Behavioural Beliefs Influence on Knowledge Sharing for Outsourced Facilities Management Improved Performance

Lilis Shereena Safiee[1], Irwan Mohammad Ali[2], Nor Amin Mohd Radzuan[2], Mohamad Sufian Hasim[1]

[1]Studies of Building Surveying, School of Estate Management and Building Surveying, College of Built Environment, University Technology MARA, Shah Alam, Malaysia

[2]Programme of Building Surveying, Department of Built Environment Studies and Technology, College of Built Environment, University Technology MARA, Perak Branch, 32610 Seri Iskandar Campus, Perak, Malaysia

ABSTRACT

Continuous efforts and financial support demonstrate that the Malaysian government is concerned on the needs of facilities management (FM) and is committed to delivering quality public services. However, recurring issues persist in public buildings and facilities, including poor maintenance, major breakdown, and lack of resources. Addressing these challenges requires a holistic approach to knowledge management (KM) in outsourced facilities management (OFM). Ineffective building conditions can lead to negative perceptions, such as mismanagement of public funds and low performance by the government. This research investigates the influence of behavioural beliefs on knowledge sharing (KS), a critical component of KM in improving OFM performance in government buildings. The study adopts a deductive approach with quantitative methodology, using a self-administered online survey of 112 OFM staff. The data were analysed using Structural Equation Modelling (SEM) with SmartPLS 4. The results revealed that Self-Attitude (SA) and Nature of Knowledge (NK) significantly influenced KS, contributing to improved OFM performance. However, Motivation to Share (MS) was found to have no significant effect. These findings can guide OFM service providers and the Public Works Department (PWD) in devising strategies to improve KS activities, focusing on important behavioural factors while addressing less impactful factors through targeted initiatives. The results are constrained by the small sample size and the specific context of OFM in government buildings under the PWD administration. Future research should explore broader strategies and gain insights from best practices to further improve the effectiveness of KS in OFM.

Keywords: Behavioural belief, Knowledge sharing, Performance improvement, Outsourced facilities management, Theory of Planned Behaviour

INTRODUCTION

The evolution of Facilities Management (FM) in recent years reflects its growing importance in contributing to various business success. The role of FM has expanded significantly, where it is recognised as a strategic function that can enhance the overall performance and competitiveness of an organisation. In Malaysia, FM was initially driven by the government sector through the Public Works Department (PWD) since 1974 [1], [2]. Major outsourcing of public healthcare non-clinical services in 1996 has changed the FM landscape towards a new era [3]. Since then, FM has attained growing attention and significant financial support from the government to enhance the service delivery of public buildings and facilities.

Nevertheless, over the years there are repeating problems occur such as poor maintenance, change of contractors and major breakdown which lead to poor FM performance [4]. Among the issues pertaining OFM are operational performance, trouble of understanding the Key Performance Indicators (KPI), payment mechanism, defect management, and the complexity of FM activities [5]. The current way of measuring FM performance does not fully address the performance issues of service providers, where there are lack of strategic solutions and actions to manage the lower rated performance level [2]. These were resulted from lack

of standards to measure the quality level and performance, slow adoption of FM standards and regulation, along with difficult to source for local FM expertise for immediate response [1].

This calls for more holistic and comprehensive strategies in FM, incorporating Knowledge Management (KM) interventions to ensure that public funds are effectively and responsibly managed. By leveraging KM, FM can optimise resources, enhance decision-making, and foster transparency and accountability in the use of public funds. Knowledge Sharing (KS) connects and integrates KM processes through the exchange of knowledge, experiences, and skills throughout organisations [6], which ultimately leading to improved organisational performance. This research seeks to investigate the influence of individual attitude (behavioural beliefs) on KS from the foundation of Theory of Planned Behaviour (TPB) towards improving the performance of OFM in Malaysian government buildings.

THEORETICAL BACKGROUND

The theoretical background explores the importance of KS, challenges of KS in FM, the underpinning theory and its components that form the basis to the research.

