

Exploring motivation to engage in intraorganizational knowledge sharing: a mixed-methods approach

Lukas Zenk and Nicole Hynek

*Department of Knowledge and Communication Management,
Danube University Krems, Krems, Austria*

Noella Edelmann, Shefali Virkar and Peter Parycek

*Department for E-Governance and Administration, Donau-Universität Krems,
Krems, Austria, and*

Gerald Steiner

*Department of Knowledge and Communication Management,
Danube University Krems, Krems, Austria*

Abstract

Purpose – Intraorganizational knowledge and information sharing are important steps toward more-accessible organizational knowledge. The aim of this study is to qualitatively explore factors that contribute to employees' motivations for sustaining intraorganizational knowledge-sharing behaviors and to examine the impact of these factors in a quantitative study with the Austrian Federal Ministry of Defense. This ministry faces a retirement wave in the next 5–10 years. Intraorganizational knowledge sharing before, during, and following this wave will play a decisive role for the organization in the near future.

Design/methodology/approach – An exploratory sequential mixed-methods study was conducted. The study design involved a qualitative study phase with expert interviews and stakeholder workshops ($n = 9$) and a quantitative study phase based on a cross-sectional online survey with an implicit association test on intraorganizational knowledge sharing ($n = 59$).

Findings – In the qualitative study phase, three main research topics regarding intraorganizational knowledge sharing were identified: employee attitude, organizational support, and specific relational aspects of knowledge transfer, such as reciprocal relationships among employees and opportunities for knowledge exchange. A hierarchical multiple regression analysis revealed that perceived organizational support was the only factor that was a significant predictor of motivation for engaging in knowledge sharing. We also analyzed the data for moderation effects and demonstrated that sociopsychological factors (e.g., the engagement or openness of colleagues to share their knowledge) further strengthened the positive relationship between employees' perceived support and personal willingness to share knowledge.

Practical implications – We conclude that an organizational culture that supports knowledge sharing within the organization is highly relevant for motivating employees to share their knowledge. Practitioners will also benefit from the insights of the various dimensions of employees' willingness to engage in knowledge-sharing behaviors to better design further interventions in organizations.

Originality/value – In accordance with an exploratory sequential mixed-methods approach, we followed a transdisciplinary process in which scientific and practical experiences and knowledge were integrated. For this



purpose, interviews and workshops with experts and stakeholders in the organization were conducted. The qualitative findings were incorporated into a quantitative survey and an implicit association test for the employees of the organization. This approach demonstrates a different and more holistic approach to analyzing a real-world problem in the context of a governmental agency in order to investigate the multidimensional and complex topic of intraorganizational knowledge sharing.

Keywords Intraorganizational knowledge sharing, Motivation, Implicit association test, Exploratory sequential mixed-methods design

Paper type Research paper

1. Introduction

For businesses and governments alike, knowledge is an essential element of strategic organizational design (e.g., Carayannis *et al.*, 2021; Drucker, 2012; Ichijo and Nonaka, 2007), and the optimal management of this asset is considered a vital component of organizational success (Al Ahbabi *et al.*, 2019; Farooq, 2018). While an organization's success depends increasingly on effective and dynamic knowledge management (KM), successful knowledge management is strongly related to employee behavior, especially to knowledge sharing among employees (Chopra and Gupta, 2019).

Sustaining organizational knowledge is crucial for the viability and competitiveness of any organization (Ichijo and Nonaka, 2007), particularly in regard to digital transformation (Di Vaio *et al.*, 2021). Therefore, any disruptive knowledge loss, such as that resulting from retirement waves, threatens the organization's resilience and sustainable development (Steiner, 2018). As a result, interest in KM has become a strategic agenda item for public and private managers and decision-makers (Singh *et al.*, 2019). It offers the means to balance business objectives with the organizational knowledge base as well as enabling growth and further competitive advantages (Al-Kurdi *et al.*, 2018). The challenge for an organization's successful KM, therefore, is the development of an adequate system of KM and KM strategies, such as intraorganizational knowledge sharing, that address determinants related to the dynamics of the organizational knowledge base (Nadason *et al.*, 2017). Thus, to achieve the desired benefit from KM strategies, organizations must encourage intraorganizational knowledge-sharing behaviors and sustain the appropriate culture needed to nurture them (Halisah *et al.*, 2021; Intezari *et al.*, 2017).

Although KM methods and technologies have changed tremendously over recent decades, certain underlying human factors (Ichijo and Nonaka, 2007) and interpersonal relationships (Cross *et al.*, 2001) have remained highly relevant. Concerning intraorganizational knowledge sharing, Ipe (2003) provided a conceptual framework and suggested that the sharing of knowledge is influenced by the motivation of individuals to engage in knowledge sharing, the nature of the knowledge shared, the opportunities available for individuals to share and, above all, the culture of the particular work environment. Various empirical studies and theories have discussed the different reasons for intraorganizational knowledge sharing or even knowledge hiding (Gagné *et al.*, 2019) and have concluded that intrinsic motivational drivers are determining factors (Demircioglu and Chen, 2019; Malik *et al.*, 2019; Nguyen *et al.*, 2019).

Effective knowledge sharing is contingent on individuals' willingness to pass along their knowledge instead of hoarding it and is likely to be motivated in a way similar to prosocial behavior, which is challenging to achieve through pressure or rewards (Babić *et al.*, 2019; Graham *et al.*, 2019). Employees can only be encouraged, enabled and motivated to engage in knowledge exchange with colleagues (Zbucea *et al.*, 2019). Although the culture, organizational prerequisites and technology play a vital role in employees' knowledge-sharing behaviors, many motivational drivers are concerned with human factors (Ghobadi and Mathiassen, 2016; Nadason *et al.*, 2017; Yang *et al.*, 2019). Knowledge sharing seems to be complicated by the existence of barriers that hinder the transfer of knowledge from source to

recipient (Meriläinen *et al.*, 2017) and, thereby, reduce the prospects of individuals being willing to engage in knowledge sharing. Potentially significant barriers, such as the tendency of employees to hoard knowledge for fear of losing personal power within the organization, as well as motivational drivers must be identified in the knowledge-management process to enable and motivate knowledge-sharing behaviors (Nguyen *et al.*, 2019).

