

# Understanding Knowledge Sharing in an Organization: A Perspective of Actor-Network Theory

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## ABSTRACT

This paper set out to propose the actor-network theory (ANT) as a lens through which to understand and interpret the sociotechnical knowledge sharing challenges in organisations. The methodology for this study was developed within the context of ANT by adopting its ideals and principles. The findings demonstrate that using the concept of the Moments of Translation as a lens to study this phenomenon is indeed a novel way of investigating the reason why there is still difficulty with sharing and managing knowledge. This perspective is proposed to transform the way that knowledge sharing factors are perceived. By utilising a normative approach, this research looked at how knowledge sharing as an ideal can be achieved when taking into account the existing constraints within an organisation. A general framework is proposed to guide the formation of a network of aligned interest for knowledge sharing.

## KEYWORDS

Actor-Network Theory, Higher Education, Knowledge Management, Knowledge Sharing, Sociotechnical Factors

## INTRODUCTION

This qualitative-based knowledge management study is an approach to research that facilitates the understanding of a social construct within the context of knowledge management using Actor Network Theory (ANT). As a social theory, ANT can be used as a lens through which to interpret the phenomenon of knowledge sharing challenges in organisations. Although knowledge management can be studied by a variety of lenses, this paper argues that it can well be understood through the single lens of the concept of Moments of Translation of ANT. Knowledge management was conceptualised in the 1980s, but still draws significant attention in research and industry today (Baskerville & Dulipovici, 2006). The effective management of knowledge seems to be a primary concern for organisations in various industries and in academia due to the value that an organisation can derive from knowledge (Malik, 2005; Lubega, Omona & Van der Weide, 2010; Sulisworo, 2012; Tan & Wong, 2015). Knowledge is considered to be a valuable asset as it can improve performance in terms of productivity, efficiency and effectiveness, thus enabling an organisation to be more competitive (Holsapple, 2001; Liao, 2003; Bush & Tiwana, 2005; Durcikova & Gray, 2005; Hewett & Watson, 2006; Lubega et al.,

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2010). However, such benefits are not derived from knowledge management unless organisations manage their knowledge efficiently (Meso & Smith, 2000). Knowledge is context-specific because it is derived from the accumulated individual experiences of employees within an organisation (Chen & Mohamed, 2010). Various methods, techniques and tools are employed to harness the knowledge of individuals through capturing, storing, sharing and using of knowledge (Lee, 2001; Liao, 2003). However, these techniques do not guarantee the flow of knowledge and social structures make it difficult to manage these processes (Lauring & Selmer, 2012). This is why knowledge management strategies are so widespread (Davenport & Prusak, 2000; Hislop, 2013).

The question, then, is why after all these years are organisations, including academia, still struggling to share and manage knowledge? Given the works of Chen & Mohamed (2010), Lee (2001); Liao (2003), Polanyi (1967), Hong, Kim & Suh, (2012) and Lauring & Selmer (2012), it is agreeable to consider individuals creating the accumulated knowledge as actors in a network of aligned interest. This paper argues that knowledge sharing is influenced by facilitating factors of technology, processes, and a knowledge sharing strategy (Twum-Darko & Harker, 2015) which form part of a network of aligned interests to share the accumulated knowledge. Given the contextual and sociotechnical nature of knowledge sharing, this paper employs the actor-network theory (ANT) as a methodology to understand and interpret the sociotechnical processes of knowledge sharing challenges in organisations. The paper draws on the findings of an interpretive case study conducted at a selected University of Technology in South Africa.

## **OVERVIEW OF LITERATURE REVIEWED**

Barriers and facilitators constitute the core themes within knowledge sharing literature (Schauer, Vasconcelos & Sen, 2015). This is due to the need to understand the factors that influence knowledge sharing for its stimulation and to manage knowledge sharing processes more effectively (Ma, Huang, Wu, Dong & Qi, 2014). Even though the literature highlights individual, organisational and technological factors as the most important enablers for knowledge sharing, the relationship between these factors need to be explored (Cavaliere, Lombardi & Giustiniano, 2015). Consequently, studies on knowledge sharing have spanned several decades (Alavi, Kayworth & Leidner, 2006; Bontis & Serenko, 2009; Ma & Yu, 2010). The review of current literature suggests that findings are divergent, but there is consensus that individual and organisational factors determine the success of knowledge sharing (Israilidis, Siachou, Cooke & Lock, 2015). This speaks to the very contextual nature of knowledge and the individuals that are central to knowledge sharing. While individual (or personal) factors are found to significantly affect knowledge sharing, organisational factors, such as management, structure and cultural influences, are found to be influential too (Israilidis et al., 2015). Whether barriers are considered in terms of individual factors, or environmental (organisational) factors, their applicability spans different countries, industries and organisation types and sizes (Martin, 2000; Chuang & Hung, 2009; Ma et al., 2014).

While there are several perspectives to knowledge management literature, people, processes and technology constitute the core components of these perspectives (Carayannis & Alexander, 2002). In addition, more recent studies have alluded to the lack of institutionalisation and the failure to develop proper knowledge management strategies, to influence knowledge sharing too (Fong & Lee, 2009; Khalil, 2012).

Studies on knowledge sharing have either been undertaken at the organisational level, individual level or a combination of the two (Schauer et al., 2015). Studies focusing on one or the other present limitations on how to provide guidelines for knowledge-sharing practices, as individuals' perceptions about knowledge sharing are not nearly enough to address willingness to share knowledge and the organisational perceptions about knowledge sharing are inherently abstracted. While organisations must pay attention to individual enablers to foster effective knowledge sharing, knowledge is found not only to be embedded in individuals, but also in the organisational and technological domains (Cavaliere

et al., 2015). Furthermore, focusing on the interplay between the individual and organisational level may reveal problems of integration between hierarchical structures within the organisation. This will ensure that the organisation designs their knowledge sharing processes to align to the environment and the necessary levels of interaction (Cavaliere et al., 2015).

Individual level, or social factors, relates mainly to individuals' motivations to share knowledge and it's agreeable to consider individuals' motivations to share as a precursor for developing a successful knowledge management strategy (Iskoujina & Roberts, 2015). Factors influencing individuals' motivations to share are culture, opportunities to share, motivations to share, trust, beliefs, self-efficacy, enjoyment in helping others and experience (Bock & Kim, 2002; Ipe, 2003; Cabrera, Collins, & Salgado, 2006; Lin, 2007; Aulawi, Sudirman, Suryadi, & Govindaraju, 2009). The uptake, promotion and sustaining of knowledge sharing is hugely influenced by these factors, particularly the organisational culture (Twum-Darko & Harker, 2015). Culture and other social factors are conditions for sharing which is brought about by management influences and practices (Iskoujina & Roberts, 2015). This means that management should be amenable to individuals' suggestions so that their practices are aligned to individuals' motivations to share. The role of management in ensuring knowledge sharing success is twofold: management must be a role model and facilitator for knowledge sharing (Huysman & de Wit, 2003). This is because of the importance of management influence on the knowledge sharing culture and the appropriate management of processes and technology to facilitate sharing and how interests are given authority (Iskoujina & Roberts, 2015, Heizmann and Olsson, 2015:757-758).