A. Knowledge Sharing (KS)

KS refers to the exchange of wisdom, skills, and technology among different units within an organisation [7], facilitated by a culture of social interaction [8]. It is a collaborative process where individuals mutually share and combine their knowledge to generate new insights, working together toward a shared objective [9]. The significance of KS lies in its capacity to convert individual insights into collective organisational knowledge, which in turn enhances business performance and competitiveness. Edwards [10] emphasised that KS is a vital and complex aspect of KM, requiring managerial focus on three key areas; individuals, organisation, and technology.

The complexity of KS occurs because these three dimensions can be difficult to manage and can interfere and influence the KS process [6]. This includes management of people, teams, organisational goals, and strategies [11]. As a dynamic social process characterised by profound human interactions, KS is determined by both organisational and individual factors.

The links between them are worth exploring because of their importance for KS [12]. In a company with a good KS culture, positive social interactions will occur among individuals and organisations, where KS and knowledge innovation are, therefore, more likely to occur [13]

KS Benefits for Performance Improvement:

KS plays a significant role in enhancing both individual and organisational performance by amplifying the value of knowledge through collaborative dissemination. Yang [14] suggests that knowledge becomes more valuable when shared, supporting the view that KS amplifies organisational and individual benefits. KS facilitates personal advantages such as improved job performance, career growth, and satisfaction, with individuals gaining a sense of pride and connection from their contributions [15], [16]. For organisations, KS drives high-quality performance, fosters problem-solving capabilities, and reduces operational costs, reflecting the long-term advantages of improved resource allocation and customer understanding [16].

Organisational benefits of KS extend to increased efficiency, innovation, and creativity, with [17] noting that sharing knowledge enables optimised resource use and expertise development. Cost reduction through KS is another substantial advantage, as it helps reduce turnover costs and the financial burden of extensive training by creating accessible knowledge systems [6]. These systems allow employees to share achievements and lessons learned, building a culture where key knowledge is readily available, and time to proficiency is reduced.

Furthermore, KS supports intellectual capital retention, ensuring valuable insights persist within the organization even after employees leave [18], [8]. KS's role in simplifying tasks and enhancing efficiency also strengthens knowledge-related competencies and organisational performance, particularly as it enables organisations to navigate and adapt to change more effectively [19].

In summary, KS facilitates cost-effective learning, reduces redundancy, and reinforces the organisation's resources, making it a powerful enabler of both personal development and organizational efficiency. This dual benefit empowering individuals while simultaneously enhancing collective knowledge and resourcefulness, reinforces KS as an indispensable component of sustainable performance improvement.

Challenges in Implementing KS in FM:

Despite all the substantial benefits of KS, the awareness of KM and KS within FM organisation is remains low. There was also very little study on the idea of KM in FM, particularly in terms of measuring the preparedness of KM in FM organisations [20], [21]. KM and KS should be applied broadly in organisation to ensure the knowledge capital sustainability is in the right track.

In spite of the government's ongoing emphasis on the importance of developing KM, [22] highlights challenges in effectively communicating information about the current KM strategy within the Malaysian public sector. KS is often viewed as an additional activity rather than a core part of daily operations and processes [23]. This perception, seeing KS as optional rather than essential, leads to low participation, especially when it requires employees to step outside their usual routines.

Saide et al. [18] highlight that, although efforts to promote a culture of KS and change employee behaviour, the actual willingness to share knowledge largely depends on the employees themselves for various reasons. This is supported by [24], individual's reluctance to involve in KS is the main hindrance of KS activities sustainability. Molén et al [25] added that attitude and culture play significant role in adapting to changing process, where traditional silo mentality has obstructed KS between disciplines and fostered a blame culture instead.