In today's knowledge society, the sustainable knowledge base of organizations is increasingly threatened by more job-changing among knowledge workers (Gaudencio *et al.*, 2021; Razzaq *et al.*, 2019). As a result, KM approaches that focus on intraorganizational dynamics are considered of even greater importance. For example, Alexandru *et al.* (2019) investigated the KM approaches utilized by small-and medium-sized knowledge-intensive business services and emphasized that future research should include other organizational forms and economic sectors. To further investigate this research topic, we selected a public-sector organization, the Austrian Federal Ministry of Defense. This ministry is of particular interest compared to other organizations because it has enjoyed a low rate of employee turnover in recent decades, due in part to the employment of civil servants who have accrued and developed relevant knowledge. However, the ministry will face a retirement wave over the next 5–10 years, and intraorganizational knowledge sharing before, during and after this wave will play a decisive role. The organization's resilience is critically important, not only for the ministry itself but also for numerous other organizations, ministries and the state itself, for reasons related to national defense, disaster control and, at the present time, the implementation of rapid interventions during the pandemic, among others. Compared to private organizations, insolvency is not an option, and continuous further development is of high strategic significance. This ministry is also an interesting case because, on the one hand, the internal sharing of knowledge has become more important due to employee turnover, but on the other hand, care must be taken to ensure that knowledge, such as military secrets, is not shared with unauthorized persons. The experience and expertise that may be lost when employees leave the ministry represent a challenge for this knowledge organization and highlight the need for more-effective KM strategies in all organizations to bolster resilience as the dynamic global market steadily accelerates.

Consequently, this study focuses on those factors that have a decisive influence on the motivation for intraorganizational knowledge sharing. Applying a mixed-methods approach, we explored the most important factors based on qualitative studies and examined their effects on motivation among civil servants to engage in intraorganizational knowledge sharing by conducting a quantitative study.

2. Methods

Following an exploratory sequential mixed-methods design as proposed by Creswell (2014), we conducted a qualitative study phase including stakeholder workshops and expert interviews to elicit the specific problem situation and to identify relevant motivational drivers of intraorganizational knowledge sharing to be investigated within the quantitative study (see Figure 1) [1].

2.1 Qualitative study phase

The qualitative study phase was conducted in two stages. *First*, semi-structured individual in-depth interviews about knowledge transfer were conducted with four executives from different organizational units in the Austrian Federal Ministry of Defense. The objective was to elicit and capture knowledge based on each individual's experience and practical knowledge about knowledge sharing within the ministry. *Second*, we conducted additional workshops based on a transdisciplinary approach (Scholz and Steiner, 2015) with five

stakeholders from the Ministry of Defense and two researchers for this publication. According to a comprehensively designed stakeholder-engagement process, different stakeholder perspectives were discussed and integrated (Provasnek *et al.*, 2018). Following the guiding theme of barriers and opportunities regarding a sustainable KM process, system models were jointly developed to gain a deeper understanding of intraorganizational knowledge sharing (Steiner, 2008).

2.2 Quantitative study phase

As part of the quantitative study phase, a cross-sectional survey and a customized implicit association test (IAT) were developed. The survey and the IAT were sent to departments of the Ministry of Defense selected during the previous workshops. The researchers developed and conducted a cross-sectional online survey that included participants’ demographics and comprised six main research items of intraorganizational knowledge sharing evaluated on a 5-point Likert-type scale (see Table 1).

Different implicit measures are widely used in cognitive science (Nosek *et al.*, 2011). In this study, a customized, web-based IAT was developed to additionally measure implicit attitudes toward employees’ knowledge-sharing behaviors, where two categories (“Share knowledge” and “Hoard knowledge”) and the corresponding items were elicited from transdisciplinary workshops (Steiner *et al.*, 2018), and two categories (“Good” and “Bad”) and the corresponding items were adopted from IATs that were previously empirically tested (Nosek *et al.*, 2002, 2007). The concept of IATs is guided by the assumption that participants can assign words more quickly to congruent and closely associated categories as opposed to incongruent categories or categories that are closely associated with a given word (Greenwald *et al.*, 2009).

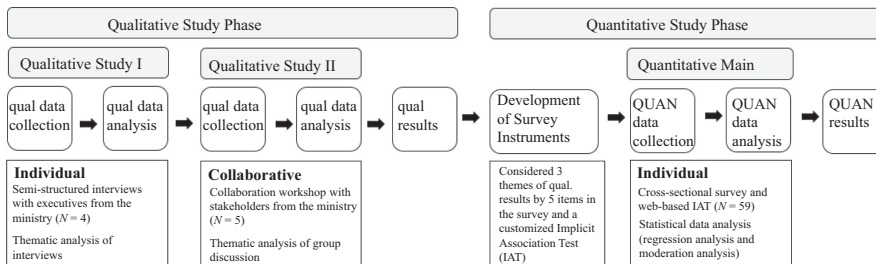


Figure 1. Exploratory sequential mixed-methods research design

Item	Statement or question
(1) Motivation: Motivation to engage in knowledge sharing (DV)	To what extent are you motivated to share your knowledge?
(2) Support: Perceived organizational support	To what extent does your department support knowledge sharing?
<i>Sociopsychological aspects</i>	
(1) Openness: Perceived openness of colleagues	I can openly ask colleagues professional questions
(2) Engagement: Perceived engagement of colleagues	My colleagues try to answer my questions as best they can
<i>Opportunities for knowledge transfer</i>	
(1) Access: Access to colleagues’ knowledge	I can easily reach colleagues when I have a professional question
(2) Overviews: Overview of colleagues’ knowledge	I have a good overview in my department of who knows what

Table 1. Main items of the cross-sectional survey (DV = dependent variable)

Specifically, during the congruent phase, the categories “Share knowledge” and “Good” as well as “Hoard knowledge” and “Bad” were displayed as it was assumed that these categories were congruent. During the incongruent phase, the categories “Share knowledge” and “Bad” as well as “Hoard knowledge” and “Good” were shown (see [Table 2](#)). The online cross-sectional survey and the IAT were sent to 116 civil servants in selected departments of the ministry.