A knowledge sharing strategy has been emphasised as a way of improving the effectiveness of knowledge sharing initiatives, ensuring alignment to individuals' motivations to share, and for having a positive influence on the uptake of knowledge sharing (Tan & Wong, 2015; Iskoujina & Roberts, 2015; Twum-Darko & Harker, 2015). Furthermore, it "provides insights into the problems that should become the focus of the strategy before implementation" (Tan & Wong, 2015:819). The strategy addresses knowledge sharing factors before it's able to deal with operational issues pertaining to processes, technology, infrastructure and other knowledge resources (ibid.). The strategy also describes how best to leverage the knowledge of employees in order to manage knowledge sharing better, thereby deriving its maximum potential.

Arguably, while low-level knowledge management activities are taking place, there is a lack of institutionalisation of knowledge sharing (Fong & Lee, 2009; Khalil, 2012). Twum-Darko and Harker (2015) found institutionalisation to be an enabler for knowledge sharing and contributing positively to knowledge sharing sustainability. Institutionalisation not only enables a culture for sharing, but provides a systematic means for sharing knowledge, thereby enabling more effective and efficient sharing of knowledge (ibid.). While the influence of insitutionalisation on knowledge sharing has not received much explicit focus in the literature, there are some factors reported to impact on knowledge sharing, such as the lack of policies, procedures and guidelines (Lu, Lueng & Koch, 2006), which are matters of institutionalisation.

From the review of literature, it is evident that these aforementioned factors influence knowledge sharing. However, it is pointless knowing what the factors are unless there is a network of aligned interest within the organisation for knowledge sharing. It is therefore proposed that without a network of aligned interest, any strategies for knowledge sharing would not be successful. Essentially, it is important to understand why there is no network of aligned interest and how this network can be created. Power to influence knowledge sharing is non-existent without a network of aligned interest. Therefore, the actor-network theory (ANT) was used to unpack this phenomenon, thereby allowing for an increased understanding of the dynamics influencing the formation and growth of a network of aligned interest for knowledge sharing. Of the literature reviewed, few studies have used social theories to unpack this issue. Anthropologists contend that social theories should be used to study social phenomena, as it will strengthen the relevance of the study and provide meaning to social

behaviour. Therefore, using ANT, the objectives of this study is twofold: To determine why there is no network of aligned interest and to determine how to create a network of aligned interest.

## OVERVIEW OF ACTOR NETWORK THEORY

The actor network theory (ANT) is a social theory which examines the interplay between human and non-human entities in an actor network, thereby allowing technical, organisational and social aspects of an actor-network to be considered and studied together (Diedrich & Guzman, 2015). To date, most of the knowledge management literature has focused on one perspective at the expense of the other, and at the expense of the relationship between these variables (*ibid.*). Knowledge sharing is therefore a phenomenon that ideally should be explained using a framework that can encompass categories of influences from both the organisational and individual level.

The actor-network theory (ANT) examines the shifting relationships between the actors (or members) of a network. These shifting relationships are examined in respect of the four moments of translation. Translation is the alignment of interests of the actors in a network with that of a focal actor. The four moments of translation include: Problematisation, interessement, enrolment and mobilisation (Sarker, Sarker, & Sidorova, 2006). They address the formation, growth and stability of a network of aligned interest. Successful network formation is dependent on the successful implementation of the four moments of translation, which is driven by a focal actor. The four moments of translation involve the rallying of support from all the actors in a network and maintaining alignment with the obligatory passage point (OPP) (*ibid.*). The OPP is “[a] situation that has to occur for all of the actors to be able to achieve their interests, as defined by the focal actor” (Sarker et al., 2006:56). In this context, the OPP would be knowledge sharing. Organisational efforts to introduce and develop knowledge sharing is conceptualised as the continuous application of the processes of translation to produce stable networks, while generating the actors’ identities and interests within the network (Diedrich & Guzman, 2015).

Problematisation is when a focal actor frames a problem, considers possible ways to address this problem, and in doing so will establish an OPP as a solution. During the problematisation phase the focal actor identifies the actors that are affected by this problem, and uses the problem as a catalyst for the alignment of the actors’ interest to that of the focal actor, that is, for the actors to pass through the OPP. Interessement involves a process of negotiation between the focal actor and the identified actors in order to maintain their alignment with the interests of the focal actor. The process of enrolment is a means to record (formerly define) the commitments made by each actor that has been enrolled and to make this part of the shared memory of the social system. It is possible that actors can betray the actor-network after enrolment, therefore it enrolment can involve inscription, which is a way to inscribe the interests of the actor-network in the form of artefacts which serve to protect the interests of the actor-network and thus serves to stabilise the network. Mobilisation is to assume a state of readiness, so to speak. The focal actor assumes the role of representative for the network actors and seeks to mobilise them into action. Inscription can therefore be considered as a precursor, and thus an enabler, for mobilisation.

Using ANT as a theoretical lens can unpack this social phenomenon by revealing how humans resist, allow, deny or assist courses of events (Diedrich & Guzman, 2015). Thus, it is only through following human actors, and their associations with nonhuman entities, that this phenomenon can be better understood (Latour, 1987, 1996, 2005). Context has always played an important role in knowledge sharing. ANT does well to reveal the differences in such contexts because the moments of translation, through inscription of the purpose of an actor-network by delegating the actor roles, responsibilities and identities, as well as assigning the attachment of resources to the actor-network to enable its purpose (Latour, 1991), reveal such differences for a given context. Moments of Translation underpin the formation of the actor-network, but as the aligned interest of the actor’s progress through these processes, the

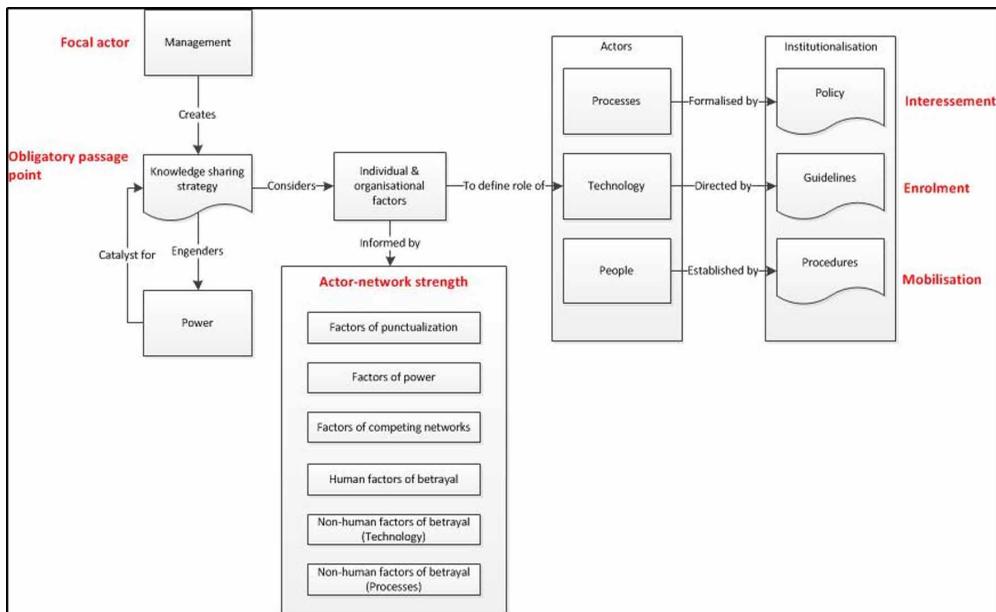
stability of the network improves and increased network growth is achieved (Twum-Darko, Noruwana & Sewchurran, 2015).

