

Knowledge Management Strategy Employed In A SME: The Case Of A Building Materials Supplier

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ABSTRACT:

The purpose of this paper is to investigate the knowledge management strategy of a small to medium enterprise (SME), and the consequences of a misplaced strategy. The methodology employed for this study applied three triangulated techniques for data collection in the field. The findings showed that management level and staff level employed different strategies to manage knowledge. Management focused on more formal IT systems and tools to manage knowledge, with a focus on explicit knowledge management. Frontline staff depended more heavily on communities of practice and learning-by-doing and to manage their knowledge. This resulted in many frontline staff finding little value for the standard technological tool and systems implemented. There are few empirical studies that look at knowledge management strategies within SMEs. This article, to some degree, fills this knowledge gap.

Keywords: *Knowledge management, Knowledge management strategies, Explicit knowledge, Tacit knowledge, Small and medium Enterprise*

1. Introduction

The field of Knowledge Management has brought about extensive theoretical and practical research into how organisations implement knowledge management strategies (Dyck et al, 2005; Kluge et al, 2001; Nonaka & Takeuchi, 1995). The insights into the ways that organisations actually go about creating and sharing knowledge has established how there are two prominent approaches to managing knowledge. The two approaches are the codification and personalization strategies (Hansen et al, 1999).

Developing on the theory surrounding the two dimensions of knowledge management strategy that firms can adopt, this article, through the use of a case study in a small and medium enterprise (SME), focuses on how implementing the wrong strategy can result in wasted efforts, under-utilisation of organisational resources, the loss of potential gains in performance, and ultimately the missed opportunity for a realised and sustainable source of competitive advantage.

2. SME Organisations

The value that SME's create is through the catalysts of new innovations and technologies that are often derived from an idea generated by a single individual with a vision. The SME model serves as a valuable platform for domestic and global success and are the principle job creators within global economies

The prevalence of SME's in both developing and developed countries shows how this type of business model dominates every economy - "In market economies, formal and informal SMEs, account for over 90 percent of all firms" (Klein, 2004, p.6). Within the OECD, SMEs represent over 95% of enterprises and generate over half of private sector employment. Within developing countries the presence of SME's are critically important as their private economy is almost entirely comprised of them (International Finance Corporation, 2004).

3. The Need For A Knowledge Management Strategy

"A knowledge advantage is a sustainable advantage" (Davenport & Prusak, 2000; p.17)

It has been stated that the only certain aspect about the economy today is uncertainty itself, and that knowledge is the only sustainable source of competitive advantage (Davenport & Prusak, 2000; Nonaka, 1994). While these sentiments reflect what is today a definite 'knowledge economy,' those organisations that recognise and are able to develop a knowledge management strategy to leverage new and existing knowledge will undoubtedly realise the aforementioned competitive advantages (Tsoukas, 2001).

For SME's, the need for a knowledge management strategy is viewed as less of a priority as opposed to those within large corporate and global enterprises (Handzic, 2004). This is primarily due to the nature of their business and its structure. The fact that SME's possess few management roles and a relatively flat organisational structure provides for a more centralised decision-making and learning process. This often results in the organisations knowledge

management needs being overlooked and a neglect of its knowledge/intellectual assets. The need for the right knowledge management strategy will allow an SME to create value by effectively utilising those who create new knowledge and share knowledge within the organisation.

3.1. Brief Review Of Relevant Knowledge Strategy Literature

It is important to understand the fundamental elements that make up knowledge before being able to apply knowledge in a strategic sense. Knowledge in its context has been identified to possess two fundamental characteristics: Tacit and Explicit (Polanyi, 1966). Explicit knowledge is that which can be easily articulated or codified and transferred (Awad & Ghaziri, 2004; Davidson & Voss, 2002). Examples of codified and articulated forms include user manuals, fact sheets, pictures, charts and diagrams. (Nonaka, 1994, p.16) provided a description of explicit knowledge as “knowledge that is transmittable in formal, systematic language.”

Tacit knowledge, in contrast to explicit knowledge, is difficult to codify and articulate (Bryant, 2003; Davenport & Prusak, 2000). An individual who possesses great knowledge and skill within a particular area or discipline would not be able to explicitly articulate every aspect of that individual’s knowledge to someone else. It is this tacit knowledge that can only be shared from one party to another through socialization, and created (stored) by the other party through experience and practice (Coulson-Thomas, 2004; Nonaka, 1994; Tsoukas, 2001).