3. Results

3.1 Qualitative analysis

One of the key determinants regarding knowledge sharing that was identified during the first phase of the qualitative study was that the corporate culture facilitates knowledge sharing. Reciprocity was also a requirement for knowledge sharing, i.e., the expectation that employees who share knowledge will also receive knowledge from others. In addition, the following relevant factors were identified: employees’ intrinsic motivation to share knowledge, the effects of digital transformation, technical support and knowledge documentation in the ministry, as well as the generation gap.

As a final result of the first phase of the qualitative analysis, we deduced three relevant research topics that, in accordance with the aforementioned current literature, identify important determinants for the sharing of knowledge. First, employees’ *attitudes* toward knowledge sharing proved to be a significant variable in the investigation of the determinants for knowledge sharing. All employees acknowledged the importance of knowledge sharing but, at the same time, expressed concerns regarding loss of power within the organization as a result when sharing knowledge with colleagues. Second, different aspects regarding organizational *support* were mentioned that could be improved, for example, support received from other colleagues and supervisors from within the department. Third, *sociopsychological aspects* (e.g., advice networks for openly asking questions) as well as *opportunities for knowledge transfer* (e.g., contact networks to reach colleagues and having an overview of the available knowledge resources) were identified as relevant topics in this organization, as also described in other organizational studies on knowledge sharing ([Cross et al., 2001](#)).

3.2 Quantitative analysis

In total, 116 persons from the selected departments were invited by e-mail to participate in the study, and 59 participants completed the whole survey including the web-based IAT.

Share knowledge	Hoard knowledge
Openness	Reticence
General usage	Self-interest
Communication	Secret
Distribute knowledge	Hoard knowledge
Good	Bad
Happy	Bad
Peace	Failure
Pleasure	Terrible
Joy	Pain
Laugh	Disgusting

Table 2.
Words used for each of
four categories of the
customized IAT on
knowledge sharing

In this sample (and in the entire organization), there was an imbalance in terms of sex, which is the reason that more men than women filled out the questionnaire. Furthermore, as the interviews have already indicated, a large proportion of the employees in our sample have been with the ministry for more than 15 years. Detailed sample demographics of the respondents are presented in Table 3. All analyses were conducted using SPSS, and Hayes macro PROCESS for SPSS was used to examine moderating effects.

We present means, standard deviations and correlation coefficients of all six main items of the survey and the values of implicit attitude in Table 4. Five of the six main items showed high values (between 4.24 and 4.67 on a 5-point Likert-type scale), and only the item organizational support showed a lower value of 3.50. For the value of implicit attitudes toward employees' knowledge-sharing behaviors, we calculated *D* values, the standardized differences of the mean reaction times of the congruent and incongruent phases of the test, according to the procedure described by Greenwald et al. (2003). Positive values of the *D* score indicate an associative strength between "Share knowledge" and "Good" as well as an associative strength between "Hoard knowledge" and "Bad"; negative values indicate a reverse association, that is, "Share knowledge" and "Bad" and "Hoard knowledge" and "Good" (see Table 2). The results show an average positive *D* value of 0.70, which can be interpreted similarly to Cohen's *d* (Cohen, 2013). The result indicates a strong positive effect for the implicit association between "Share knowledge" and "Good."

Regarding the correlation coefficients, only the item support correlates with the dependent variable motivation; no other independent variables show a direct effect on motivation. Several of the predictor variables correlate with each other with a correlation coefficient of up to $r = 0.62$, but the collinearity statistics were all within acceptable limits. Therefore, multicollinearity is not an issue in the regression model; the VIF values ranged from 1.00 to 2.08.

A four-stage hierarchical multiple regression analysis revealed that the implicit attitude of employees toward knowledge-sharing behaviors was not a significant predictor and explained only 3% of the variation in employees' self-reported motivation to share

	Sex	Education		Years at the ministry	
Female	7%	1	5%	0-3	4%
Male	93%	2	12%	4-7	4%
		3	31%	8-15	23%
		4	53%	Over 15	70%

Note(s): Education: 1 = Compulsory Schooling, 2 = Vocational School, 3 = High School, 4 = University

Table 3. Demographics of participants in the cross-sectional survey ($n = 59$)

Variable	<i>M</i>	SD	1	2	3	4	5	6	7
1. Motivation	4.24	0.71	-	0.15	0.45**	0.17	0.07	0.25	0.07
2. Attitude	0.71	0.37		-	0.12	0.00	-0.08	0.19	0.09
3. Support	3.50	1.06			-	0.36**	0.30*	0.13	0.10
4. Openness	4.67	0.63				-	0.55**	0.20	0.57**
5. Engagement	4.55	0.73					-	0.16	0.62**
6. Overview	4.35	0.88						-	0.32*
7. Access	4.58	0.57							-

Note(s): * $p < 0.05$, ** $p < 0.01$

Table 4. Means, standard deviations (SD), and correlation coefficients of survey items and implicit attitude

knowledge. By contrast, perceived organizational *support* was a significant predictor of the motivation to engage in knowledge sharing and explained an additional 20% of the variation. Neither the variable *openness* nor *engagement* contributed significantly. The addition of the factors of *openness* and *engagement* of knowledge owners to share their knowledge and experiences explained less than 1%. This change in R^2 in model 3 was not significant. Likewise, adding the two factors of information flow, that is, the *overview* of colleagues' knowledge and *access* to colleagues' knowledge, to the regression model did not significantly improve the prediction (see Table 5).

Although the VIF values of engagement (VIF = 1.91; tolerance = 0.524) and access (VIF = 2.08; tolerance = 0.481) were below 4.00 and tolerance was above 0.25, collinearity seems to be a constraint in the current data analysis, considering the negative coefficients of *engagement* and *access*, as reported in Table 5. This conjecture is reinforced by considering the relatively high correlation in Table 4.

