

Organisational Factors Affecting Knowledge Retention in a Public Organisation

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Abstract: Knowledge is a strategic resource for any organisation to maintain optimal operational efficiency and competitiveness. Knowledge could be in the knower's mind (tacit) or codified and stored in knowledge repositories for retrieval when needed (explicit). Knowledge retention in organisations is becoming a global concern as the shortage of professionals or knowledge workers persists. Organisations over the years have focused on investing in activities leading to knowledge creation, improving technological capabilities, and increasing performance with less attention given to knowledge retention. The Covid-19 pandemic has exacerbated this concern leading to the exit of more knowledge workers from organisations voluntarily or involuntarily. The current study seeks to investigate the role of organisational factors on knowledge retention in public organisations using the water sector in a South African metropolitan city. This study seeks to deepen the knowledge management scholarship by viewing knowledge retention as a system rather than a process or strategy only, as explored by most studies. The water sector is a knowledge-driven sector that utilises heterogeneous knowledge (engineers, hydrologists, technicians, IT specialists) to achieve its mandate, making it information and knowledge-rich. This study intends to use the knowledge-based view as a sensitising lens to explore how a public organisation systemically integrates and coordinates its heterogeneous knowledge resources to ensure that knowledge is retained as well as maintain optimal operational efficiency. The basic assumptions of the knowledge base view are that knowledge is the most strategic resource in an organisation, and its coordination facilitates optimised efficiency. The study will adopt a pragmatist paradigm to uncover the role of organisational factors on knowledge retention. A purposive sample of supervisors and managers in the water sector will be interviewed. Qualitative data will be collected, and qualitative methods will be used to analyse the data.

Keywords: knowledge retention, knowledge management, organisational factors, knowledge-based view, public organisation

1. Introduction

Knowledge retention in organisations is fast becoming a global concern as shortage of professionals or knowledge workers persist (Sumbal *et al.*, 2018; Levallet and Chan, 2019). Knowledge is a strategic resource for organisations to achieve their mandate in the current knowledge driven economy. As a matter of priority, organisations make investments (time and finances) in their knowledge workers for a high-level operational efficiency (Robert M. Grant, 1996; Levy, 2011). Consequently, the departure of knowledge workers voluntarily or involuntarily can lead to knowledge loss, decreased revenue and poor operational efficiency of such organisation (Martins and Meyer, 2012; Lin, Chang and Tsai, 2016). To mitigate these potential adverse effects, knowledge retention is critical. Organisations over the years have focused on investing in activities leading to knowledge creation, improving technological capabilities, and increasing performance with less attention given to knowledge retention (Sumbal *et al.*, 2018). Recently studies on knowledge retention have received traction and have examined knowledge retention phases, the effect of knowledge retention, mitigating knowledge loss due to employee exit (Lin, Chang and Tsai, 2016; Levallet and Chan, 2019). Fewer studies exist showing the role of organisational factors on knowledge retention. This study is designed to fill this gap and provide an in-depth understanding about the role of organisational factors on knowledge retention in a public organisation using a South African metropolitan department of water and sanitation (water sector hereafter) as a case.

The main research question this study seek to answer is How do organisational factors affect knowledge retention in a South African water sector? The main objective is to understand the dynamic roles of organisational factors on knowledge retention in a South African water sector. Other objectives are (i) to identify the strategies used by the water sector to retain knowledge as an organisation, (ii) to identify the predominant organisational factors that facilitate knowledge retention process in the water sector, and (iii) to explain the role of information communication technologies in knowledge retention in the water sector.

The rest of the paper is organised in the following order: the next section presents the literature review, section three highlights the theoretical consideration for this study. Section four and five outline the proposed research methodology and the potential contribution of this study.

2. Literature review

2.1 Overview of Knowledge Management

Knowledge management (KM) is a process that systematically facilitate generating, organising, sharing, and applying knowledge to achieve a set of goals in an organisation (Alavi and Leidner, 2001; Jasimuddin, 2006). It is an aspect of strategic Information Systems (Jasimuddin, 2006). One of the core purpose of KM is to retain knowledge within an organisation which mitigates the undesirable effects of the exit of a knowledge worker and subsequent knowledge loss (Levy, 2011; Lin, Chang and Tsai, 2016). A knowledge worker is a custodian of organisational knowledge which is considered to be an asset comprising of individuals' skills, experiences, values, and norms (von Krogh, Nonaka and Rechsteiner, 2011). Knowledge can either be tacit (in the mind) or explicit (codified and stored in repositories) (Alavi and Leidner, 2001). Knowledge management was developed as a strategy to benefit private organisations to maintain competitiveness but it has also become pertinent for public organisations to enhance their operational efficiency (Moollan, 2004; Massaro, Dumay and Garlatti, 2015; Pee and Kankanhalli, 2016). This study primarily focuses on management of tacit knowledge, however, not limited to it.