## PROBLEM CONCEPTUALISATION

Drawing on the findings of the review of literature and the concepts of Moments of Transformation of ANT as the underpinning theory to study the given phenomenon, a conceptual framework was developed to guide the design and collection of the data. A knowledge sharing strategy is developed from the knowledge-related problems unique to an organisation and industry. ANT as a methodology not only frames a problem, but also enables an organisation to seek out the best way to rally the support of actors in their knowledge sharing network to align to their knowledge sharing interests, and to institutionalise knowledge sharing as an organisational culture. ANT can reveal ways that the organisation can influence individuals' motivations to share knowledge through understanding what motivates them to share knowledge. It is proposed that the problematisation and interessement stages enable researchers to understand what motivates individuals to share their knowledge or what will 'get' them to share their knowledge, while the enrolment and mobilization stages reveal the antecedents for mobilising the actors into action.

Figure 1 conceptualises the proposed problem. The formation of the network of aligned interest is initiated by management as a focal actor, given that management hold a unique position not only to act as a role model to influence organisational culture, but also to act as a facilitator to influence the appropriate use of processes and technology. The formation of the network is preceded with the development of a knowledge sharing strategy as this constitutes the obligatory passage point. During problematisation the focal actor identifies the relevant actors and establishes how they are affected. The focal actor will look at possible ways to address the problem and in doing so will establish an OPP. Therefore, the knowledge sharing strategy is developed during the

Figure 1. Problem conceptualisation



problematisation phase of translation. The strategy serves to define the role of the actors in the network of aligned interest. Alliances are strengthened by artifacts which are inscriptions of the interests of the network and its actors. The knowledge sharing strategy therefore serves as the first phase towards strengthening the alliance.

Translation involves not only the rallying of support from identified actors, but also the maintenance of the alignment with the obligatory passage point. Policy helps to maintain this alignment by formalising the roles of the actors. Therefore, interessement should be achieved through policy. Given that stabilisation of the actor-network must be ensured during translation, particularly because actors can betray the network despite successful interessement, the commitments made by each actor is inscribed in the form of guidelines to direct the role of the actors. This inscription, as a precursor and enabler for mobilisation helps to mobilise actors into action through documented procedures, based on the guidelines. The procedures help to establish the roles of the actors.

The factors to determine actor-network strength constitute both individual and organisational factors. Therefore, a knowledge sharing strategy is informed by both levels of influence. Each actor has been enrolled based on an aligned interest. Essentially, in considering the factors of actor-network strength, the knowledge sharing strategy is a way to inform actors on what to share, how to share and provides for facilitation and support.

## **METHODOLOGY**

### **Research Approach**

Knowledge sharing is considered to be influenced by the unique dynamic of each organisation. The contextual nature of knowledge, and thus the knowledge-sharing phenomenon, calls for a qualitative approach to obtain an in-depth understanding of the phenomenon based on the subjective accounts of the units of analysis. According to Perry and Coote (1994:3):

*In many areas of the social sciences existing deductive, theory testing research methods do not adequately capture the complexity and dynamism of the context of organisational settings.*

While deductive theory-testing and positivist research methodologies aim to formulate theories using large data samples to ensure their validity, these approaches limit the richness of data that is generated through qualitative case studies (Leonard & McAdam, 2001). Moreover, positivist methodologies, due to their focus on generalisability, do not use data collection methods such as interviews, observations, documentation, and the like, which provide the richness of data that qualitative research seeks to obtain. On the other hand, the most developed inductive inquiry, grounded theory, involves minimalist a priori constructs, seeking to gradually test and form theoretical constructs, grounded in the data (Glaser and Strauss, 1967). This research was conducted in the form of inductive inquiry, underpinned by the theoretical framework of ANT. The methodology was underpinned by a theoretical framework, as its purpose was to direct the work and provide a basis for the methodology (Rubenstein-Montano, Liebowitz, Buchwalter, McCaw, Newman & Rebeck, 2001). This research draws on the perceptions of Borgström (2012), who contends that a rigorous and thorough study is underpinned by strong theoretical foundations, where a body of strong theory is matched to the empirical matter which is used to guide the research. The intention of the researcher was to use the inductive approach to link the themes to the data, and not to any preexisting coding frame (Patton, 1990; Braun & Clarke, 2006). Therefore the theoretical framework did not guide the data collection, but the research was guided by the data. The underpinning theory helped to put the data into context. Therefore, the factors were explored inductively, using ANT as a deductive analysis to conceptualise the factors and explain them in relation to each other. Thus, a combination of deductive and inductive reasoning was used (William, 2006). This approach therefore drew on the benefits of inductive inquiry

to adequately capture the dynamics of the given context, while exploring the interplay between variables which positivist research fails to achieve, and deductive inquiry through exploring the concepts of ANT to reveal the interplay between the elements of a knowledge sharing actor network.

Due to the theoretical orientation of this research, it is classified as an interpretive case study (Laws & McLeod, 2004). This case study research provided an intensive description and analysis (Smith, 1978), enabling the acquisition of tacit knowledge about the phenomenon under study (Stake, 1995). The breadth and depth of knowledge about a phenomenon that can be achieved through case study research is demonstrated in this statement made by Chelly (1996:77): “Good story telling about a single case would provide better theoretical insights than multiple case research based on creating good constructs”. Not only is the case itself the main product of the research, but the case can be instrumental in broader investigations into this phenomenon (ibid.). ANT has underpinned this research to provide a guiding framework, or set of guiding principles. The methodology for this study was developed within the context of ANT by adopting its ideals and principles. However, a methodology must be specific by providing detail on how to carry out the ideas and objectives set forth (Rubenstein-Montano et al., 2001). Therefore, the research methods, discussed next, will detail the collection and analysis of the data.