In exploratory analyses, we evaluated the moderating effects of the four independent variables (*openness*, *engagement*, *overview* and *accessibility*; see Table 1) in the association between *support* and *motivation* (see Table 6).

Further analyses of simple slopes regarding *support* predict *motivation* at three levels of *openness* (Figure 2) and *engagement* (Figure 3) one standard deviation below the mean, at the mean, and one standard deviation above the mean (see Table 7).

First, the analyses showed that, for lower values of *openness*, there was no relationship between *support* and *motivation*. At the mean level and one standard deviation above the mean of *openness*, there was a significant positive relationship between *support* and *motivation* to share knowledge.

Second, *engagement* moderated both the relationship between *support* and *motivation*. Again, *support* and *motivation* were found to be significantly related when *engagement* was at the mean and one standard deviation above the mean but not when *engagement* was one standard deviation below the mean.

Predictor	<i>B</i>	SE <i>B</i>	β	<i>p</i>
<i>Step 1</i>				
Attitude	0.31	0.26	0.17	0.23
<i>Step 2</i>				
Attitude	0.20	0.24	0.11	0.40
Support	0.31	0.09	0.45	<0.01
<i>Step 3</i>				
Attitude	0.18	0.24	0.10	0.45
Support	0.31	0.09	0.46	<0.01
Openness	0.09	0.19	0.08	0.62
Engagement	-0.10	0.15	-0.10	0.51
<i>Step 4</i>				
Attitude	0.10	0.25	0.05	0.69
Support	0.31	0.10	0.46	<0.01
Openness	0.07	0.20	0.06	0.71
Engagement	-0.12	0.17	-0.12	0.49
Overview	0.17	0.11	0.21	0.13
Access	-0.02	0.23	-0.02	0.93

Table 5. Summary of the hierarchical regression analysis for variables predicting the self-reported intention to share knowledge

Note(s): $R^2 = 0.03$ for Step 1; $\Delta R^2 = 0.20$ for Step 2; $\Delta R^2 = 0.01$ for Step 3; $\Delta R^2 = 0.04$ for Step 4

Predictor	<i>B</i>	SE	<i>T</i>	<i>p</i>	95% CI	
<i>Moderator 1 – Openness</i>						
Support	0.30	0.08	3.59	<0.01	0.13	0.47
Openness	0.21	0.16	1.29	0.20	-0.12	0.54
Support × Openness	0.32	0.13	2.49	0.01	0.06	0.58
<i>Moderator 2 – Engagement</i>						
Support	0.34	0.08	4.04	<0.01	0.17	0.50
Engagement	0.12	0.15	0.82	0.42	-0.18	0.43
Support × Engagement	0.18	0.07	2.13	<0.05	0.01	0.35
<i>Moderator 3 – Access</i>						
Support	0.34	0.08	3.93	<0.01	0.16	0.51
Access	0.07	0.16	0.44	0.66	-0.25	0.39
Support × Access	0.18	0.13	1.40	0.16	-0.08	0.43
<i>Moderator 4 – Overview</i>						
Support	0.31	0.09	3.53	<0.01	0.13	0.49
Overview	0.15	0.10	1.42	0.16	-0.06	0.35
Support × Overview	-0.06	0.12	-0.49	0.63	-0.30	0.18

Table 6. Summary of the moderation analyses: effects of moderators on the relationship between perceived support and intention to share knowledge

Note(s): $R^2 = 0.30, \Delta R^2 = 0.08$ for Moderation Analysis 1; $R^2 = 0.29, \Delta R^2 = 0.06$ for Moderation Analysis 2; $R^2 = 0.25, \Delta R^2 = 0.03$ for Moderation Analysis 3; $R^2 = 0.26, \Delta R^2 = 0.00$ for Moderation Analysis 4

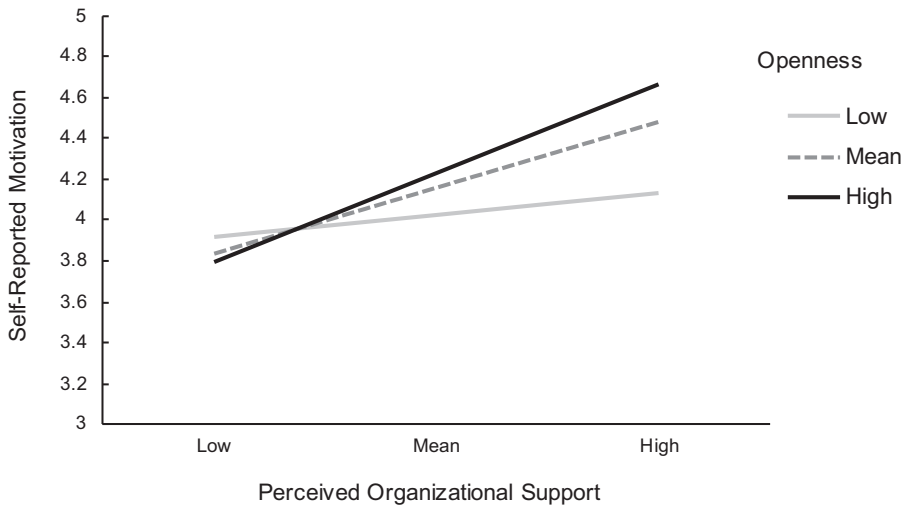


Figure 2. Effects of moderation of openness on the relationship between self-reported motivation and perceived organizational support. The scaling of the y-axis starts at 3 as no values were smaller

4. Discussion

Using a mixed-methods approach, the study explored and examined factors that have a decisive influence on the motivation for intraorganizational knowledge sharing. On the one hand, we employed qualitative research methods such as interviews and workshops. On the other, we conducted a quantitative study to examine their impact on the motivation to engage in intraorganizational knowledge sharing in the case of the Austrian Ministry of Defense. In the qualitative study phase, we identified relevant factors regarding knowledge sharing and deduced the following relevant research topics: employees' implicit attitudes, organizational support as well as sociopsychological aspects (openness, engagement) and opportunities for