2.2 Knowledge Management in Public Organisations

It has been shown in the literature that a systematic application of KM is scarce in public sector organisations and where traces are found, they are either in isolation, not coordinated, informal, undocumented or rarely communicated (Moollan, 2004; Ndiege and Wamuyu, 2019; Ncoyini and Cilliers, 2020). This situation is further aggravated by the general lack of institutional policy and frameworks to support knowledge management in the public sector (Ndiege and Wamuyu, 2019). The prevalence of the described complexity makes the public organisation lose much of its knowledge competencies, especially that it is the largest employer of labour and majority of its functional knowledge is tacit (MacGillivray, 2018; Sandelin, Hukka and Katko, 2019; Suresh, Renukappa and Kamunda, 2019).

In public organisations knowledge is managed contextually (Mc Evoy, Ragab and Arisha, 2019). For example, the water sector manages knowledge differently from an educational sector (Lin, Chang and Tsai, 2016; Sandelin, Hukka and Katko, 2019). Some factors that differentiate organisations are the presence or absence of information systems, the difference in organisational culture and structure among others (Lin, Chang and Tsai, 2016; MacGillivray, 2018; Sandelin, Hukka and Katko, 2019). Agarwal & Marouf (2014) opined that people, technology, culture, and process are four basic resources necessary for effective KM. The impact of these factors on KM also differ geographically (Ashok *et al.*, 2021). The importance of investigating more public organisations to enrich current understanding about the dynamics of KM such as knowledge retention to provide a robust scholarly discussion is argued for in the literature (Pee and Kankanhalli, 2016; Mbhalati, 2017; Ashok *et al.*, 2021).

2.3 Knowledge Retention in Organisations

Knowledge retention entails identifying, capturing and storing specific knowledge from the mind of a knowledge worker for use even when such worker is unavailable (Levy, 2011; Martins and Meyer, 2012; Levallet and Chan, 2019). Employee exit is mostly characterised by gaps in operation because employees leave with more than they know (Farooq, 2021). Studies are beginning to emerge exploring the dimensions of knowledge retention in relation to factors affecting it. For example, Raudeliūnienė, Davidavičienė, and Petrusevičius (2018) revealed five main factors affecting knowledge retention in the military to include organisational, knowledge content, human, technological and financial. Farooq (2021) showed that knowledge retention is less in organisations with a complex organisational structure. Bairi, Manohar, and Kundu (2011) examined why IT based organisations implement knowledge retention. Other scholars highlight the complexity of retaining knowledge within an organisation to be associated to lack awareness about the consequences of losing knowledge by management intentionally or unintentionally, thereby leading to difficulty in persuading them to see the benefit of embarking on knowledge retention initiatives (Levy, 2011; Levallet and Chan, 2019).

Understanding an organisation's structure is one of the factors considered important in managing and retaining knowledge. Organisational structure defines the role and duties of individuals as well as the direction of information flow across different tiers of management within an organisation (Farooq, 2021). The organisational

structure in public organisations has been characterised by a complex intersection of human and cultural elements, negative attitude toward change, lack of appreciation of personal contributions, rigid bureaucratic relationship where most times employees only receive directives and are rarely given chances to make input to daily organisational operations (Nonaka, 1994; Moollan, 2004; Mbhalati, 2017; MacGillivray, 2018; Farooq, 2021). MacGillivray (2018) noted that managers in public organisations increasingly face the challenge of managing employees with diverse sociocultural experience and understanding. It is, therefore, important that managers understand the nature of their organizations to manage and retain the knowledge effectively (Farooq, 2021). Since organisational structure sets the boundaries of employee duties, it suggests that it influences the cultural setting of an organisation.

Culture refers to the basic assumptions guiding an organisation and is expressed explicitly through organisational handbooks and implicitly in the daily activities or routines of employees (Nonaka, 1994). Ineffective organisational routines and standard operating procedure leads to knowledge loss (Daghfous, Belkhodja and Angell, 2013). In many instances, a standard operating procedure serves as a backup for organisations to move on when an employee exit, however, they are missing or not properly implemented (Daghfous, Belkhodja and Angell, 2013; Farooq, 2021) in public organisations. Culture contributes to the way information and knowledge are processed within organisations (Ashok *et al.*, 2021), thereby affecting knowledge retention in an organisation. Furthermore, an organisation whose culture does not support the use of information and communication technologies (ICTs) to facilitate KM potentially increases the risks of knowledge loss (Zhang and Venkatesh, 2017; Levallet and Chan, 2019).