### Overview of Case Study

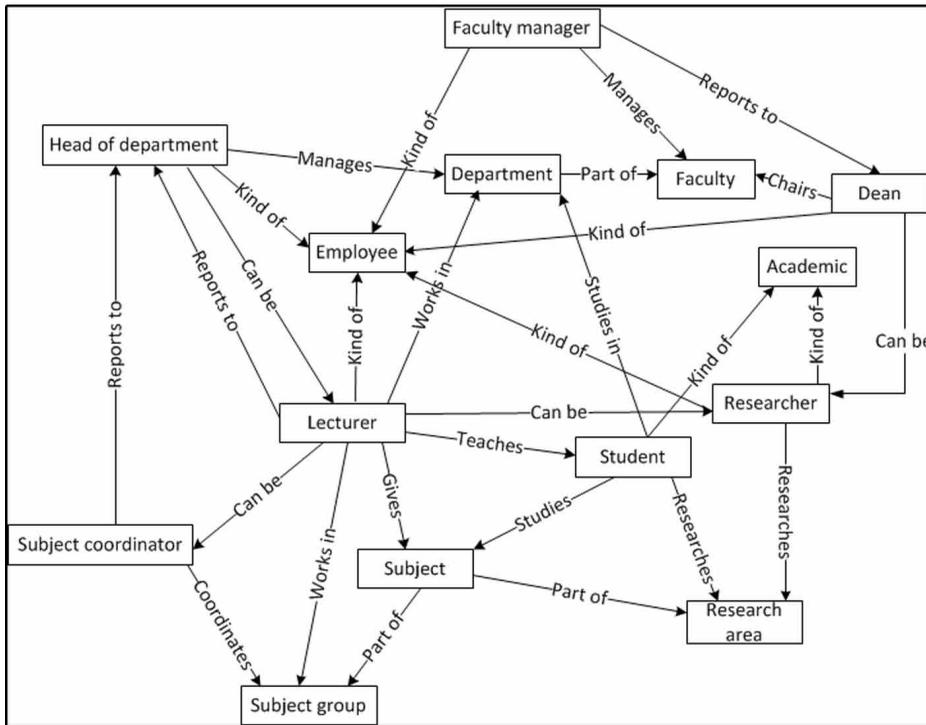
The case is a selected University of Technology (UoT) in South Africa with diverse cultural and race groups of academic and non-academic staff and students. The case has been in existence for at least 10 years as a University of Technology. A UoT is mandated to offer programmes that are aimed at producing practitioner graduates, focusing on career-oriented training and applied research. The UoT faces competition from the traditional, well-established universities and is in the process of re-curriculating their programmes across the institution. Teaching and learning constitutes the largest part of what the UoT does, given that the bulk of students are at undergraduate level. However, research features very prominently, particularly because research informs teaching and learning and contributes to the academic community at large. This creates a connection between the activities that take place at the institution.

The knowledge which is pertinent to the job of an academic in higher education is related to teaching and learning, curriculum development, assessment and examination, academic administration and research. The challenge is to create organisational memory in a formal and systematic manner, which can store policies, procedures, best practice and know-how to make this knowledge accessible to more than one individual across the institution. As it currently stands, informal methods of creating and managing knowledge are utilised by academics, and this is mostly on an individual, fragmented basis. When an academic staff member leaves, they often leave with the knowledge that they have accumulated over the term of their tenure. This knowledge base has to be re-built by a new staff member. This is why knowledge sharing should be nurtured, as the first step to achieving an organisational memory.

Figure 2 shows a concept map which outlines the relationships between the main entities within the environment of a UoT. Given the fact that the UoT is one of the largest in South Africa, with several campuses to manage as well as an ongoing re-curriculation process, a fair amount of harmonisation is required for the UoT to compete. This, however, cannot occur unless a culture of knowledge sharing is nurtured. Sharing, however, should not only occur at the subject level, but across departments and faculties.

The population included all academic staff members from the selected UoT who are actively participating in teaching and learning activities and are appointed at a level of junior lecturer, lecturer and senior lecturer. The participants were predetermined based on their involvement in teaching and learning activities that would utilise the ‘operational’ knowledge that is the focus of this research. Hence, the population is determined based on a common element, being their degree of participation in teaching and learning activities, which is relevant to the research objectives. Respondents at varying

Figure 2. Concept map of UoT context



levels of tenure were selected to ensure that the units of analysis spanned several different disciplines or varying areas of expertise, that is, from different faculties, in order to obtain a well-rounded view of the academic domain. This would also reveal the potential differences in perceptions that each staff member would offer.

## Research Methods

A purposive sampling method was applied as this is usually the preferred method of sampling for case study research (Kruger & Welman, 2001:189) as the units of analysis will be data rich. Face-to-face interviews, with semi-structured interview questions, were used for data collection. Semi-structured questions served to explore the views of the academics, while providing guidance to the kind of answers expected in relation to the concepts of ANT and to validate and/or extend the proposed conceptual framework. The sample size was contingent on the theoretical saturation point (Glaser & Strauss, 1967). This was the point at which “no additional data are being found whereby the (researcher) can develop properties of the category” (Glaser & Strauss, 1967:65). This means that when similar codes are seen repeatedly within a category, the researcher was satisfied that a level of saturation was reached for that category. The researcher was therefore satisfied with the sample size of eighteen academic staff members, representing a variation of the population in terms of level of tenure and work context based on the selection from each faculty.

The main themes identified in the literature were social, process and technology factors. These themes were therefore classified in relation to the individual and organisational levels of influence, and in relation to the concepts of ANT. Thus, the problem conceptualisation in Figure 1 was a basis for constructing the interview questions and these questions are aligned to the main objectives of the research. This allowed for the researcher to begin the investigation with a clear focus, rather than just a general notion of what to research, therefore addressing more specific issues (Malbon,

1999) of knowledge sharing as a network of aligned interests. Not only do the questions reflect the research objectives by suggesting the themes of discussion, but also values the point of view of the respondent (Malbon, 1999; Kruger & Welman, 2001). Maxwell (2013) contends that a ‘genuinely’ qualitative study should also account for the perspectives of the respondents, or the ‘theories’ of the phenomenon of focus, as developed by the respondents, rather than relying entirely on the theoretical orientation of the researcher (see Table 1).

## Data Analysis

The results of this paper emanated from a primary study which intended to determine the factors that influence knowledge sharing within an academic institution. The original study applied data analysis involving organising the data, summarising the data, and interpreting the data (Ary, Jacobs & Razavieh, 2002). Data organisation was performed using Microsoft Excel. The responses were condensed into a list, organised by question. Each interview question was typed into a separate worksheet and each response was labelled according to the interview number. The analytic relevance of traditional variables such as gender was not assumed, but only considered if and when the data showed it to be relevant.