Figure 3. Effects of moderation of engagement on the relationship between self-reported motivation and perceived organizational support. The scaling of the y-axis starts at 3 as no values were smaller

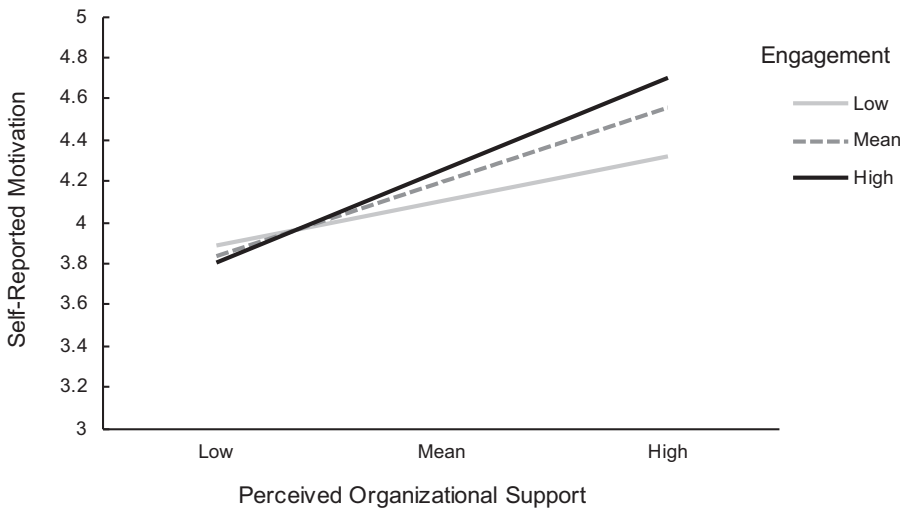


Table 7. Summary of the simple slopes analyses of the influencing moderators: conditional effects of support on the self-reported motivation for knowledge sharing

	<i>b</i>	SE	<i>t</i>	<i>p</i>	95% CI	
<i>Moderator 1 – Openness</i>						
One SD below <i>M</i>	0.09	0.12	0.81	0.42	-0.14	0.34
At the <i>M</i>	0.30	0.08	3.60	<0.01	0.13	0.47
One SD above <i>M</i>	0.41	0.09	4.41	<0.01	0.22	0.59
<i>Moderator 2 – Engagement</i>						
One SD below <i>M</i>	0.20	0.10	1.96	0.06	-0.01	0.40
At the <i>M</i>	0.34	0.08	4.04	<0.01	0.17	0.50
One SD above <i>M</i>	0.42	0.09	4.49	<0.01	0.23	0.61
Note(s): There are no simple slopes analyses for Moderator 3 (Access) and Moderator 4 (Overview)						

knowledge transfer (access, overview). For the quantitative study, we used a survey and a specialized web-based IAT and performed regression and exploratory analyses to further investigate these topics in the context of the ministry.

Following our main research question addressing motivational drivers for intraorganizational knowledge sharing, the findings of the quantitative study conducted with employees at the ministry demonstrate that perceived organizational support is a strong predictor of the motivation to share knowledge within the ministry. Compared to other studies that have also investigated the impact of specific forms of organizational support and distinguished between formal support (such as training) and informal support by supervisors or employees (Brockner et al., 2020), in this study we examined organizational support using an overall assessment based on the assumption that employees form a general belief about the extent to which their contributions are valued and supported within their organization (Mowday et al., 2013). The results of the qualitative and quantitative analyses strengthen the view that the working environment in the ministry can cultivate social (“sharing”) norms through supportive measures and that sharing knowledge represents an internalized behavior of social norms. Facilitating intraorganizational knowledge sharing is already an ongoing process in the ministry, with efforts being made to implement appropriate measures.

Two measures, among others, were already beginning to be implemented in the course of this study: (1) best practices for knowledge-management methods were evaluated in specific departments in order to introduce them in other departments, and (2) technological solutions for improved knowledge sharing were evaluated and realized in pilot cases.

In the qualitative study phase, the factor *sociopsychological aspects* was identified as a potential prerequisite for employees' willingness to share their knowledge with colleagues. However, we did not observe any statistically significant effects on *motivation*. We are aware that a corporate work environment is much more than the culture of perceived *openness* and/or peer *engagement*. Investigating the impact of reciprocal relationships would require an inquiry into the interactions occurring between specific partners or co-workers to determine their particular impact on current motivation. However, while conducting an exploratory approach with the aim of specifying the items on the questionnaire, both *openness* and *engagement* were revealed as being important factors of the work environment within the departments of the Ministry of Defense. Although we could not find any direct effects of these two factors, both strengthen the impact effect of employees' perceived support on *motivation*. Indeed, as Ipe (2003) had already claimed, knowledge sharing is a complex process of interrelated factors that, together, create an optimal environment for knowledge sharing within an organization (Obermayer and Toth, 2019). We postulate that disregarding the role of sociopsychological processes in the strengthening of intraorganizational knowledge-sharing behaviors would reduce the positive impact of supportive measures undertaken by the organization to promote knowledge sharing.

The factor *opportunities for knowledge transfer* proved to be an important motivational driver in the qualitative study phase. Based on the cross-sectional survey, however, the variables (*overview* and *access*) could not predict an employee's self-reported *motivation* to impart knowledge. Given these different findings, we conclude that there have been problems in the process of transforming the relevant factors of the preliminary studies to specific items of the quantitative study. The reason could be that the quantitative logic of this study may have influenced the slant of the findings of the preliminary study. We are aware that there is also a risk that the relevant factors will not be fully represented, as the identified factors depend on the sample involved in the qualitative prestudy (Burzan, 2016).