3.1.1. Knowledge Creation - Nonaka’s Spiral Of Knowledge

Nonaka (1994) provided important insights into how new knowledge is created through the interplay of tacit and explicit knowledge. Nonaka’s model consists of four knowledge phases/components: Socialization; Externalization; Combination; Externalization

Socialization involves the transfer of tacit knowledge from one individual to another. This form of tacit knowledge transfer is usually facilitated in an informal and social setting, and where there is trust between those involved. Externalisation is the process of making tacit knowledge explicit. This usually occurs in team interactions involving dialogue and the use of metaphorical language. Combination is the process where individuals add and contribute their own explicit knowledge to that which has already been created within an organisation. Internalisation is the process of converting new explicit knowledge into new tacit skills through repeated practice.

3.3.2. Knowledge Management Strategies

Hansen et al (1999) identified two strategies for managing knowledge in an organization: codification and personalization strategies. The type of knowledge management strategy used by organisations needs to best accommodate the way individuals create and transfer knowledge (Crossan et al, 1999; Roth, 2003). The types of relationships or ties between individuals in the organisations, when creating and sharing knowledge, influences the type of knowledge management strategy used (Hansen et al, 1999). In developed social groups such as “communities of practice”, where knowledge is created and shared informally, the use of the personalization strategy would best complement this type of knowledge transfer. Where social ties are weak and there is little social interaction between individuals; technology is the most utilised form of information creation and transfer, and ultimately the use of a codification strategy would be most appropriate.

Those that implement a codification strategy will invest heavily into IT to codify, store and transfer explicit knowledge to all those within the organisation, while a personalisation strategy will require far less IT investment as technology is only required to facilitate social relationships within the organization (Hansen et al, 1999).

3.2. Knowledge Management Within SME’s

Although Nonaka’s (1994) knowledge creating model and Hansen et al’s (1999) knowledge management strategies are primarily related to large organizations, the theory underpinning them can be applied to SMEs. SME type organisations manage their knowledge through a more socialization approach, due to their creative and innovative characteristics. The scale of operations within SME’s and how these businesses operate would indicate that the predominant form of knowledge being created, shared and ultimately utilised would be mostly tacit in nature. The requirements for complex IT based information systems and technologies are low, but the need to generate a creative culture is paramount.

While the establishment of prescribed knowledge management strategies have been developed for large businesses (i.e., codification and personalization strategies), the choice of strategy that best suits and matches the needs of SMEs is relatively unknown. Moreover, there are few empirical studies that look at knowledge management within SMEs. The choice of the right strategy for SMEs is critical.

3.2.1. Choosing The Right Strategy

Choosing a knowledge management strategy that meets the organisational needs of an SME is very dependent on the type of organisation. A SME's choice of strategy needs to fit with the 'make-up' of the business, such as the way the employees interact, how customer relationships are formed, how IT intensive the organisation is in terms of information/data (codified knowledge) storage and access requirements, its creative nature and finally the financial position of the business.

The financial position of an organisation is a significant factor as the financial implications of implementing a misplaced knowledge management strategy would be costly. With SMEs, the financial consequences of investing into the wrong knowledge management strategy can have the same devastating effects, if not more severe, when compared to a misplaced strategy for a large scale organisation. This is because SME's generally have limited financial resources to be invested.

Knowledge management research has determined that an organisation that chooses to implement a knowledge management strategy needs to choose a dominant strategy to best serve its knowledge creation, sharing and utilisation requirements. An organization cannot give equal emphasis to both strategies, and should focus on one strategy with the other playing a supportive role (Hansen et al, 1999). When a firm attempts to implement both a personalization and a codification strategy, with equal emphasis given to both, the consequences can be dire resulting in risking a complete strategy failure.

There however has been an argument made that both strategies can in fact be implemented, through the actual separating of the two strategies and not viewing them as an either/or notion (Gammelgaard & Ritter, 2004). However, this argument is valid only for multinational corporations that have relatively complex and IT intensive functions to link the two strategies together (Gammelgaard & Ritter, 2004). It is not relevant for SME's. The general view by most knowledge professionals and theorists remains that the type of knowledge management strategy that should be implemented is very much dependant on the structure and makeup of the company concerned.