Summarising was done by grouping similar coded categories in relation to the concepts of ANT. This provided a meaningful summary and reconstruction of the collected data for interpretation (Ary et al., 2002:465). Coding for a concept involved looking for words grouped into a conceptual cluster (or idea). These words would have a strong link to the proposed concept. Therefore, coding was dependent on: Something that was repeated in several places, anything that the respondent explicitly stated as important, or themes identified in the literature. The rules for coding were formulated beforehand and applied consistently to ensure reliability and validity of the analysis (Berg, 2007). These rules were for identifying the characteristics of categories. The conceptualisation and operationalization was based on the interaction between the theoretical and empirical observations (Berg, 2007:248). Theoretical observations were instrumental in being able to identify obvious characteristics for categories in the data. However, some form of inductive categorisation was required for those characteristics which were implied. This is where both inductive and deductive reasoning come into play. As Schatzman and Strauss (1973:12) point out, although some categorisation is worked out in advance and some is developed later, consistency is key in both.

The number for concepts coded was determined based on the interaction with the data (Busch, De Maret, Flynn, Kellum, Le, Meyers, Saunders, White, Palmquist, 1994 – 2012). Thus, there was a degree of flexibility applied in the coding to inductively discover important material to be incorporated into the research which could have a significant impact on the results. A set of subcategories were created

Table 1. Interview questions

<b>Research Objective: Determine why there is no Network of Aligned Interest</b>
Which personal factors would impede on your ability to share knowledge or lead to your abandonment of knowledge sharing?
Which technology factors would impede on your ability to share knowledge or lead to your abandonment of knowledge sharing?
Which process factors would impede on your ability to share knowledge or lead to your abandonment of knowledge sharing?
Would your willingness to share knowledge be influenced by whether or not you were compelled to do so?
Which work environment-related factors would impact negatively on your ability/opportunity to share knowledge?
What is your perception of the impact of centralisation on the support and preservation of knowledge sharing?
What is your perception about the influence of power on the support and preservation of knowledge sharing?
<b>Research Objective: Determine how to Create a Network of Aligned Interest</b>
What would you consider as influencing/ motivating factors on your decision to share knowledge?
What enablers should be in place to ensure successful implementation of knowledge sharing processes?
What do you consider as effective strategies for gaining academic staff commitment to knowledge sharing?
What do you think could sustain knowledge sharing within your subject, department or faculty?
How can knowledge sharing as a process be formalised/ institutionalised?

based on the codes, which mapped to the main categories identified in the literature or that emerged from the qualitative interviews. These subcategories were saturated until no other new categories, or variables, emerged. Once this was completed, similar categories were grouped together to form abstracted categories. After identifying the categories, it was important to establish the links between the categories. These relationships were grounded in ANT. The interpretation of the text was guided by the theoretical orientation of the researcher. Therefore, in contradiction to a phenomenological orientation, which seeks to understand the meaning behind the patterns, the intention of this research was to uncover these patterns.

Thus, while the initial intention of the research was to determine the manifest content through directed content analysis, latent content emerged due to the interpretive orientation of the research, guided by the underpinning theory. Additional attributes emerged which provided an alternative means of evaluating the relationships between variables and the dynamics at play within the organisation which could address the research questions posed in this paper. The following section discusses the results that emerged to determine why there is no network of aligned interest.

## RESULTS AND DISCUSSION

### Problematization

*Which personal factors would impede on your ability to share knowledge or lead to your abandonment of knowledge sharing?*

The personal inhibitors to sharing amongst the respondents were generally external triggers. For the most part the respondents are willing to partake in knowledge sharing activities, but are discouraged from sharing mainly because of the lack of management. The misalignment between management and staff is in fact one of the more significant inhibitors for staff personally. One respondent asserted that “The way that they operate does not resonate with staff”, while another suggested that “If there is enough encouragement and support from management, it will assist one to rise above the issues”. In general, management support is lacking. There is not only a lack of trust amongst staff, but also toward management. The culture of the organisation has engendered this lack of trust. Similarly, a positive culture can engender trust within the organisation. Management support could be a catalyst for change when staff are not motivated to do so, whether due to a lack of trust or a resistance to change. In addition, management support should be extended to the proper management of the process of knowledge sharing, as the respondents are apprehensive to share when it is not a shared interest of the organisation. In other words, there must be a fair distribution of responsibility to share knowledge.

*Which technology factors would impede on your ability to share knowledge or lead to your abandonment of knowledge sharing?*

Technology is well-established as a facilitator of knowledge sharing due to its capability to provide a systematic way of sharing knowledge and immediate access to knowledge. Often it is an obvious choice to incorporate the use of technology in knowledge-sharing processes. Many of the respondents, however, indicated that a potential hindrance to sharing knowledge through technology would be the lack of skills amongst staff to use technology. Without the necessary skills staff would not be able to use technology optimally. As one respondent mentioned, “Success lies in the way people use it”. This could create a negative attitude toward sharing, especially if the organisation does not apply a two-pronged approach to knowledge sharing by enabling sharing through online and offline methods. It is arguable that technology makes it easier to share knowledge, but, as one respondent pointed out, “Technology must be balanced, as too much reliance is bad”.

There is a sense that staff are overwhelmed by the plethora of tools that must be balanced to enable tasks. On the one hand, some respondents felt that there is not enough time for training, while on the other, some felt that features are often not linked to the intended use, making it difficult for them to use the technology. In addition, it was proposed that the organisation should keep technology simple, thereby enabling staff to master the use of the technology. Organisations should choose an appropriate platform for their staff that aligns not only to the facilitation of the necessary task, but which also complies with the way people work.

While training and skills present a major stumbling block to the use of technology for sharing knowledge, unreliable systems and accessibility issues present a significant bone of contention amongst the respondents as far as technology is concerned. A respondent asserted that “If technology does not work, or is unreliable, it creates a barrier to sharing”. Essentially, it is about getting the basics right. On the matter of technology, management should put some conscious thought into the use of technology to enable sharing, as these systems will contribute to either the encouragement or discouragement of sharing knowledge.

*Which process factors would impede on your ability to share knowledge or lead to your abandonment of knowledge sharing?*

The respondents felt that there is simply a lack of processes around sharing knowledge, and these processes should exist first. Management, or those in a position to effect change, are not taking note of where improvements can be implemented. As pointed out by a respondent, “Management take too long to implement decisions, with no proper concept of what one wants to achieve”. Staff interest tends to waiver when there are long lead times to implementation. Knowledge sharing strategies should therefore precede the implementation of processes, and should cater to these processes.

Processes should provide guidelines on how to share knowledge, and staff should be trained on how to share, what to share, and how to use mechanisms in place for knowledge sharing. Processes should be consciously and intentionally formulated. As a respondent said, “Everyone must play a role and understand its importance”, while another respondent pointed out that “Not everyone contributing [will impede on sharing] because they have got people working in the same department and they may decide they won’t do it because someone else will”.

A lack of planning, arrangement and coordination will impede on knowledge sharing processes. There must be adequate management of the processes for it to be successful. One respondent mentioned “If people aren’t into it, it won’t matter what processes there are and if [management] don’t do their thing, it won’t work”.

While a knowledge sharing strategy is proposed as a catalyst for sharing, it should carefully consider the processes that will engender sharing, as a respondent contended that “People will prioritise other work over knowledge sharing when time is a factor”. Processes should therefore be planned around people’s work. It should not be a departure from how people have previously worked.