The value of the implicit *attitude* of employees at the ministry toward knowledge sharing was high; however, it was not a significant predictor of engaging in knowledge sharing. Compared to explicit self-reporting, the IAT was shown to be robust in socially sensitive domains and is very difficult for participants to feign (Greenwald *et al.*, 2009). Hence, the measurement of implicit associations is an important variable for investigating knowledge sharing. However, a limitation in interpreting our results is that we cannot determine the extent to which a high (implicit) positive attitude toward knowledge sharing was captured. In recent years, the measurement of implicit attitudes has been criticized by opponents of the method. The main criticisms are poor reliability (Brownstein *et al.*, 2019) and the capability of the IAT and other implicit measures to predict the behavior of individuals. Recent studies have stressed that the IAT is a context-sensitive measure that depends on participants' social environments (Jost, 2019). Therefore, implicit measures may be useful for analyzing social systems such as organizations. Instead of a person-centric approach, the aggregation of implicit measures is robust and stable and could be used in future studies on intraorganizational knowledge sharing (Payne *et al.*, 2017).

Moreover, applying an exploratory research design in evaluating important determinants of knowledge transfer by incorporating the perspectives of different actors and stakeholders was an essential first step in exploring potential motivational drivers of intraorganizational knowledge sharing. Nevertheless, the current study also has several limitations. As briefly described in the qualitative analysis, a variety of additional factors were found that could potentially impact knowledge sharing among ministry staff; these include generation gaps,

knowledge documentation and multiple aspects of digitalization and digital transformation. Furthermore, we expect that several factors influencing employee motivation to engage in knowledge sharing were not identified in the qualitative studies. The consideration of additional individual factors, such as self-efficacy, may have also helped augment this study's explanatory significance power. In future studies, several additional variables could be included, in particular, a broader range of different aspects regarding organizational support.

5. Conclusion

Intraorganizational knowledge sharing is regarded as vital for achieving and sustaining organizational success in the age of knowledge workers. We consider that a strategy focused on sustainability and resilience calls for ongoing and facilitated processes of knowledge transfer within an organization. Furthermore, crises such as the COVID-19 pandemic demonstrate the need for ongoing intraorganizational knowledge transfer to adapt to a changing and unpredictable environment by bringing together knowledge seekers and knowledge sources (United Nations Development Programme, 2020). In crisis situations, organizations are required to take actions outside their established practices and routines, to make decisions quickly within a rapidly changing environment and to improvise in certain situations (Ciuchta *et al.*, 2021). For this purpose, an increased exchange of knowledge within the organization is essential in order to utilize and benefit from existing knowledge resources of the relevant domains of the organization and to develop new options for action in unforeseen situations (Zenk *et al.*, 2020).

Through an exploratory sequential mixed-methods approach, our study has highlighted several critical factors that can be applied to the delineation of an effective practical strategy for dynamic knowledge management based on organizational learning. One of our main conclusions is that organizational support can be considered a particularly important factor for knowledge sharing, as it proved to be significant both in the qualitative study phase and in the quantitative study conducted at the Austrian Federal Ministry of Defense. Moreover, the employees indicated that they are very motivated to share their knowledge, yet the qualitative and quantitative analyses showed that they require more technical and administrative support from the organization in order to do so. Facing a retirement wave and, thereby, a significant knowledge loss in the coming years, the ministry has already begun to implement specific measures to support the exchange of knowledge between employees; this appears to be reflected in the quantitative data. Based on additional surveys, the employees' needs for social, administrative and technological support could be further assessed in order to implement targeted interventions. In these dynamic environments, in particular, we consider a supportive knowledge organization to be a powerful system that, through appropriate interventions and innovations, is able to respond to crisis-related system disruptions such as epidemics or massive knowledge loss. This can serve as a promising approach to ultimately increase the organization's resilience in turbulent times.

Note

1. Since it was a review study, it was excluded from review by the Institutional Review Board of the University, but verbal informed consent was obtained at initiation of contact.

References

- Al Ahababi, S.A., Singh, S.K., Balasubramanian, S. and Gaur, S.S. (2019), "Employee perception of impact of knowledge management processes on public sector performance", *Journal of Knowledge Management*, Emerald Publishing, Vol. 23 No. 2, pp. 351-373.