B. Behavioural Beliefs

Azjen's (1991) TPB assumes every element is totalled as part of actual behaviour [26]. TPB suggests that people are much more likely intend to enact certain behaviours when they feel that they can enact them successfully [27]. The TPB is widely recognised as the most utilised framework for understanding KS behaviour across various contexts [28]. It serves as a foundational backbone for analysing the psychological factors that influence and drive KS [29]. The TPB is selected in this study as it is regarded as the most influential and popular model for explaining and predicting human behaviour in a specific context [30]. The TPB model (Figure 1) is recognised to have a robust construct. Thus, the reliability and validity of the variables are already justified [31].
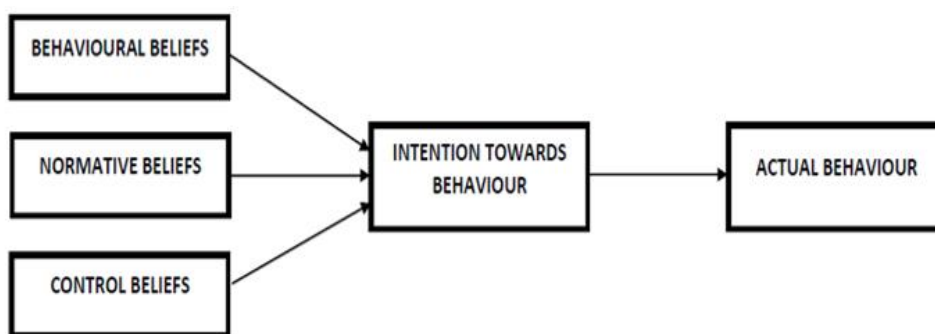

Fig. 1 Theory of Planned Behaviour (Azjen, 1991)

The integral element of TPB is attitude or behavioural beliefs that mainly dominates individual intention and actual behaviour. TPB regards that beliefs, attitudes, intentions, and behaviours can be objectively measured. Behavioural beliefs have an impact on attitudes, which then impact one's intention to share knowledge [32], [26]. In this research, behavioural beliefs comprised of SA, NK and MS.

Self-Attitude (SA):

Individual attitude is a fundamental determinant of behaviour, influenced by a person's innate characteristics. Tohidinia and Mosakhani [26], building on Ajzen and Fishbein's (1970) work, highlight that assessing

employees' beliefs about KS can help predict their attitudes toward KS and its perceived outcomes, which, in turn, shape their behaviour. Similarly, [16] suggest that certain personality traits in employees can lead to more impulsive or spontaneous KS behaviours within organizations. To maximise the benefits of employees who actively support KS, it is crucial to understand their personalities and potential traits [33]. Furthermore, [34] emphasise fostering autonomous motivation for KS rather than relying on external regulation through rewards or punishments.

The determinants of SA in this research are enjoy helping others [35], [11], mentoring [36], [37], openness [38], [39], responsibility [40], [16], loyalty [12], compassion [33], [16] and self-efficacy [41], [42].

Nature of Knowledge (NK):

NK pertains to how knowledge is structured and expressed within individuals or organisations [5]. According to Zhang and Faerman (2007) [43], knowledge involves both cognitive processes and actions, encompassing its acquisition, creation, transfer, transformation, and the enhancement of learning capabilities. Employees, as a vital organisational asset, act as internal repositories of knowledge and expertise, contributing significantly to the organisation's knowledge base.

The determinants of NK in this research are access to knowledge [11], [44], tacit knowledge [45], [46], [13], benchmarking [47], [48] and value of knowledge [49].

Motivation to Share (MS):

Motivational factors influencing individuals' willingness and behaviour toward KS can vary significantly [35]. An individual's motivation and confidence to engage in KS are shaped by both their personality and the working environment [50]. While motivation to share knowledge may stem from personal desire, [34] distinguishes between intrinsically motivated employees, who are more likely to exhibit self-determined behaviours, and extrinsically motivated employees. Both forms of motivation can coexist within an individual, albeit at varying levels [51]. Although KS behaviours cannot be imposed, they can be nurtured through effective motivation and encouragement [23].

