

Factors Facilitating Knowledge Sharing and Transfer in the South African Transport Sector

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Abstract: The success of a modern public sector depends on knowledge sharing and transfer (KST). This study was motivated by the lack of qualitative studies in the public sector to gain in-depth knowledge of the factors which facilitate KST. While KST is acknowledged to be a critical success factor (CSF) for organisational survival, these factors are under-explored in South Africa (SA). This paper reports on an exploratory study undertaken in the SA public sector to identify the formal and informal practice-based factors which facilitate effective KST. The aim of the study is to investigate two research questions, identify antecedent KST factors in the SA and to investigate the enabling factors which facilitate effective KST amongst employees in the public sector. Qualitative data was collected by semi-structured interviews, guided by the antecedent and enabling research objectives. Data was collected from a purposeful sample of managers in the transport sector. The qualitative interviews were analysed by means of thematic analysis, to interpret the data to identify the CSF which facilitate effective KST in the South African public sector. The study identified two categories of CSF, essential antecedent and complementary enabling practices which combine to facilitate effective KST. Knowledge governance factors, knowledge strategy and change management factors were classified as essential antecedent practices. KST motivation factors and KST enablers, trust, culture, rewards, social networks, and adult learning methods were identified and classified as complementary practices. To solve KST problems, the study elaborates on past research and the blend of complementary and essential practices to facilitate KST in the public sector. The study modifies the literature on KST drivers suggesting how essential and complementary enabling factors facilitates KST.

Keywords: public sector; essential factors; complementary factors; critical success factors; knowledge sharing and transfer

1. Introduction

Knowledge management (KM) is recognised as a critical organisational resource, providing public organisations and the public service with competitive resources. According to Edge (2005) it has the potential to modernise the public sector through its renewal processes. The success of KM in the public sector is however dependent on the efforts that public service organisations put in to foster knowledge sharing and transfer (KST) initiatives among individuals, groups, and organisations (Wang and Noe, 2010).

According to Dayan et al., (2017) and Oluike (2012) for KST to be effective, KM must be closely linked to a knowledge strategy because it is the only way to achieve competitive strategy. Zia (2020) supports this view, confirming the importance of a knowledge strategy as an antecedent of effective KM. This literature also confirmed the need for specific KM strategies which combine transactional (managerial knowledge policies) and transformational initiatives (change management) as antecedent KST factors.

Anand et al., (2020) point out that various attempts to deliver KST initiatives have not been effective, while Riege (2005) suggests these exchanges rely on employee willingness and employees' intention to share knowledge. While Zia (2020) points to a knowledge strategy as a critical leadership KST factor, Wang and Noe (2010) however point to the importance of motivation, trust, culture, incentives, and networks as equally critically factors. To date South African KM strategies and practices in state-regional public organisations, defined as a government jurisdiction is an under-investigated area. According to Massaro et al., (2015) factors which facilitate effective KST in the public railway service, have not been systematically investigated. According to Glaser et al., (2019) existing KM learning and policy implementation studies in the railway sector is characterised by traditional engineering, objectivist management approaches. They also argue this area is over-analysed while practice based KST management needs to be studied more deeply. It is a under investigated South African theme in KST. To address the research gap outlined above the following research questions are of interest to the researcher:
RQ1: What are the antecedent KST practices which facilitates KM in the public sector?

RQ2: What are managers' views and perceptions of the enabling factors which facilitate KST in the public sector? The overarching direction of this study is to identify the antecedent and enabling factors in the public sector in South Africa.

2. Literature Review

2.1 Theoretically framing the Study

The researchers critically reviewed the KM literature, to understand and critique the objectivist-perspective on knowledge, a dominant research approach in the transport industry. Hislop et al., (2018) found this literature to be internally focussed on KST. Transport management scholars (Vigar, 2017; Glaser et al., 2019;) concur, a preference exists in the field towards more conventional objectivist engineering centred on internal KM which is more means-end-rationality orientated. According to Hislop et al., (2018) an alternative practice-based perspective on knowledge is new which is a growing perspective, is an under-investigated area.