- Alexandru, V.A., Bolisani, E., Andrei, A.G., Cegarra-Navarro, J.G., Martínez Martínez, A., Paiola, M., Scarso, E., Vătămănescu, E.-M. and Zieba, M. (2019), "Knowledge management approaches of small and medium-sized firms: a cluster analysis", *Kybernetes*, Vol. 49 No. 1, pp. 73-87.
- Al-Kurdi, O., El-Haddadeh, R. and Eldabi, T. (2018), "Knowledge sharing in higher education institutions: a systematic review", *Journal of Enterprise Information Management*, Vol. 31 No. 2, pp. 226-246.
- Babič, K., Černe, M., Connelly, C.E., Dysvik, A. and Škerlavaj, M. (2019), "Are we in this together? Knowledge hiding in teams, collective prosocial motivation and leader-member exchange", *Journal of Knowledge Management*, Emerald Publishing, Vol. 23 No. 8, pp. 1502-1522.
- Brockner, J., De Cremer, D., van Dijke, M., De Schutter, L., Holtz, B. and Van Hiel, A. (2020), "Factors affecting supervisors' enactment of interpersonal fairness: the interactive relationship between their managers' informational fairness and supervisors' sense of power", *Journal of Organizational Behavior*, pp. 1-14, doi: [10.1002/job.2466](https://doi.org/10.1002/job.2466).
- Brownstein, M., Madva, A. and Gawronski, B. (2019), "What do implicit measures measure?", *Wiley Interdisciplinary Reviews: Cognitive Science*, Vol. 10 No. 5, e1501.
- Burzan, N. (2016), *Methodenplurale Forschung: Chancen Und Probleme von Mixed Methods*, Beltz Juventa, Weinheim.
- Carayannis, E.G., Ferreira, J.J.M. and Fernandes, C. (2021), "A prospective retrospective: conceptual mapping of the intellectual structure and research trends of knowledge management over the last 25 years", *Journal of Knowledge Management*, Vol. ahead-of-print No. ahead-of-print, doi: [10.1108/JKM-07-2020-0581](https://doi.org/10.1108/JKM-07-2020-0581).
- Chopra, M. and Gupta, V. (2019), "Linking knowledge management practices to organizational performance using the balanced scorecard approach", *Kybernetes*, Vol. 49 No. 1, pp. 88-115.
- Ciuchta, M.P., O'Toole, J. and Miner, A.S. (2021), "The organizational improvisation landscape: taking stock and looking forward", *Journal of Management*, Vol. 47 No. 1, pp. 288-316.
- Cohen, J. (2013), *Statistical Power Analysis for the Behavioral Sciences*, 2nd ed., Routledge, New York, doi: [10.4324/9780203771587](https://doi.org/10.4324/9780203771587).
- Creswell, J.W. (2014), *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 4th ed., Sage Publications, Thousand Oaks.
- Cross, R., Parker, A., Prusak, L. and Borgatti, S.P. (2001), "Knowing what we know: supporting knowledge creation and sharing in social networks", *Organizational Dynamics*, Vol. 30 No. 2, pp. 100-120.
- Demircioglu, M.A. and Chen, C.-A. (2019), "Public employees' use of social media: its impact on need satisfaction and intrinsic work motivation", *Government Information Quarterly*, Vol. 36 No. 1, pp. 51-60.
- Di Vaio, A., Palladino, R., Pezzi, A. and Kalisz, D.E. (2021), "The role of digital innovation in knowledge management systems: a systematic literature review", *Journal of Business Research*, Vol. 123, pp. 220-231.
- Drucker, P. (2012), *The Frontiers of Management*, Routledge, New York.
- Farooq, R. (2018), "A conceptual model of knowledge sharing", *International Journal of Innovation Science*, Vol. 10 No. 2, pp. 238-260.
- Gagné, M., Tian, A.W., Soo, C., Zhang, B., Ho, K.S.B. and Hosszu, K. (2019), "Different motivations for knowledge sharing and hiding: the role of motivating work design", *Journal of Organizational Behavior*, Vol. 40 No. 7, pp. 783-799.
- Gaudencio, P., Coelho, A. and Ribeiro, N. (2021), "The impact of CSR perceptions on workers' turnover intentions: exploring the supervisor exchange process and the role of perceived external prestige", *Social Responsibility Journal*, Vol. 17 No. 4, pp. 543-561, doi: [10.1108/SRJ-12-2018-0330](https://doi.org/10.1108/SRJ-12-2018-0330).
- Ghobadi, S. and Mathiassen, L. (2016), "Perceived barriers to effective knowledge sharing in agile software teams: knowledge-sharing barriers in agile teams", *Information Systems Journal*, Vol. 26 No. 2, pp. 95-125.

- Graham, K.A., Resick, C.J., Margolis, J.A., Shao, P., Hargis, M.B. and Kiker, J.D. (2019), "Egoistic norms, organizational identification, and the perceived ethicality of unethical pro-organizational behavior: a moral maturation perspective", *Human Relations*, Vol. 73 No. 9, pp. 1249-1277.
- Greenwald, A.G., Nosek, B.A. and Banaji, M.R. (2003), "Understanding and using the implicit association test: I. an improved scoring algorithm", *Journal of Personality and Social Psychology*, Vol. 85 No. 2, pp. 197-216.
- Greenwald, A.G., Poehlman, T.A., Uhlmann, E.L. and Banaji, M.R. (2009), "Understanding and using the implicit association test: III. Meta-analysis of predictive validity", *Journal of Personality and Social Psychology*, Vol. 97 No. 1, pp. 17-41.
- Halisah, A., Jayasingam, S., Ramayah, T. and Popa, S. (2021), "Social dilemmas in knowledge sharing: an examination of the interplay between knowledge sharing culture and performance climate", *Journal of Knowledge Management*, Vol. ahead-of-print No. ahead-of-print, doi: [10.1108/JKM-08-2020-0631](https://doi.org/10.1108/JKM-08-2020-0631).
- (2007), in Ichijo, K. and Nonaka, I. (Eds), *Knowledge Creation and Management: New Challenges for Managers*, Oxford University Press, Oxford; New York.
- Intezari, A., Taskin, N. and Pauleen, D.J. (2017), "Looking beyond knowledge sharing: an integrative approach to knowledge management culture", *Journal of Knowledge Management*, Vol. 21 No. 2, pp. 492-515.
- Ipe, M. (2003), "Knowledge sharing in organizations: a conceptual framework", *Human Resource Development Review*, Vol. 2 No. 4, pp. 337-359.
- Jost, J.T. (2019), "The IAT is dead, long live the IAT: context-sensitive measures of implicit attitudes are indispensable to social and political psychology", *Current Directions in Psychological Science*, Vol. 28 No. 1, pp. 10-19.
- Malik, M.A.R., Choi, J.N. and Butt, A.N. (2019), "Distinct effects of intrinsic motivation and extrinsic rewards on radical and incremental creativity: the moderating role of goal orientations", *Journal of Organizational Behavior*, Vol. 40 Nos 9-10, pp. 1013-1026.
- Meriläinen, K., Vuori, V. and Helander, N. (2017), "Inter-organizational knowledge sharing barriers within an SME network: a case study", *Proceedings of the 18th European Conference on Knowledge Management*, Barcelona, Spain, 7-8 September 2017, Academic Conferences and Publishing International, Reading, pp. 690-697.
- Mowday, R.T., Porter, L.W., Steers, R.M. and Warr, P.G. (2013), *Employee-Organization Linkages: The Psychology of Commitment, Absenteeism, and Turnover*, Elsevier Science, Saint Louis.
- Nadason, S., Al-Jaffri Saad, R. and Ahmi, A. (2017), "Knowledge sharing and barriers in organizations: a conceptual paper on knowledge-management strategy", *Indian-Pacific Journal of Accounting and Finance (IPJAF)*, Vol. 1 No. 4, pp. 32-41.
- Nguyen, T.-M., Nham, T.P., Froese, F.J. and Malik, A. (2019), "Motivation and knowledge sharing: a meta-analysis of main and moderating effects", *Journal of Knowledge Management*, Emerald Publishing, Vol. 23 No. 5, pp. 998-1016.
- Nosek, B.A., Banaji, M.R. and Greenwald, A.G. (2002), "Harvesting implicit group attitudes and beliefs from a demonstration web site", *Group Dynamics: Theory, Research, and Practice*, Vol. 6 No. 1, pp. 101-115.
- Nosek, B.A., Smyth, F.L., Hansen, J.J., Devos, T., Lindner, N.M., Ranganath, K.A., Smith, C.T., Olson, K.R., Chugh, D., Greenwald, A.G. and Banaji, M.R. (2007), "Pervasiveness and correlates of implicit attitudes and stereotypes", *European Review of Social Psychology*, Vol. 18 No. 1, pp. 36-88.
- Nosek, B.A., Hawkins, C.B. and Frazier, R.S. (2011), "Implicit social cognition: from measures to mechanisms", *Trends in Cognitive Sciences*, Vol. 15 No. 4, pp. 152-159.
- Obermayer, N. and Toth, V.E. (2019), "Organizational dynamics: exploring the factors affecting knowledge sharing behavior", *Kybernetes*, Vol. 49 No. 1, pp. 165-181.