The determinants of MS in this research are recognition [52], [6], rewards [41], [53], sense of belonging [34], [45], reciprocity [54], [16], trust [55], [56], management support [6], [11], and job satisfaction [57], [11].

The developed research conceptual framework for behavioural belief contains three dependent variables and 19 independent variables that are clustered under three group factors, namely Self-Attitude (SA), Nature of Knowledge (NK) and Motivation to Share (MS). Consequently, three hypotheses were recognised for this research as part of a research conceptual framework, as displayed in Figure 2.
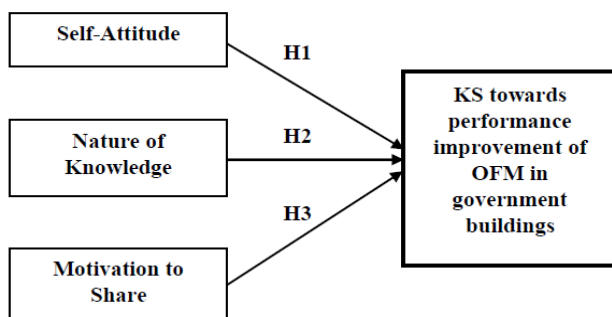

Fig. 2 Research Conceptual Framework

METHODOLOGY

Sampling and Data Collection

The research used cross-sectional quantitative method via close-ended online survey. The data for this research was obtained from outsourced FM personnel of Facilities Management and Maintenance Contract (FMMC)

and Services Contract (Housekeeping and Pest Control) from 101 federal government sites across Malaysia. These contracts are under the administration of Public Work Department (PWD). Non-probability convenient sampling is applied as the method of sampling. The respondents are identified and approached through email, WhatsApp applications, and LinkedIn platforms.

Instrumentation

A questionnaire was developed which derived from the research conceptual framework. It consists of 19 independent variables from three group factors and five dependent variables. The questionnaire is primarily divided into two parts. Part A covers six multiple-choice questions on the respondent's backgrounds, whereas Part B consists of 22 5-point Likert scale questions on independent and dependent variables. Google Form is used to gather and self-administered the received responses.

Data Analysis

The dataset was analysed with the use of Structural Equation Modeling (SEM) via SmartPLS 4.0 software. This multivariate analysis technique is based on regression principles, which is preferred over traditional methods to address complex statistical challenges. The analysis was conducted in two stages: first, the evaluation of the measurement model to assess the validity and reliability of the scale, and second, the evaluation of the structural model to explore the relationship between the determinants and knowledge sharing (KS) through the path coefficients.

FINDINGS

The results of analysis are explained further in the next sub-sections.

Respondents' Background

112 participants responded to the questionnaire out of 200 sample size through a self-administered online platform. The number of responses accounts for only 56 percent of the sample size due to contact confidentiality and low respondent participation. However, according to [58], the average response rate for online surveys is 44 percent, making the response rate for this study acceptable. Table 1 below summarises the detailed distribution of the respondents' profiles.

The majority of respondents have over ten years of working experience in the FM industry (34.8%), followed by those with two to five years (24.1%) and five to eight years (21.4%). This indicates that respondents are generally well-experienced in FM and possess a solid understanding of the industry. However, when it comes to tenure within their current organization, most participants have less than two years of experience (34.8%), with 33.9% having two to five years. The lowest proportions are those with over ten years (5.4%) and eight to ten years (8.9%) of experience in their current organisation. This highlights a high turnover rate within the FM sector. The typical duration of an FMMC ranges from three to five years, depending on the contract's nature. As such, reorganisation and staff displacement near the contract's end are common, given that employment is predominantly contract-based.