3.2.2. The Implications Of A Misplaced Strategy

With SME organisations, the implementation of the right knowledge management strategy is just as critical as it is with larger organisations. However, there is a lack of empirical research that shows the implications of SME organisations implementing the wrong knowledge management strategy.

Often, knowledge management strategy is implemented for the entire company based on the needs of a particular level of the organisation, such as management (Hansen, et al, 1999). This then disregards the knowledge management needs of those in the lower hierarchies or the "frontline" of the organisation. The research described in this paper provides a view of how a particular SME type organisation had implemented a single generalised strategy that was very much misplaced, in the sense that it only accommodated for one level of the organisation (i.e., management) with disregard to the other.

4. Research: A Qualitative Case Study

4.1. SME Background

Minnell Building Supplies Ltd, trading as Placemakers in Mt Maunganui/Tauranga in New Zealand, focuses predominantly on the trade market as well as servicing the project driven "Do It Yourself" (DIY) market. The business sells a wide range of building products used in all aspects of building, maintenance, and home improvement.

Currently Minnell Building Supplies employs 105 Staff within its four geographically interdependent operations. These operations include a Tauranga Placemakers retail/trade store, a Mt Maunganui Placemakers retail/trade store, a Frame and Truss manufacturing plant located at Mt Maunganui, and a door and joinery manufacturing plant that is also located at Mt Maunganui. Within the national scale, Minnell Building Supplies is placed within the top performing operations in terms of size, sales, growth, Health & Safety and customer satisfaction levels.

This investigation only encompasses the Mount Maunganui operations as this is recognised as the central hub of the organisation. This site houses key management roles as well as the other various functions that serve the operations of the entire organisation. There are about 40 employees in this site, within the organisational level (Management) and the frontline level (shop floor and non-management employees).

The organisation possesses a number of knowledge systems and technologies which is used to primarily share and utilise information and knowledge through various departments and workspaces. The Identified knowledge management systems and technologies are grouped into technology-based systems for the explicit knowledge management and people-based systems for tacit knowledge management.

4.2. Research Methods

Both the Organisational level (Management) and the Frontline level (shop floor and non-management employees) were used as part of this research investigation. The investigation analysed the various strategies, systems and technologies used within this organisation for the purpose of knowledge management strategy fit.

The data required to investigate the knowledge management within the SME organisation was obtained using: (1) observations, (2) interviews and (3) a knowledge management system and tool questionnaire. These three data sources were used to triangulate the findings on the knowledge management strategy employed by the organization (Marshall & Rossman, 1989).

The observational aspect of this research was done by the first author, whilst working for the organization. These observations were conducted within all levels (i.e., management and front-line staff) of the organisation and provided important insights into how employees behave that reflect the sharing of knowledge both explicitly and tacitly.

The investigation incorporated the use of Nonaka’s knowledge creating spiral consisting of the four phases of socialization, externalization, combination and internalization. In order to “operationalise” Nonaka’s Knowledge Creating Spiral, the following interview matrix (see Figure 1) provided the framework for the structured interview questions that were asked. The matrix illustrates the various levels of the organisation, in particular the individual and group levels within the Frontline staff and Organisation (i.e., management). This method proved to be the most effective way to firstly recognise the various levels of the organisation where knowledge is being created and shared but to also acknowledge the types of phases of the knowledge creating spiral that are involved within those levels.