*Would your willingness to share knowledge be influenced by whether or not you were compelled to do so?*

The findings on mandating knowledge sharing, despite being divergent, reveal that power and influence alone will not foster knowledge sharing. The respondents views included “Convincing or encouraging highly educated people to share their knowledge by making it compulsory won’t work as [we] hate being pushed into a corner”, and “I hate anything that is compulsory”. The perceptions amongst the respondents centre on the fact that people will share if they want to and if it is in their nature to do so, or if it is perceived to be important to them or to benefit them. Additionally, making knowledge sharing compulsory brings with it the notion that staff will not have input in the process.

This approach is deemed to be prescriptive, and thus met with resentment. The respondents' views, however, allude to the structure and format of knowledge sharing to be more likely to stimulate sharing.

*Which work environment-related factors would impact negatively on your ability/opportunity to share knowledge?*

The overwhelming perception amongst the respondents is that knowledge sharing, despite being an imperative, will not be prioritised over their primary work. Essentially, it comes down to management's approach toward balancing workloads to accommodate the inclusion of knowledge sharing as a recognised form of work. Inadequate support has led to the notion that work is simply "added on". The perception is that knowledge sharing initiatives would follow this precedent. It would be imprudent to implement knowledge sharing strategies without a pragmatic plan for its implementation where management have consulted with staff and put conscious thought into the implications for how they work. One view was that sharing is less likely to occur when there is a "lack of any real guidance on what to share, how to share and what is appropriate to share. There needs to be clear guidelines". It would also be counterproductive to have these guidelines while the systems (which also impact on the overall work environment), do not adequately respond to the needs of staff.

Staff are often those called upon to recognise the value of knowledge sharing, while this responsibility equally rests with management. Management's appreciation of its value should manifest in the guidelines for its implementation. The entrenched a culture of non-participation and indifference has been nurtured through increased workloads with no corresponding growth in recognition or support, or inconsistencies in workloads amongst staff. As one respondent stated, "You just do everything, including all the admin. You are the secretary and the academic", while another respondent mentioned that "Some people work hard and others are lazy, so I'm not going to give someone my [work] that I spent hours preparing". Inconsistent workloads, coupled with management's lack of involvement and management of work, magnifies this culture, and the respondents feel that this would negatively impact on their willingness to share. A respondent contended "If other people are not sharing, it will impact on my willingness to share knowledge". It was asserted that if management were more supportive on the whole, this culture is more likely to dissipate, but it will not happen without intervention.

*What is your perception of the impact of centralisation on the support and preservation of knowledge sharing?*

The perception amongst the respondents is when a person or management in general have centralised control over processes there is an opportunity for incompetence to erode the intended goals or to make unilateral changes which may not speak to the needs of the staff. For example, a respondent said "People start acting like power maniacs. They usually just start instituting systems". In addition, when initiatives are instituted, there should be tangible benefits that emanate from the contributions of staff. As one respondent pointed out "It must not be an exercise in admin (or window dressing) ... we were required to compile files that documented what we do in our subjects. However, no one else ever looks at these files". The role of management should be to support and direct, rather than control processes. Centralisation is perceived to be positive when it is to ensure that knowledge is indeed filtered down and to oversee the implementation of knowledge sharing. The views are that centralisation should be applied to the structures and systems, that is, location of and access to knowledge. When processes and control are centralised, the perception is that staff are out of touch with their direct line managers on a departmental level. There is a perceived loss of control linked to centralisation from a process perspective in particular.

*What is your perception about the influence of power on the support and preservation of knowledge sharing?*

The perception is that power is a catalyst for the acceptance of the obligatory passage point. However, the findings suggest that perceptions are that power can be abused to make management indispensable. When power is exerted to bring about change and progress, the outcome is usually counterproductive. In fact, centralisation is seen to be a catalyst for power. As one respondent pointed out “Centralising would lead to power issues” while another respondent said “People want to run everything themselves out of fear of being challenged or their value is tied to how much control they have”. Perceptions also reveal that power does not exist in parallel with collaborative efforts. If a focal actor were to exert power to form a network of aligned interest, it is perceived to be to institute practices without the input of the actors. Responses like “If someone is heading something they want to run it their way, even if other people offer their guidance, goods ideas get ignored”, or “They do not teach, so they do not know what we need” demonstrate that the respondents believe that knowledge sharing should be autonomous.

An approach to rallying support that would make staff more amenable to sharing would be to create an environment for knowledge sharing where the matter of control is eliminated, and this should be consciously directed by management. As a respondent mentioned, “Establish a situation where these issues won’t come up, such as letting sharing happen lower down where sharing issues is not a problem, as opposed to where it could be a problem, such as at management level”. In doing so, management are demonstrating their involvement in a collaborative, rather than forceful, manner.

## **Interessement**

*What would you consider as influencing/ motivating factors on your decision to share knowledge?*

The respondents are aware of the benefits of sharing knowledge. In fact, they believe it is their responsibility to share knowledge. They recognise the potential for growth and development when sharing occurs, as well as the improvement of operational efficiency and effectiveness. One respondent indicated “We simply cannot compartmentalise knowledge” and another said “The only way that I could get the job done was to get staff to share their knowledge”. The respondents therefore feel there is no need to force this decision on them, or make unilateral decisions for them, but the credibility lies in the way that it is approached. This might start with making provision for sharing in the form of workload capacity and systems. In addition, everyone should be participating in sharing for its stimulation amongst colleagues, as one respondent pointed out “We need to have the buy-in from everybody, making things easier for everybody. There is very little admin assistance, you have to do everything. You basically have to be lecturer, admin person, photocopier, everything. If we work together a little bit more, it will make everyone’s lives easier”. Influence should extend to all staff to ensure that the formation of the network of aligned interest is successful. Thus, proper leadership is imperative for influence.

## **Enrolment**

*What enablers should be in place to ensure successful implementation of knowledge sharing processes?*

The findings here support the assertion that technology and processes are enablers for knowledge sharing. In general, the infrastructure to support knowledge sharing must exist before knowledge sharing can occur. It does not, however, suggest that both processes and technology must be in place simultaneously. What should exist are standardised processes, and anything that will facilitate these processes. As one respondent suggested “It must be organised, not happen in an ad hoc manner”

and another added “The people in charge should create a space, time and opportunity to share”. Technology does, however, feature prominently amongst the respondents as a platform to facilitate the ease of access to relevant knowledge and thus reducing workload. As a respondent stated “The learner management system – it fits my philosophy to reduce my carbon footprint and it saves me time and reduces my administrative work, so should any knowledge-sharing platforms that are in place. If it can satisfy these requirements, then it will fit my needs”, while another respondent asserted “There must be technology that works and it must be in place before gaining staff commitment”.