Table I Background of Respondents

Profiles	Category	Frequency	Percent	Valid Percent	Cumulative Percent
Working years' experience in the FM industry	2-5	27	24.1	24.1	24.1
	5-8	24	21.4	21.4	45.5
	8-10	17	15.2	15.2	60.7
	Less than 2	5	4.5	4.5	65.2
	More than 10	39	34.8	34.8	100.0
	Total	112	100	100	

Working years' experience in the current organisation	2-5	38	33.9	33.9	33.9
	5-8	19	17	17	50.9
	8-10	10	8.9	8.9	59.8
	Less than 2	39	34.8	34.8	94.6
	More than 10	6	5.4	5.4	100
	Total	112	100	100	
Academic qualification	Bachelor	90	80.4	80.4	80.4
	Certificate	1	0.9	0.9	81.3
	Diploma	6	5.4	5.4	86.6
	Master	13	11.6	11.6	98.2
	Others	1	0.9	0.9	99.1
	SPM	1	0.9	0.9	100.0
	Total	112	100	100	
Job Position	CEO/Director	3	2.7	2.7	2.7
	Facility Manager	61	54.4	54.4	57.1
	Assistant Facility Manager	2	1.8	1.8	58.9
	Facility Executive	16	14.3	14.3	73.2
	Engineer	20	17.9	17.9	91.1
	Assistant Engineer	3	2.7	2.7	93.8
	Quality Officer	5	4.4	4.4	98.2
	Health and Safety Officer	2	1.8	1.8	100.0
	Total	**112**	**100**	**100**	

The respondents mostly hold bachelor's degrees (80.4%), followed by master's degrees (11.6%) and diplomas (5.4%). Bachelor's degrees are typically the minimum qualification for managerial and executive-level roles in FMMC. Specifically, 54.4% of respondents are facilities managers, 17.9% are engineers, and 14.3% hold positions as facilities executives. Other roles include quality officers (4.4%), Chief Executive Officers (CEO) and directors (2.7%), assistant engineers (2.7%), and Health and Safety officers (1.8%). A typical FMMC team consists of facility managers, facility executives, engineers (covering electrical, mechanical, and civil disciplines), quality officers, safety officers, energy officers, supervisors, and technicians.

Measurement Model Analysis

The analysis of measurement model involves three main assessment, namely internal consistency reliability, convergent validity and discriminant validity. Internal consistency is employed to assess reliability by examining the interrelationships among the observed item variables [59]. It is typically measured using Cronbach's Alpha (CA) and Composite Reliability (CR), both of which reflect how effectively a set of items measures a single construct. According to [60], the recommended threshold for internal consistency reliability is 0.70. The results are presented in Table 2 below.

Table 2 Internal Consistency Reliability

Determinant Factor	Cronbach's Alpha	Composite Reliability
Self-Attitude (SA)	0.893	0.903
Nature of Knowledge (NK)	0.811	0.829
Motivation to Share (MS)	0.870	0.967
Knowledge Sharing (KS)	0.923	0.920

The results prove that CA and CR value of all items are above 0.80, thus reliable for further analysis.

The validity of the items in the instrument is assessed by determining whether they effectively measure the intended constructs based on theoretical expectations. To evaluate the measurement model, several steps are undertaken, focusing on both the convergent validity and discriminant validity of the independent and dependent constructs. Convergent validity, in particular, is used to confirm the alignment of the scale with other established measures of the concept [61]. According to established guidelines, (i) factor loadings should exceed 0.50 [62], and (ii) the Average Variance Extracted (AVE) should also be greater than 0.50 [63]. The results of these evaluations are presented in Table 3.

Table 3 Convergent Validity

Determinant Factor	Variables	Loading	AVE
SA	Enjoy helping others	0.855	0.614
	Mentoring	0.840	
	openness	0.856	
	responsibility	0.728	
	loyalty	0.611	
	compassion	0.804	
	Self-efficacy	0.761	
NK	Access to knowledge	0.638	0.645
	Tacit knowledge	0.856	
	Benchmarking	0.851	
	Value of knowledge	0.847	
MS	Recognition	0.606	0.500
	Rewards	0.552	
	Sense of belonging	0.575	
	Reciprocity	0.670	
	Trust	0.867	
	Management support	0.881	
	Job satisfaction	0.722	
KS	Communication with stakeholders	0.809	0.766
	Performance management	0.885	
	Relationship with clients and inhouse staff	0.943	
	Service delivery	0.913	
	Organisation structure sustainability	0.818	

The result confirms that the scale is interrelated with the concept of other known measures, such as the value of factor loadings for all constructs, which achieved the threshold value, with most loadings exceeding 0.50, ranging from 0.552 to 0.943. Similarly, the AVE value exceeds the minimum value of 0.50, ranging between 0.500 to 0.766.