2.2 Knowledge Management in the Public Sector

knowledge management in the public sector is an important research context which has the influence to improve public sector reform and renewal. Massaro et al., (2015) published work suggest the public sector field is dominated by education research, pointing out the public sector has disincentives for KST, and few articles investigate key public sector organisations where knowledge delivery is more difficult than in the private sector. This requires a distinct focus and agenda. This problem appears worse in Sub-Sahara Africa, which appears to lag in KM implementation compared to developed nations of the public sector (Yum, 2007).

2.3 Knowledge Management Processes and KST definitions

According to Holsapple and Joshi (2000), KM is characterised by four processes - generation, codification, transfer, and application. Zheng et al., (2010) found that three processes have received the most consensus - knowledge generation, sharing and utilisation. This study will deliberately focus on knowledge sharing processes in the South African public sector. According to Alvi and Leidner, (2001) the terms KM transfer, knowledge dissemination, knowledge share and knowledge exchange is used interchangeably in the literature. This study used the terms interchangeably referring to the process as Knowledge sharing and transfer (KST). While KM is considered more important than knowledge, KST is considered the most important and core KM process (Hislop et al., 2018).

2.4 KST Literature: antecedent and enabling factors

A critical review of the KST literature was undertaken to establish a sound understanding of concepts, factors, differences, drivers, and constructs presented by KM scholars. According to Anand et al., (2020) certain individual, organisational and leadership situations unintentionally hide and hoard KST, including competition in organisations. Anand et al., (2020) suggest it is triggered by individual and organisational motivations. While numerous factors influencing KST in the project environment have been explored, Ghobadi, (2015) suggest the field remains fragmented by many divergent efforts. Ghobadi, (2015) based on Leavitt's organisational model, suggests a framework of drivers is needed to integrate the numerous factors in a single framework.

Public sector research on KST antecedents, point to antecedent factors such as knowledge strategies, policies. management support, change management (McDermott, 1999; Kotter, 2012). According to Foss et al., (2010) knowledge governance is an antecedent factor which stimulates KST effectiveness in organisations. This scholar points out formal governance mechanisms may interact in influencing knowledge sharing outcomes, suggesting it is under-researched. No evidence of similar studies undertaken in the South African public sector was identified from the literature reviewed.

These antecedents' contrast with selective enablers, in which Ghobadi (2015) suggest that people factors (both dependence and trust), structure, technology and tasks related factors impact KST in the technology project environment. Scholars (Ismail et al., 2009 and Zhang, 2016) single out trust and culture as significant enablers amongst team members impacts on KST. Ismail et al., (2009) linked trust to the individual motivation factors, including job satisfaction and self-efficiency enablers. On the other hand, Wiewiora (2009) suggests social communication and documented lessons play a role in inter-team KST. Senge (1990) studies points to the importance and application of adult learning principles in knowledge sharing.

According to Karagoz et al., (2020) rewards alone do not suffice as a KST factor. There is however limited KST enabling studies which value collective cultures, a condition for success as in the case of African heritage, in which African ubuntu is a factor which opposes individualism (Woermann and Engelbrecht, 2019). According to Massaro et al., (2015) few authors undertake empirical research in the Public Sector suggesting regional government jurisdictions are understudied.

2.5 Critical Success Factor Literature

This study explored the CSF literature to understand the concept of CSF and its meaning to bring clarity to the use of the term factors. This is to answer the research question- which factors specifically facilitate KST in the public transport sector in SA? The scholar Daniels (1961) uses the term success factors and points out that it differs from company to company and that each industry has a generic set of success factors. Along the same Rockard (1982) supported the concept of success factors in the management literature, defining and popularising the concept of critical success factors (CSF), also pointed out there are two parts to the term ‘critical success factors’ (CSF). Firstly, that CSFs (Critical Success Factors) are key areas of activity that should receive constant and careful attention from management and secondly, that CSFs are the limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance by the organisation. This study will identify a few key factors or areas where things must go right for the rail business to flourish. Bullen and Rockart (1981) emphasis there should be a small number of CSFs for any given manager, preferably ten or fewer.

3. Research Design

To identify the factors which facilitate effective KST, this study adopts an interpretivist philosophical approach. Using purposeful sampling we interviewed three-unit managers after reaching data saturation. Following Saunders (2016) approach the pilot study collected data through English semi-structured interviews which lasted for 45-90 mins. Consistent with the interpretative paradigm (Ponelis, 2015), this study’s strategy of inquiry focused on a single case study, of the Gautrain Management Agency, the only provincial public service with a transport concession in SA. A single case study is employed because of the unexplored nature of KST in a transport concession in SA (Yin, 1984). Braun and Clark’s (2006) six step stages of Thematic Analysis (TA) were adopted during data analysis.