In addition to these enablers, the respondents reveal that knowledge sharing as an initiative must have a driver (focal actor), so that there is ownership over its implementation and responsiveness throughout the (translation) process, which is demonstrated in this respondents view “It must not just be an idea. For knowledge sharing to be taken seriously after gaining staff commitment, there must be a combination of a person and a platform in place. Without a face to the initiative, the ball won’t get rolling” and another mentioned “There should be a person with a ‘listening ear’. If knowledge is to improve the way that we work, people should be ‘listening’, particularly those that have the influence to effect change”. Furthermore, the driver must not only represent the institution, but the staff who will partake in the initiative to ensure that the respective goals align, as one respondents pointed out “There is disconnect between the institution and the goals of the academic staff”.

What is pivotal for successful translation, however, is that the enablers must be planned and provided for as a precursor for sharing to take place. This is the only perceived way for knowledge sharing to become a standardised practice which could advance progress toward a culture for sharing. What might potentially break down a culture of participation is if new initiatives are mandated without consultation of staff, and more importantly without a responsible party to ensure that staff are serviced adequately in terms of support. In other words, there is no process of (engaging) translation.

*What do you consider as effective strategies for gaining academic staff commitment to knowledge sharing?*

Despite the fact that new initiatives are often introduced by management, staff are expected to be instrumental in its implementation. Management is perceived to have an equal responsibility in the implementation of such initiatives. Strategies which are perceived to be effective for gaining staff commitment have a strong link to the enablers for successful implementation. This alludes to the fact that a good strategy would ensure that the enablers are in place and would consider input from staff in defining the appropriate processes and infrastructure for its implementation. As one respondent pointed out “Management say ‘this is our vision’ but we are just there to make it work, without knowing how to do it. There is no follow through on the plans by management” and another respondent said “There needs to be persons put in place to drive knowledge sharing that are accessible (do not sit on the top floor and never interact with staff). They need to get a feel for what people are doing and what they need”. Findings further reveal that management’s participation should be on-going to gain staff buy in.

## **Mobilisation**

*What do you think could sustain knowledge sharing within your subject, department or faculty?*

The respondents reveal that sustainability cannot be achieved if knowledge sharing as an initiative is viewed by staff as a “fad”. Their views affirm that the structure and facilities for knowledge sharing must be implemented and there must be a way forward that will ensure that it happens. This alludes to not only the existence of a strategy, but implementation in the form of institutionalisation. In this context, institutionalisation will manifest in the work environment if knowledge sharing is integrated into daily operations and facilities to enable knowledge sharing exist. As one respondent pointed out,

“Make knowledge sharing processes part of the main operational processes by integrating it. That way it won’t just be a new thing for now” and another respondent said “If it becomes part of your work environment, it will naturally sustain itself and if it is a generally accepted thing”. In addition, there should be continuous reflection and evaluation of the knowledge sharing strategy which is responsive to the needs of the staff. As one respondent said “You are only really going to buy into something if you have an interest or you get something out of it”. If staff find that the strategies are not responsive to their needs, then interest will diminish. Furthermore, unless staff are getting the specific knowledge that they need, this would impact on their sustained knowledge sharing, as a respondent pointed out “It must be split up in terms of areas of interest – so you share based on what you are interested in”.

In terms of management, good leadership will also sustain knowledge sharing. A good leader will not just be a person, but the right person to drive such an initiative. Good leadership manifests itself in the form of creating consistent awareness around knowledge sharing initiatives, meaning there is constant buy-in from the staff. A leader that ensures that knowledge sharing is reinforced as an imperative through reflection and evaluation will reinvigorate interest. It is also proposed that the driver of knowledge sharing must be rotated, as anyone that holds a position for a prolonged period is perceived to stagnate and this will not bode well for the constant buy-in of staff participation. As a respondent asserted, “Being in the same position for long gives you the idea that you don’t need to learn anything else” while another respondent said “The network of knowledge sharing cannot grow by itself unless management continuously nurtures it.” In addition, a respondent said “We need encouragement to deal with issues to prevent knowledge sharing from stagnating”. Essentially, sustainability is highly contingent on management’s leadership abilities. Aspects of leadership that were brought to the fore include having the appropriate vision, providing the guidelines and methods for implementation, coordination of the initiative, and balancing the interests of staff.

#### *How can knowledge sharing as a process be formalised/ institutionalised?*

For knowledge sharing to become an entrenched culture, the respondents consider strategy as important to guide the implementation of facilities to enable sharing. Policies are also proposed to further affirm these strategies. One respondent, however, mentioned “There must be a culture of sharing. If not, nothing will be done. The culture must be institutionalised for knowledge to be shared at all levels”. The entrenchment of this culture is preceded by the aforementioned initiatives for implementation and the constant efforts to obtain buy-in, revision and coordination would likely lead to this entrenched culture. In particular, there are observations that the integration of knowledge sharing into operations may lead to such entrenchment, and thus institutionalisation, as one respondent said “Here our timetables are filled to the brim. There are no slots for staff development. It should be there, they should make provision for sharing” and another contended “A regular formalised meeting... must be scheduled on the timetable”. Furthermore, the respondents feel that policies should be written in consultation with staff, and there should be continuous revision until these policies align to the way that staff work, for example, respondents said “We need to discuss new policies and how it affects us” and “There must be consultation and there must be a process until you finalise your policy.”

Structure seems to feature very strongly as an enabler for institutionalisation. This corresponds with the above view that continuously applying knowledge sharing methods as part of how staff work and in a systematic manner will lead to the institutionalisation, and thus culture, of knowledge sharing. Structure is considered to be created through defined processes, structure of knowledge in terms of its relevancy, systems to facilitate the access to knowledge, and training. In particular, a respondent said “Very often people need to be re-orientated and trained to undergo a paradigm shift. There should be deliberate training, especially for new people coming in”. In this context, training seems to be the catalyst for obtaining the buy-in from an institutionalisation perspective, i.e. that the institutionalisation at its inception is achieved through training as the first step toward formalising knowledge sharing processes. This view is further supported by this statement made by a respondent:

“Institutionalisation is paramount, as it displays that there is a buy-in from management which is important for convincing staff that they should participate”.

## **CONCLUSION AND RECOMMENDATIONS**

### **Introduction**

This paper set out to employ the actor-network theory (ANT) as a methodology to understand and interpret the sociotechnical knowledge sharing challenges in organisations. Although knowledge management can be studied by a variety of lenses, this paper argued that it can well be understood through the single lens of the concept of Moments of Translation of ANT. Thus, using ANT, the objective of this study was twofold: To determine why there is no network of aligned interest and to determine how to create a network of aligned interest. The methodology for this study was developed within the context of ANT by adopting its ideals and principles to understand how to introduce and develop knowledge sharing within an organisation, using the moments of translation.

The findings demonstrate that using the concept of the Moments of Translation as a lens to study this phenomenon is indeed a novel way of investigating the reason why there is still difficulty with sharing and managing knowledge. New perspectives were explored, thereby transforming the way that knowledge sharing dynamics are perceived. By utilising a normative approach, this research looked at how knowledge sharing as an ideal can be achieved when taking into account the existing constraints. The culture of the institution, as revealed by the views of the respondents, has determined the suitable knowledge sharing approaches that should be employed, impacting on processes and technology factors.