Organisations invest some much resources in acquiring ICTs and the requisite skills for maintaining them (Sumbal *et al.*, 2018). ICTs have been used to enhance KM activities such knowledge storage, transfer, and sharing (Bairi, Manohar and Kundu, 2011; Levallet and Chan, 2016; Zhang and Venkatesh, 2017; Zimmermann *et al.*, 2018). Zhang and Venkatesh (2017) found that ICTs used in knowledge sharing improved job satisfaction and performance. Zimmermann *et al.* (2018) showed that communication was the core use of ICTs in knowledge sharing. ICTs in themselves are necessary but not sufficient in themselves to driving operational efficiency, therefore, ICTs serve as complimentary tools for achieving efficiency (Pee and Kankanhalli, 2016). Interestingly, the use of ICTs in knowledge retention was found to lead to unintentional loss of knowledge (Levallet and Chan, 2016). They Levallet and Chan (2016) explained that while trying to retain knowledge in accessed controlled repositories in a public organisation, knowledge can be lost. This loss occurs because knowledge sits in repositories and is inaccessible by workers who potentially stand to benefit from accessing it. The inability to access such knowledge makes such knowledge unusable as long as those who need it are unable to access it and thus lead to knowledge loss. They further explained that the lack of unified formatting procedure to store knowledge, lack of transparency in knowledge storage which leads to siloed storage contribute to knowledge loss. They refer to this phenomenon as the “paradoxical role of IT”. It remains unclear how organisations engage ICTs such that knowledge is continually accessed by other knowledge workers when a knowledge worker exits an organisation especially in the public organisations.

2.4 The Current Study

The water sector in South Africa is mainly run by the government of South Africa (National Government) under the Department of Water and Sanitation (DWS) (Department of Water and Sanitation, 2020). The Department of Water and Sanitation has the constitutional responsibility of managing the water and sanitation needs of South Africa (Department of Water and Sanitation, 2020). Municipalities in the country are responsible for providing water related services to the citizens (Amoako, 2019). Like other countries 70-95% of its functional knowledge is tacit (Sandelin, Hukka and Katko, 2019; Department of Water and Sanitation, 2020). Phaladi (2011) investigated knowledge transfer and retention in a South African public water utility focusing on retirees, suggested that an accurate diagnosis of organisational culture, structure and leadership will go a long way towards cultivating a knowledge sharing culture. Moollan (2004) recommended further studies to investigate the KM system of a municipal’s water sector. To the researcher’s knowledge, this gap still exists and the knowledge-based view (Robert M. Grant, 1996) will be used as a fundamental theoretical lens to guide this study.

3. Theoretical Consideration

3.1 Knowledge-Based View (KBV)

Knowledge-based view is an organisational theory with an underlying assumption that knowledge is the most strategic resource an organisation can leverage for achieving efficiency and competitiveness (Robert M Grant, 1996; Robert M. Grant, 1996). It emphasises that without knowledge other resources in an organisation cannot be developed such that efficiency and competitiveness are optimised. Efficiency and competitiveness are only achieved when knowledge is integrated and coordinated appropriately within an organisation (Robert M Grant, 1996; Robert M. Grant, 1996). At the core of KBV is the efficient integration of knowledge within an organisation (Robert M. Grant, 1996). Since public organisations are not profit driven, but efficient driven (Ashok *et al.*, 2021), the KBV suits this study. The aspects of the KBV applicable to this study includes coordination within an organisation, organisational structure, and the role of management.