4. Findings

The pilot study’s data informed the developed two themes of factors, antecedent essential factors, and complementary enabling theme of factors. The antecedent knowledge governance factors identified were knowledge strategy and change management. In addition, respondents’ narratives revealed two categories of complimentary enablers - motivation, and several people and organisational enablers. Motivation reflects two types of factors, individual and organisational. Respondents’ narratives pointed to the following enabling factors, trust, culture, social networks, and partnerships; rewards and incentives, including adult learning methods. These antecedent knowledge governance factors and the enabling complementary factors are discussed below. The table below presents a template of the findings.

THEMATIC ANALYSIS LEVEL 1 THEMES	THEMATIC ANALYSIS LEVEL 2 SUBTHEMES
ANTECEDENT THEME A KNOWLEDGE GOVERNANCE FACTORS	ESSENTIAL FACTORS Sub theme 1: Knowledge policy and strategies Sub theme 2: Change management strategies
ENABLING THEME B MOTIVATION FACTORS	COMPLEMENTARY FACTORS Sub theme 1: Individual Motivation Sub theme 2: Organisational Motivation
ENABLING THEME C PEOPLE FACTORS ORGANISATION FACTORS ADULT LEARNING FACTORS	COMPLEMENTARY FACTORS Sub theme 1: Trust Sub theme 2: Knowledge Sharing and Transfer Culture Sub theme 3: Rewards and Incentive system Sub theme 4: Social networks and partnership with organisations Sub theme 5: Adult learning Principles and Methods

Figure 1: Final Template – Themes identified through Thematic Analysis (Braun and Clark, 2006)

5. Discussion

5.1 Theme 1: Knowledge strategy and knowledge management implementation

The first theme which emerged from all participants’ narratives confirmed the presence of several organisational antecedent challenges and strategies. Respondents commented that staff could not leverage existing internal

knowledge from consultants. This theme contributes significantly towards understanding what the key antecedent knowledge challenges were and how the Transport Authorising Company's leadership intervention through the adoption of the knowledge vision, strategy and policy enabled KST. The policy resourced the organisation and empowered management to initiative practice based KST initiatives. This finding confirms previous studies (McDermott, 1999; Foss et al., 2010; Kotter, 2012) that for firms to achieve KM goals, firms need to provide the conditions that activate and facilitate KM. According to Liao and Wu, (2010) these antecedent factors enable and activates KM factors, break obstacles to knowledge share practices and through change management, persuade staff to share knowledge and experience. This finding confirms the importance of the category of antecedent factors and the significance of leadership policy to enable KST.

5.1.1 Subtheme: New knowledge strategy

All participants mentioned the importance of the knowledge strategy of the organisation to overcome the resistance to knowledge sharing. The studies by Guzman (1987) considered and confirmed that knowledge sharing was undermined by hostility in the work environment because of distrust between consultants and newcomers, surrounding the 'expert-inexperience relationships' (Guzman, 2007:197). This was confirmed by the excerpt by a respondent:

'the organisation had lots of consultants when I arrived coming as a permanent employee to work with them. I found staff willing to transfer knowledge but consultants where not willing to share and transfer knowledge. They were probably looking after their own interest and so forth'. (Senior Manager 1b).

Adverse relations are the consequence of various controversies and disagreements in the early stages of the transport concession, respondents considered the environment hostile to KST. This finding provides evidence how firms need to provide the conditions that activate and facilitate KM change. A respondent confirmed this by excerpts below:

'So the first milestone to overcome our challenges was the implementation of a knowledge strategy which required consultants at GMA to transfer the knowledge or needed to have appeared to have transferred knowledge. Most of them did so and also submitted reports of knowledge transferred. It was good because it allowed new commers entering new job functions to look at those reports, they could ask questions then' (Senior Manager 1a).