The discussion of the findings served to determine why there is no network of aligned interest, while the refinement of the problem conceptualisation, as informed by the findings, was used to develop a general framework which served to determine how to create a network of aligned interest. This framework is discussed in the next section.

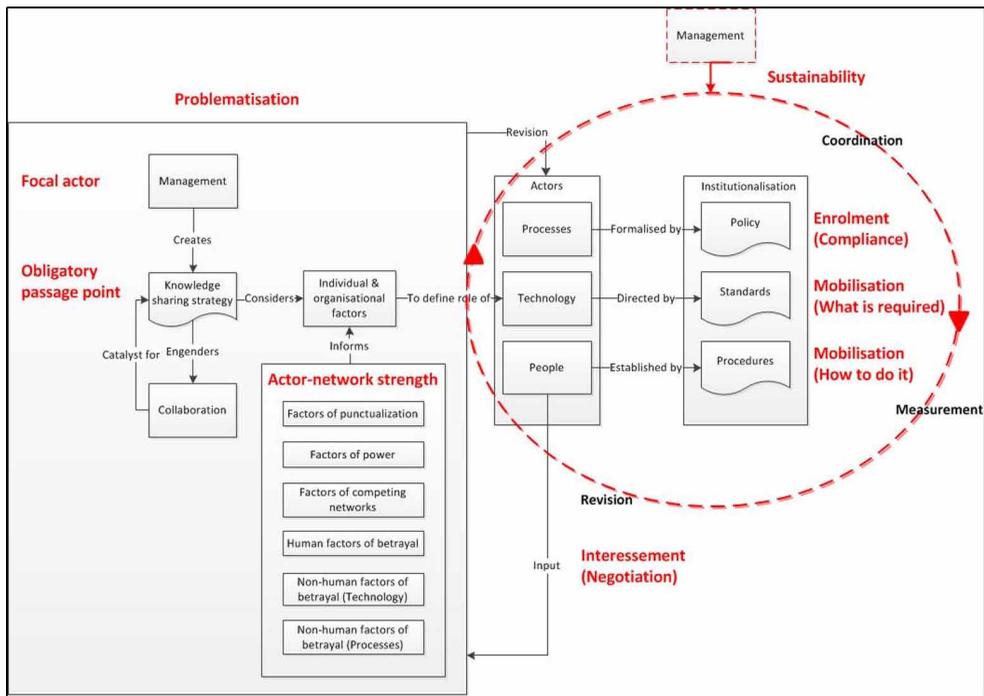
### **Research Implications and Recommendations**

Figure 3 is a general framework, which is a refinement of the problem conceptualisation in Figure 1. The problem conceptualisation was derived from the theory and findings from the literature review. The research questions which were aligned to the research objectives served to verify whether the proposed conceptual framework indeed represented the views of the respondents. The general framework has not only been validated, but extended to represent the view of the respondents on how to create and sustain a network of aligned interest for knowledge sharing.

Management is not only identified to be the focal actor, but a leader, facilitator and coordinator too. Therefore, management must drive knowledge sharing as an initiative, and must demonstrate continuous leadership from the initial phase of problematisation, through to mobilisation. Management’s role should be that of a coordinator to oversee knowledge sharing processes, making knowledge sharing a shared interest of the entire organisation. In order for management to be a facilitator, rather than an enforcer, the role of power must be replaced with collaboration. This will bring about the “capacity” for management to influence the actors. In other words, this will give management the credibility for gaining buy-in from staff. Continuous support from management manifests in the continuous oversight and coordination of knowledge sharing processes, measurement of knowledge sharing success, and the continuous revision of the role of people, technology and processes through the revision of policies, standards and procedures to be responsive to the needs of staff to ensure alignment to how they work.

Given that a particular concern is the misalignment between management and staff, a knowledge sharing strategy is a necessary precursor for knowledge sharing initiatives. Pivotal for successful translation are the enablers for sharing, which must be planned and provided for. This is why a

Figure 3. General framework



knowledge sharing strategy should consider the variables related to actor-network strength. The strength of the network is not only influenced by human factors and organisational factors that are technology, process, or power driven, but factors of punctualisation and competing networks too. All of these variables should be given due consideration during the problematisation phase and should be negotiated in the interessement phase. A good strategy would also consider input from staff in defining the appropriate processes and infrastructure for its implementation, but not be too prescriptive. A new initiative cannot be mandated without consultation of staff, and more importantly without a responsible party to ensure that staffs are serviced adequately in terms of support. This would make the process of translation an engaging one. A process of negotiation will ensure that staff needs are balanced, and that the role of non-human actors is carefully thought out too. For example, organisations should choose an appropriate platform for their staff that aligns not only to the facilitation of the necessary task, but which also complies with the way people work, while processes should not be a departure from how people have previously worked. In addition, balancing workloads to accommodate the inclusion of knowledge sharing as a recognised form of work should be addressed in this process.

The structure and facilities for knowledge sharing must be implemented and there must be a way forward that will ensure that it happens. This alludes to not only the existence of a strategy, but implementation in the form of institutionalisation. Once the knowledge sharing strategy is ratified by staff and management, it is further formally defined by a policy which serves as the inscription of the commitments made by each party. However, a policy merely serves as a reminder of the scope and issues identified. Knowledge sharing strategies cannot succeed without a pragmatic plan for its implementation. Thus, standards and procedures serve as important means to ensure what must be done and how it will be done, respectively. Without standards, it would be difficult to determine what to measure and whether the processes are effective. Thus, standards add a quantifiable aspect

to the framework. Procedures (or processes) serve to ensure that there are step-by-step instructions that will eventually become an established way of doing things. These processes will include the use of mechanisms put in place for knowledge sharing. Standards and procedures constitute the process of mobilisation. By having the proper standards and procedures, staff can mobilise into action as they will have assumed a state of readiness. An entrenched culture for sharing will not only manifest out of the policies, standards and procedures, which are the catalysts for institutionalisation, but the constant efforts to obtain buy-in, revision and coordination would likely lead to this entrenched culture. In addition, the aforementioned are perceived to contribute to the sustainability of the knowledge sharing initiative.

### **Research Limitations and Future Research**

This was a qualitative study that was conducted at one higher education institution. Despite the fact that this study could shed a new light on the matter of knowledge sharing, the findings cannot be generalised beyond the context of this study. However, it is context that has enabled a deeper understanding of this social phenomenon to demonstrate the actor-network theory (ANT) as a suitable methodology to understand and interpret the socio-technical knowledge sharing challenges in organisations. The rigorous processes employed to collect, analysis and interpret the data furthermore strengthen the validity of the findings. Thus, it is proposed that this study be replicated in different contexts to either prove or refute the relevancy of the general framework for different contexts.

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