3.2 Concepts of the KBV and its relation to the Current Study

3.2.1 Coordination within the Firm

One of the assumptions of KBV is the existence of heterogeneity of specialised knowledge such as is found in professionals needed for the achievement of organisational goals, what Robert M. Grant (1996) refers to as “production” (Robert M Grant, 1996; Robert M. Grant, 1996). The author argues that the gain from specialised knowledge is at the core of having a blend of specialised knowledge in an organisation (Robert M Grant, 1996). Robert M. Grant (1996) further argues that organisational theories lack rigour in examining the coordination of specialised knowledge hence the peculiarity of this aspect of organisational operations. Coordination within an organisation is hinged on the mechanisms that enable knowledge integration for production. This follows organisational routines, standard procedures and so on in executing individual and specialised knowledge activities that lead to delivering the desired product or service (Robert M Grant, 1996; Daghfous, Belkhodja and Linda, 2013); service in this study because the water sector provides services. The routines, for example, are embedded in the organisational culture. If there are hierarchical ways (best practices) of performing a task in the water sector, this could facilitate knowledge retention. The hierarchy in this context is not authority-based but process-based (Robert M Grant, 1996). For example, if there is a leakage in an area that needed to be fixed, who will be the first point of call to address the leakage – hydrologist, engineer, or technician? Such routines as well could be affected were an employee exits and no one or some documents show how things get done (Daghfous, Belkhodja and Linda, 2013). Knowledge integration is facilitated by “(i) *The efficiency of integration – the extent to which the capability accesses and utilises the specialist knowledge held by individual organizational members*; (ii) *by the scope of integration – the breadth of specialized knowledge the organizational capability draws upon*; (iii) *the flexibility of integration – the extent to which a capability can access additional knowledge and reconfigure existing knowledge*” (Grant, 1996a p.380). The coordination within an organisation is not limited to the knowledge integration found in routines but to the type of cultural setting operational in an organisation. There are several dimensions to culture and its implications to coordination such that knowledge is retained.

3.2.2 Organizational Structure

Another assumption of the KBV is that organisations exit to integrate heterogenous knowledge, implying that the hierarchy and decision-making rights reside in the organisational structure. Hierarchy in organisational structure is authority-based (Robert M. Grant, 1996). Organisational structures that are more bureaucratic achieve knowledge integration through rules and directives. In a typical bureaucratically structured organisation, rules and directives flow downwards from the top (Robert M. Grant, 1996; MacGillivray, 2018) but this notion should not be what drives a knowledge base organisation (Robert M. Grant, 1996). For knowledge-based organisations, “*rules and directives exist to facilitate knowledge integration*” (Grant, 1996b p.118). Grant (1996b p.118) further states that: “*knowledge-based view suggests that, to the extent that 'higher-level decisions' are dependent upon immobile 'lower-level' knowledge, hierarchy impoverishes the quality of higher-level decisions*”. This implies that the higher-level decision makers are incapacitated in their ability to deliver if they do not have a requisite specialised knowledge required to perform a task. For example, the leak example, if a manager or a team lead requires several specialists to fix the leak and there is shortage of specialists, the quality of decision made by the manager or team lead may be impoverished especially if such shortage is persistent. The implications of organisational structure could be examined vertically (top-down) and horizontal (intra and inter team relationship) (Robert M. Grant, 1996).

3.2.3 Distribution of decision-making rights

In terms of the distribution of decision making rights in managing knowledge within an organisation, there are two implications “decision rights and ownership” and “co-location of decision making and knowledge” (Robert M. Grant, 1996). The former is concerned with the autonomy of knowledge by the owner and its terms of usage within an organisation (Robert M. Grant, 1996; Zhang and Venkatesh, 2017). As an employee, organisations contract such knowledge to use and do not own the knowledge as they would other physical or financial assets (Robert M. Grant, 1996). In this study, the government is the custodian/owns the organisation and operate it according to government guidelines and policy guiding public organisations. When employees are accorded autonomy to their knowledge and incentivised, there is likelihood of encouraging activities that will retain knowledge (Zhang and Venkatesh, 2017; Amoako, 2019). The water sector may be slacking in the practise of balancing between ownership and decision rights as found by Amoako (2019). The co-location of decision making, and knowledge is concerned with the types of decisions and knowledge that are centralised and decentralised within an organisation. For example, quantifiable knowledge (explicit) can be accessed centrally while tacit knowledge like investment appraisal, should be decentralised (Robert M. Grant, 1996).

In summary, the KBV focuses on the internal operations of an organisation rather than external placement of the organisation. It assumes that the efficient integration of the knowledge resources in an organisation can affect the external outlook of an organisation. This integration is achieved through the coordination of an organisation, organisational structure, and distribution of decision-making rights. This theoretical consideration shall guide this study.

4. Research Methodology

The choice of philosophical assumptions, research methods adopted for this research and their justifications are presented in this section.

4.1 Research Philosophy

The concept of research philosophy is fundamental for Information Systems (IS) research because it impacts how a researcher (i) understand the research questions, (ii) chooses the methods to implement in the research, (iii) interpret findings and (iv) presents the knowledge developed from the research to the scientific community (Gregor, 2006; Blaikie and Priest, 2017). The two philosophical standpoints broadly known for scientific research are ontology and epistemology (Blaikie and Priest, 2017).