'So, after the whole strategy thing the second milestone was the structure to support the knowledge transfer, it was then that the knowledge management unit was established, one of the goals was to make sure consultants and staff took active roles in transfer of knowledge' (Senior Manager 1 c)

5.1.2 Subtheme: Implementing Knowledge Management Change

Several participants highlighted and confirmed leadership commitment to change to implement a new business strategy. They cited the action and commitment from leaders in line with Kotter's (2012) change management theory. During the literature review process this theme was identified but was not associated with knowledge exchange hostility in the workplace. The participants highlighted the importance of leaders in the organisation to share the KM vision, the change strategy to communicate the benefits of KST. This study confirms Kotter's (2012) stages of large-scale change underway, suggesting as participants mentioned that staff need a clear and inspiring change vision from leaders why individuals and the organisations benefit from KST and how KM hoarding affects all. A respondent confirmed this vision for change referring to the CEO of the Case organisation change management message.

'Jack our CEO has a clear philosophy around knowledge sharing. He once said that he wanted the organisation to become a knowledge centre where people can come to the GMA and Gautrain to learn from us. I think that influenced our strategy and approach to informal organisational practice and knowledge sharing. That approach of Jack was always based on his vision and change approach. He would say it and we as a team had to make it happen' (Senior Manager 1c)

5.2 Theme 2: Knowledge sharing and transfer motivation

This second theme of motivation emerged throughout the participants narratives as an enabling factor. They all intentionally mentioned why people who share knowledge must be motivated and why those receiving it must also be motivated to accept it. This finding links and flows with theme 1 as an essential practice dimension (Joyce, Norhia and Robertson, 2003; Joyce, 2005). Motivation was modified through several stages of the thematic

analysis. Several participants confirmed, Vinarski Peretz (2020) views that motivation is a key determinant of work-related behaviour. Respondents mentioned motivation is an internal individual factor and can be driven by external organisational factors. The sub themes 'individual motivational practices' and 'organisational motivational practices' respectively were identified, and its benefits explained. Respondents' data confirmed Feher and Gabor (2006), views that individual motivation derives from mindsets and emotions, while their organisational KST motivation is associated with how established the affiliation is between them and others within the organisation. A respondent in one of the interviews highlighted this experience. '

'I was given a clear role as the executive head of knowledge management; this role was also defined in the GMA act which required the establishment of structure and so that I could contact partners to access knowledge. This was very affirming early on in my job. My staff was also given clear roles and functions to support knowledge management' (Senior Manager 1b).

5.3 Theme 3: Knowledge sharing and transfer enablers

The second objective of the study focus on identifying enablers drawing on Wang and Noe's (2010) framework, in which he identified 28 KST drivers classified into four categories (individual organisational and technology). Respondents highlighted, confirmed several significant enablers, and introduced a new enabler, adult education principles (Knowles (1984).

5.3.1 Subtheme: Trust

Manager's responses and narratives consistently revealed the importance of trust. Participants did not report it as a barrier. Several respondents commented positively on organisational trust for KST, they felt the industry needed to do more to welcome and trust Black newcomers and not fear that they will take experienced professionals' jobs. Studies and work by several scholars point to the significance of trust as a key ingredient in the road map to retain scarce skills and facilitate KST to newcomers in the transport and concession construction industry (Saini et al., 2018). Participants mentioned the importance of prior ties where prior work experience creates social relations and trust. It confirmed social exchange theory (Wang and Noe, 2010). Several participants have mentioned how they experienced trust, some saying it is built on the readiness of individuals to rely on the actions of others and how this trust can potentially compromise other actions to share or not share knowledge. This sub theme was supported by several managers, respondent told their trust story in the excerpt below.

'Trust in the types of knowledge relationships is critical. You need to trust who you share information with. This includes the network partners you have and know, if you can trust this partner to share confidential GMA strategies, you do not have to rely on a non-disclosure arrangement before partnership starts, so trust plays a significant role' (Senior Manager 1c).

5.3.2 Subtheme: Culture

This subtheme was recurring across all narratives during thematic analysis (TA). It was provided as another reason which encouraged KST in the case organisation. Many said it was the insurance for KST. One responded referred to the work of Hofstede and Hofstede's (2005) cultural dimensions, suggesting it must be considered across the public sector and transport sector to understand diverse cultures. Respondents clarified what they believe exactly constitutes a knowledge sharing culture and why it facilitated effective KST. Managers highlighted several personal concerns and issues with regards to culture, some believed it was working well others saying more can be done. During the main study, this factor will be explored in more detail, to understand what culture practices must be retained or changed to ensure effective KST. However, all respondents mentioned the need to shift towards a storytelling culture. This practice-based method may offer new insights into culture, storytelling and KST effectiveness (Hislop et al., 2018). Managers highlighted the following importance about culture in the excerpt below.