- Payne, B.K., Vuletich, H.A. and Lundberg, K.B. (2017), "The bias of crowds: how implicit bias bridges personal and systemic prejudice", *Psychological Inquiry*, Vol. 28 No. 4, pp. 233-248.
- Provasnek, A.K., Schmid, E. and Steiner, G. (2018), "Stakeholder engagement: keeping business legitimate in Austria's natural mineral water bottling industry", *Journal of Business Ethics*, Vol. 150 No. 2, pp. 467-484.
- Razzaq, S., Shujahat, M., Hussain, S., Nawaz, F., Wang, M., Ali, M. and Tehseen, S. (2019), "Knowledge management, organizational commitment and knowledge-worker performance: the neglected role of knowledge management in the public sector", *Business Process Management Journal*, Emerald Publishing, Vol. 25 No. 5, pp. 923-947.
- Scholz, R.W. and Steiner, G. (2015), "The real type and ideal type of transdisciplinary processes: part I—theoretical foundations", *Sustainability Science*, Vol. 10 No. 4, pp. 527-544.
- Singh, S.K., Gupta, S., Busso, D. and Kamboj, S. (2019), "Top management knowledge value, knowledge sharing practices, open innovation and organizational performance", *Journal of Business Research*, Vol. 128, pp. 788-798, doi: [10.1016/j.jbusres.2019.04.040](https://doi.org/10.1016/j.jbusres.2019.04.040).
- Steiner, G., Geissler, B., Schreder, G. and Zenk, L. (2018), "Living sustainability, or merely pretending? From explicit self-report measures to implicit cognition", *Sustainability Science*, Vol. 13 No. 4, pp. 1001-1015.
- Steiner, G. (2008), "Supporting sustainable innovation through stakeholder management: a systems view", *International Journal of Innovation and Learning*, Vol. 5 No. 6, pp. 595-616.
- Steiner, G. (2018), "From probabilistic functionalism to a mental simulation of innovation: by collaboration from vulnerabilities to resilient societal systems: comment on 'managing complexity: from visual perception to sustainable transitions—contributions of Brunswik's theory of probabilistic functionalism'", *Environment Systems and Decisions*, Vol. 38 No. 1, pp. 92-98.
- United Nations Development Programme (2020), "COVID-19 and human development: assessing the crisis, envisioning the recovery, UN", doi: [10.18356/161b9678-en](https://doi.org/10.18356/161b9678-en).
- Yang, B., Wang, L. and Mohammed, B.O. (2019), "Improving the organizational knowledge sharing through online social networks: the mediating role of employee motivation", *Kybernetes*, Vol. 49 No. 11, pp. 2615-2632.
- Zbucheá, A., Ivan, L., Petropoulos, S. and Pinzaru, F. (2019), "Knowledge sharing in NGOs: the importance of the human dimension", *Kybernetes*, Vol. 49 No. 1, pp. 182-199.
- Zenk, L., Steiner, G., Pina e Cunha, M., Laubichler, M.D., Bertau, M., Kainz, M.J., Jäger, C. and Schernhammer, E.S. (2020), "Fast response to superspreading: uncertainty and complexity in the context of COVID-19", *International Journal of Environmental Research and Public Health*, Vol. 17 No. 21, p. 7884.

About the authors

Lukas Zenk is an Assistant Professor and Deputy Head of Research at the Department for Knowledge and Communication Management at the Danube University Krems. In his research projects, he investigates how people collaboratively solve complex problems and how creative and innovative processes can be supported. Lukas Zenk is the corresponding author and can be contacted at: lukas.zenk@donau-uni.ac.at

Nicole Hynek is a researcher at the Department for Knowledge and Communication Management at the Danube University Krems and specializes in collaborative problem solving in complex real-world problems research. Her specialized competences lie in the statistical evaluation of data and creating experimental or mixed-method studies.

Noella Edelmann is a researcher at the Department for Governance and Public Administration at the Danube University. Her main research interests are the digital transformation of governments, the use of social media in public administration, the impact of digital transformation on organisations and individuals, as well as Open Access scholarly communication.

Shafali Virkar is a Senior Research Associate at the Department for E-Governance and Administration at the Danube University Krems, specializing in the theory and practice of digital

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government. She studies the political, social and economic implications of ICT, and how these developments impact traditional forms of work and governance structures.

Peter Parycek is Full Professor for E-Governance, Head of the Department for E-Governance and Administration at the Danube University Krems. His research interests focus on the effects of technology on state, society and economy as well as the necessary changes in strategies, policies and in both legal and organizational systems.

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Gerald Steiner is Full Professor of Organizational Communication and Innovation, Dean of the Faculty of Business and Globalization, and chair of the Department for Knowledge and Communication Management at Danube University Krems. He is a former J.A. Schumpeter Professor and visiting scholar at Harvard University's Weatherhead Center for International Affairs.

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