The final stage of the Measurement Model Assessment is discriminant validity, which determines the degree to which a construct is distinct and not merely a representation of other constructs [64]. Discriminant validity is evaluated by examining the cross-loadings of each item within the constructs and the square root of the Average Variance Extracted (AVE) for each construct, as shown in Table 4. Specifically, each item should demonstrate a higher loading on its corresponding construct compared to its loadings on other constructs in the model. Furthermore, the square root of the AVE for each construct must be greater than its correlations with all other constructs.

Table 4 Discriminant Reliability

Determinant Factor	Knowledge Sharing	Motivation to Share	Nature of Knowledge	Self-Attitude
KS	0.875*			
MS	0.330	0.707*		
NK	0.700	0.298	0.843*	
SA	0.687	0.254	0.828	0.784*

Note: *The values of diagonal AVE are greater than the off-diagonal AVE; where diagonal values present the AVE values

The result above reveals that the AVE diagonal values in bold are greater than the off-diagonal AVE. Therefore, the test has confirmed the discriminant validity.

Structural Model Analysis

The path coefficient, which indicates the hypothesised relationships of all KS determinants, is evaluated for structural model assessment by comparing beta (β) values across all paths. The strongest effects of KS factors on enhancing OFM performance in government buildings are shown by the highest β value. According to [60], a route coefficient above 0.10 is considered appropriate. However, as recommended by [65] below, for two-tailed, the p-value and t-value should be used to evaluate the importance of the value of β:

p-value < 0.01, t-value >2.58

p-value < 0.05, t-value >1.96

p-value < 0.10, t-value >1.645

Table 5 below summarises the research hypotheses evaluated with Standard Beta for path coefficient, t-value and p-value.

Table 5 Hypotheses Testing Results

Hypothesis	Relationship	Path Coefficient (β)	t-value	p-value	Result
H1	SA -> KS	0.302	2.240	0.025	Significant
H2	NK -> KS	0.327	2.408	0.016	Significant
H3	MS -> KS	0.064	0.664	0.507	Not significant

The results above demonstrate that β values for SA and NK achieved the threshold value of 0.10. NK has the highest value (β=0.327) which represent the most significant relationship with KS, follows by SA (β=0.302). Both also achieved the threshold significant value with p-value less than 0.05 (0.016 and 0.025 respectively), while t-values above 1.96 (2.408 and 2.240 respectively) This confirms that SA and NK have significant impacts in this study. In contrary, MS has no significant impacts on KS in improving the performance of OFM in government buildings.

RESULTS AND DISCUSSION

Self-Attitude

H01: There is no significant relationship between the determinants of SA and KS towards the performance improvement of OFM in government buildings.

H1: There is a significant relationship between the determinants of SA and KS towards the performance improvement of OFM in government buildings.

The analysis result proposes that the path coefficient of "SA" towards KS in OFM in government buildings is significant (β = 0.302; t-value = 2.240**, p-value = 0.025**). Thus, the alternate hypothesis H1 is accepted and the null hypothesis H01 is not accepted. SA refers to an inherent personality trait that naturally shapes a person's behaviour without the need for external force or motivational support. SA encompasses individual characteristics such as openness, responsibility, and self-efficacy, combined with intrinsic motivators like enjoyment and altruism, which drive engagement in specific behaviours, including knowledge sharing (KS). These elements collectively foster an individual's willingness and ability to participate in KS activities. Hence these criteria can be anticipated in OFM staff recruitment criteria to find candidate with the right attitude. While many researchers link self-attitude to organisational influence, this study treats it as a distinct factor, categorising it separately from motivation to share or extrinsic motivation, as these are external determinants of KS behaviours.