"The killer of knowledge management has been the culture of silo's; its anti-knowledge and the antidote has been the knowledge management unit which has been mandated to create a new knowledge culture' (senior manager 1 a).

5.3.3 Subtheme: Rewards structures and incentive system

Some respondents mentioned this factor. It emerged as a recurring theme, however respondents presented contrasting views on incentives. Some suggested policy offers a solution to motivate knowledge sharing, while another suggested less contractual incentive policy arrangements arguing people must be personally motivated to share. This sub theme was included in the a priori list. Several studies related to reward structures and

incentive systems revealed that sharing and reusing knowledge whether its explicit or tacit does not happen automatically (Roberson, Sorensen, and Swan, 2001), people they suggest must be incentivised. To overcome these barriers studies, suggest incentives systems, including both rewards and options including career development (Werr, 2013). Several managers in the company commented extensively in support of this factor. Wang and Noe (2010) suggest social exchange and social capital theories fit well with rewards because promotion, bonus, and higher salary is shown to be positively aligned to the frequency of knowledge contribution, it also improves KST. One manager in the company commented in support of rewards and incentives.

'Incentivising people to engage in knowledge sharing is important and is the big question that comes up not only in the GMA but in many organisations, knowledge management is seen as an extra on top of work that people need to do, therefore they don't see the value in doing it, so most organisations is pushing for rewards and incentives.' (Senior Manager 1a).

5.3.4 Subtheme: Social Networks and Partnership

All respondents confirmed the social network and partnership subtheme. KST, they suggest is increasingly effective and evident through various university formal organisational partnership and related networks at the case organisation. All respondents confirmed they had social networks which provide them access to various technical and social support, professional insights, and resources (Wang and Noe, 2010). They all reported unit related social networks and community of practice groups, which have been enabled by boundary-spanning communication between givers and receivers of knowledge (Cummings and Teng, 2003). All the respondents referred to the growing list and varying types of partnership which facilitates KST. A senior manager confirmed this finding through their lived experience below.

'For me informal organisational networks mean opportunity, the chance to interact, to learn and share...Our partnerships and networks in which we share information with external parties, to me is effective. These social networks are critically important' (Senior Manager 1b).

5.4 Subtheme: Adult learning and methods

All pilot respondents highlighted this subtheme. Senge's (1990) work on the learning organisation support the importance of this learning method during KST. According to Senge (1990) his study confirms the importance and application of adult learning principles. Respondents pointed out how they valued self-learning through the knowledge share sessions. Respondents confirmed how it offered them contextual control during KST. Respondents referred to how motivating self-directed learning was, as evident by Knowles' (1984) research and work. Some respondents mentioned that employees are responsible for their own lives and self-directed learning. These strategies according to several participants promoted interaction between theory and practice, and consistently mentioned the many case studies in which they captured the learnings on doing a concession in the transport sector.

6. Conclusion

This research study met the aims of the pilot study and its two objectives as set out in the introduction of this paper. The first objective was to critically investigate and identify the antecedent themes and related factors. The study clarified and identified the antecedent themes knowledge management and change management factors. The second objective was to examine CSF to identify the factors which facilitates effective KST. This study investigated and identified factors which facilitates KST in the transport public service.

The study confirmed the antecedents, knowledge policy and change management. It contributed to the identification of a fifth enabler, building on Ghobadi's (2015) existing four enabling drivers (people related, structure related, task related, and technology related). It also suggests an optimistic interaction between antecedent and enabling drivers. More research during the main study is needed to understand how the antecedent and enabling factors integrate to facilitate KST.

According to Orłowski's theory (1992) of interaction between people, organisations and technology related factors, integration of these antecedent and enabling themes contribute towards effective Knowledge exchange. This pilot study presents a starting point for transport practitioners, to identify and embed KST practices. Further research in the main study is required to understand and address how these categories of factors combine to facilitate effective KST through the case study method.

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