise a majority of citizens but a supermajority of the 1.6 million civil servants and an overwhelming share of top management positions. This may often exert a significant influence on the civil servants' attitudes toward online social capital, work engagement and job performance.

7 Limitations

Although this study offers valuable insights, future studies should also acknowledge and address certain limitations. The data were obtained from a single source response since this study performed a cross-sectional design. Although the statistical result showed no issues in common method bias, respondents might be unable to inform the actual situation or condition in answering the sensitive questions related to personal health and psychological conditions. Besides, this study is a fundamental finding that can be expanded to a longitudinal study. Future researchers could use longitudinal data on the association between the role of SM use at work and its consequences over time. It will be interesting to understand how repeated exposure to SM use at work could influence employee behaviour and performance at an individual level.

8 Implications

This study enhances the theoretical comprehension of employee performance by discovering the roles of online social capital in innovative job performance, which finds the indirect effect of two variables through work engagement. Moreover, this study provides a foundation of knowledge in forming capital at the workplace for future researchers by emphasizing the benefits of online social capital through SM usage. Furthermore, this study evidently expands the current knowledge of social capital, innovative performance and work engagement within the field of behavioural science and organizational behaviour, mainly focusing on Malaysia's public sector.

Next, the findings of this study have implications for behavioural science by providing practical guidance for stakeholders, especially employers, to propose rules or policies in adopting SM as a medium or tool for forming online social capital that can enhance employees'innovative job performance and encourage their work engagement. Such evidence can effectively inspire employers to establish and maintain online social capital, as previous studies [14, 72] mentioned the benefits of online social capital resources, which positively led to a person's positive state of well-being. Hence, key management-related parties can review and improve existing guidelines regarding the use of SM because the benefits of social capital created through online platforms have also positively affected people's feelings of self-worth [89], subsequently improving innovative performance.

By leveraging behavioural science in public policy, future researchers, especially from developing countries, can gain valuable information or knowledge to comprehensively analyze innovative job performance in their respective countries. Since the Malaysian government has significantly emphasized the role of innovation in the public sector, this finding can motivate the Malaysian government to actively pursue innovation by transforming novel and valuable ideas into Outcome-Driven Innovation, benefiting the government, economy, and society as a whole. Furthermore, this discovery can be applied to private industries that may possess strategies or endeavours to integrate the function of social media in building online social capital that yields positive results and enhances Malaysia's economy.

9 Conclusion

With the pervasive technologies applied to the work environment, the conventional concept of social capital has been changed to online social capital. Prior studies have recognized that SM platforms can provide continuous resources for innovation through online social capital and strong connections and relations between employees, employers, and stakeholders. By applying the SCT theory, the present study expands the concept of online social capital in innovative job performance through the presence of a mediator (indirect effect), work engagement. The findings of this study discovered that online social capital (network ties and trust) had influenced innovative job performance that was mediated by work engagement. Besides, this study is expected to expand the literature on public sector performance and provide insightful ideas for the following parties, especially stakeholders, to promote employees' innovative job performance through technological usage practically.

Declarations

Competing interests The authors declare no competing interests.

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