Nature of Knowledge

H02: There is no significant relationship between the determinants of NK and KS towards the performance improvement of OFM in government buildings.

H2: There is a significant relationship between the determinants of NK and KS towards the performance improvement of OFM in government buildings.

The result reveals that the path coefficient of "NK" towards KS in OFM in government buildings is significant (β = 0.327; t-value = 2.408**, p-value = 0.016**). Hence, the alternate hypothesis H2 is accepted, and the null hypothesis H02 is not accepted. NK denotes how knowledge is structured and generated within individuals or organisations, shaping the belief in KS. Current research indicates that the type of knowledge, whether tacit or explicit, significantly impacts its ease of sharing within an organisation. Tacit knowledge, being context-specific and challenging to codify, requires a supportive culture, shared norms, and cognitive capital for effective dissemination. In contrast, explicit knowledge is more easily shared but still benefits from practices that promote epistemological support and clear communication channels. Although explicit knowledge was excluded from this research due to low statistical value from prior analysis, its importance is undeniable. A combination of cognitive resources, a strong KS culture, and accessible tools can help bridge the gap between tacit and explicit knowledge, enabling more seamless KS behaviours within organisational settings.

Motivation to Share

H03: There is no significant relationship between the determinants of MS and KS towards the performance improvement of OFM in government buildings.

H3: There is a significant relationship between the determinants of MS and KS towards performance improvement of OFM in government buildings.

It is reported that the path coefficient of "MS" towards KS in OFM in government buildings is not significant (β = 0.064; t-value = 0.664**, p-value = 0.507**). Thus, the null hypothesis H03 is accepted and the alternate hypothesis H03 is not accepted. MS in KS encompasses a range of internal and external factors that inspire individuals to contribute their knowledge, skills, and experiences within a group or organisation. As point out by [55], these motivations are often rooted in the desire to connect and collaborate, relying heavily on trust, reciprocity, and social relationships. Trust and reciprocity, frequently emphasised in research, serve as critical social adhesive that sustains the functionality of social networks [66]. This perspective highlights that motivation to share extends beyond the act of sharing to include fostering dependable and mutually beneficial relationships within a group. MS is a complex construct that includes intrinsic factors, such as personal growth, extrinsic motivators like rewards, and relational elements such as trust, reciprocity, and a sense of belonging. These interconnected factors emphasise that effective KS depends not only on individual motivations but also on the social and structural dynamics of an organisation or community. However, in this study, MS was found to have no significant impact on KS for improving OFM performance in government buildings.

CONCLUSIONS

The integration of KM in the process of outsourcing through KS is needed to ensure that government assets are effectively managed. Previous studies show that comprehensive KM strategies are able to address performance gaps and ensure sustainable knowledge retention. Hence adopting KS within the organisation is a fundamental KM process to enhance OFM performance. In a nutshell, the findings demonstrate that the behavioural belief of KS among OFM personnel is primarily influenced by self-attitude (SA) and nature of knowledge (NK). While motivation to share (MS) also show positive relationships, but it is not statistically significant in this analysis and are therefore temporarily excluded in the context of this study. However, MS may still be relevant in other research contexts, as previous studies have shown their substantial impact on KS in improving organisational performance. Understanding the impact of KS on OFM performance will enable outsourced service providers and PWD to implement initiatives that can strengthen KS practices. These elements collectively foster individuals' willingness and ability to participate in KS activities, hence shall be part of the recruitment criteria of new OFM staff. Meanwhile, addressing less influential areas will help to create a dynamic KS environment, thus improve the performance within the OFM-government context. This research fills the gap of literature in FM and KS. Further research is recommended to explore the strategies to employ KS activities by learning from other organisations' best practices.

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