Ontology is the study of the nature of reality, while epistemology refers to the way knowledge is created, in other words, how new knowledge is legitimised. The ontology and epistemology adopted for this research is pragmatist (Goldkuhl, 2004; Blaikie and Priest, 2017). Pragmatism has been considered suitable to provide explanation to improve both research and practice in the IS domain (Goldkuhl, 2004). Applying pragmatism to this research allows me to use the most suitable way of collecting and analysing data – quantitatively, qualitatively or both as well as approach – inductive, deductive, abductive or retroductive (Blaikie and Priest, 2017). In making sense of data, pragmatism seeks to make interpretations of findings beyond theoretical value to include more importantly practical value; implying that actions lie at the core of pragmatism (Goldkuhl, 2004). In this study, the concept of knowledge retention will be approached as such. The findings from this study does not aim to only satisfy the theoretical discourse but practical implications of the identified organisational factors on knowledge retention. Applying pragmatism in my opinion suits this study more so because the water sector is a practical than theoretical organisation. Notwithstanding, rapt attention will be given to the theoretical values this research can leverage on.

4.2 Research Methods

This section highlights the research methods I intend to use in generating empirical data to answer the research questions; these steps include the research purpose, the choice of research strategy, data collection and data analysis as well as sampling technique.

The purpose of the research is exploratory and explanatory. It is exploratory because knowledge retention is gaining traction in the KM literature. The involvement of different hierarchy/categories of participants (see participants sampling in the next section) is further expected to enrich the exploratory aspect of this (Voss, Tsikriktsis and Frohlich, 2002). The study is explanatory because it seeks to explain the role of organisational factors in knowledge retention in a public organisation. The research strategy considered for this study is a single case study using a South African’s municipal water sector. A single case study with different units of analysis is

appropriate for this study as it seeks to generate an in-depth understanding of how knowledge retention is understood and approached in a public organisation (Voss, Tsikriktsis and Frohlich, 2002; Yin, 2015). Furthermore, since the study seeks quality than quantity, the case study strategy suits this goal.

The primary data collection method adopted for this study will be the qualitative method. Qualitative data will be collected using semi-structured interviews. The interview questions will thoroughly be developed using the Information Systems, organisational management and qualitative research literature as guide (Voss, Tsikriktsis and Frohlich, 2002; Goldkuhl, 2004; Yin, 2015). The interview will be held either virtually using MS Teams or physically, depending on the preference of the interviewees and the corresponding COVID-19 protocols in place at the time of the interview. The interview responses will be recorded, transcribed and analysed thematically consistent with the qualitative data analysis procedure such as compiling, disassembling, reassembling, interpreting and drawing conclusions (Yin, 2015). The data analysis will guide in identifying the predominant organisational factors that affect knowledge retention. Other data sources include literature and documents from the South African metropolitan water sector. I will be using a purposive sample of managers and team supervisors in the water sector. Purposive sampling is a non-probabilistic technique that allows a researcher to have criteria for selecting research participants (Voss, Tsikriktsis and Frohlich, 2002). For this research, criteria such as length of service, area of specialisation and specialised department will be considered in determining the research participants as suggested by the literature (Voss, Tsikriktsis and Frohlich, 2002; Yin, 2015). The listed criteria has been identified in the literature to increase the richness and integrity of data collected in research (Voss, Tsikriktsis and Frohlich, 2002). The findings from this study does not seek generalizability because the context within which this study will be conducted completely differs from other public organisations.

4.3 Ethical Considerations

The primary consideration for this research is gaining ethical clearance to collect data in the selected South African metropolitan municipality. Due process will be followed to gain ethical clearance from the University and the water sector. An important ethical consideration is conflict of interest where the research findings may turn out to be unfavourable to the organisation and the organisation becomes unwilling for such findings to be made public to the scientific community (Walsham, 2006). To mitigate this potential problem, the researcher intends to have a signed undertaking with the organisation before the commencement of data collection noting that the research findings would be reported and published. Other ethical considerations such as obtaining informed consent and ensuring the confidentiality, anonymity, and dignity of research participants will be secured (Cilliers and Viljoen, 2021).

5. Potential Contribution

5.1 Theoretical

Theoretically, this research will

1. Contribute to scholarly discussion about i) KM in general, and ii) knowledge retention specifically, in Information Systems.
2. Provide a multilevel theorising (team and organisational level) about KM in a public organisation.
3. Contribute to the understanding and application of the KBV in information systems discipline.

5.2 Practical

This research will identify the predominant organisational factors that affect knowledge retention in the water sector in a South African metropolitan municipality. The evidence from this study can assist in strategising the water sector's knowledge needs such that its operational efficiency remains optimal even when an employee leaves. The research will further provide insights to the concerns raised in the DWS report in 2020 and guide policy formulation and implementation on knowledge retention.

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