Organisational level or Group	Socialization	Externalization	Combination	Internalization
Frontline Staff (Individual)	How individual staff interact with one another, where tacit knowledge is shared and therefore created on a one-on-one level.	How individual frontline staff converse and interact to articulate what they tacitly know into a form that can be shared with another?	How new existing explicit knowledge is combined from one individual to the existing explicit knowledge base of another using social processes & means	How staff work one-on-one and share experiences that allow individuals to take the explicit knowledge and make it tacit by <i>learning by doing</i> .
Frontline Staff (Group)	What informal group activities are formed that allow staff to socially share their tacit knowledge that allows other group members to attain therefore create new tacit knowledge?	What conversational processes of transforming tacit knowledge of individuals into explicit knowledge for others are present including the use of metaphors and alike?	What means are present that allow groups of frontline staff to combine what explicit knowledge they possess with other small pieces of explicit knowledge?	What group 'learning' is found within the frontline staff and how this learning is conducted and by what means in order to make explicit knowledge tacit?
Organisational (Individual)	How individual managers interact with each one another, where tacit knowledge is shared and therefore created on a one-on-one level.	How managers on a one-on-one basis converse and interact to articulate what they tacitly know into a form that can be shared to another?	How do managers combine gained external knowledge with that existing knowledge of the teams?	How managers work one-on-one and share experiences that allow individuals to take the explicit knowledge and make it tacit by <i>learning by doing</i> .
Organisational (Group)	What group forums are used for senior managers to create and share tacit knowledge?	What conversational processes of transforming tacit knowledge into explicit are present including the use of metaphors and alike?	What means are present that allow management groups to combine what explicit knowledge they possess with other small pieces of explicit knowledge?	What group 'learning' is found within the organizational level? How this learning is conducted and by what means in order to make explicit knowledge tacit?

Figure 1: Framework For Interviews

In order to gauge the organisations knowledge management systems and tools effectiveness, a simple rating scale questionnaire was developed. The questions involved a checklist of all of the current tools and systems and asked

which of those were used on a regular basis (i.e. more than three times a week). The Figure 2 below shows the results from the questionnaire survey.

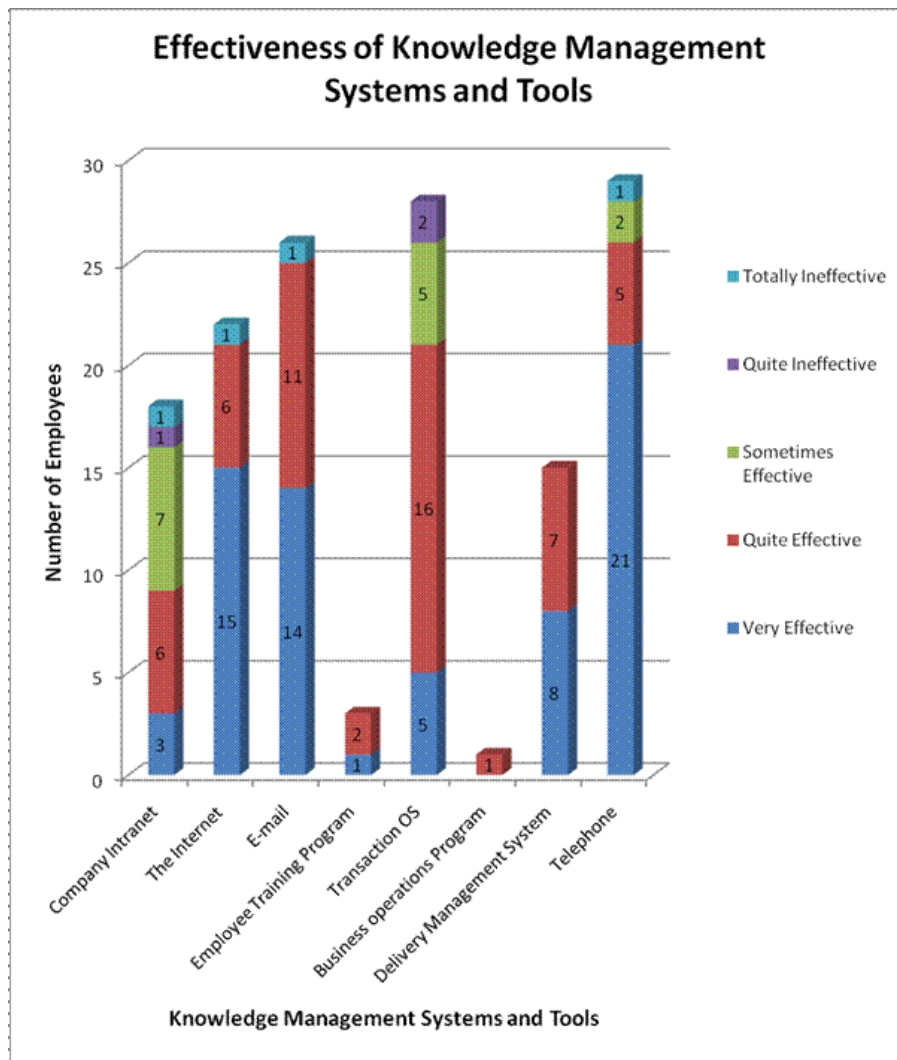


Figure 2 – Knowledge Management Systems And Tools Questionnaire Survey Results

4.3. Summary of the Research findings

The triangulation of the data gathered resulted in the following findings:

- New knowledge creation and learning within the organisations frontline was predominantly conducted in an informal way with on-the-job training and learning-by-doing being the most widely used methods.
- The use of formal learning methods was utilised most by the organisational level (i.e., management) as opposed to the frontline level.
- Socialisation played a significant part in knowledge creation within the frontline level, where the established relationships, networks and contacts were the main vehicle and source for knowledge creation.
- There was high reliance by the frontline on a small amount of the current knowledge management tools and technology available.
- There were a number of key knowledge creation facilitators within the organisation including:

- Organisational management had developed an open and sharing communicative environment for knowledge creation on all levels.
- There was a high degree of knowledge transparency and receptivity within the organisation
- Visualisation through illustrative means played a critical part of knowledge creation and transfer.
- The high degree of active involvement and availability of the suppliers with product knowledge for the purpose of product knowledge creation for the frontline staff.

5. Where The Different Knowledge Strategies Lie

The findings from the research provided for the holistic perspective on what knowledge management strategy was implemented and used to drive the flow of knowledge creation and transfer throughout the SME organisation. There were immediate contrasts in what methods each of the two levels of the organisation (i.e., frontline and management) were actually using for their knowledge management needs.

5.1. Operational (Frontline) – Personalization Strategy

“A majority of what I have learnt is attributed to the one-on-one training, not a lot of courses.” This statement by an Administration team member exemplifies one of the most important themes established from the interviews and the observations. It showed that the organisation’s frontline creates new knowledge in a predominantly informal way with limited knowledge gained through formal learning methods. This clearly exemplifies how the frontline adopts a personalization approach to their knowledge management needs. Other knowledge creating methods included:

Communities of Practice: A major characteristic of the informal knowledge creation within the organisational frontline is through the establishment and use of “communities of practice”. “Sometimes co-workers who have complimentary knowledge will form groups...these groups are those who share common work practices, interests, or aims” (Davenport & Prusak, 2000, p.38). With the frontline there were clear “communities of practice” formed. These communities were found within the various counters and functions around the organisation such as the Administration office, the Trade counter, the Retail counter and the Telephone Sales office. These groups were intentionally formed and developed, and did not emerge spontaneously. Each of these frontline groups are geographically defined by their location and also grouped through their shared work practices and aims. They also exemplified “the value of talk” with constant chatting and deliberations on ways and methods to conduct tasks, solve problems, and discuss various product usage.

On-the-job training: “On-the-job training” makes up a significant proportion of how knowledge is created and transferred within the frontline workers. This type of learning is initiated with workers at the start of and throughout the course of their employment, with a minimal amount of official and explicitly formal directives. For example, when an experienced trade counter team member was performing a special order for a customer, they also had one of the newer employees observe and take note of the necessary steps to perform this special type of order. As one Account manager stated, “99% of my existing industry and organisational knowledge can be attributed to the on the job training. I learnt the majority of what I know now, you learn everyday”. This type of informal training covers all functional aspects of the roles and positions within the frontline.

Learning-by-doing: The final characteristic is the way that the employees learn. The interview findings as well as from the observations showed that through the on-the-job training discussed above, the frontline employees learn mostly through the actual performing and repetition of the task. The training provided by co-workers for majority of the tasks that are performed within the frontline roles was found to be a prominent way by which new knowledge is created. The findings then show that after being initially taught, it is the constant repetition of these tasks that allow for others to adequately perform tasks more quickly and confidently. Consequently this way of learning creates knowledge on a tacit level through the internalization process, which allows for that newly created knowledge to become embedded into their tacit knowledge base.

5.2. Senior Management (Organisational) – Codification Strategy

From the research findings, it was immediately apparent that the organisations management level of the SME utilised mostly formal and explicit means of knowledge creation and transfer. They were the highest users of the IT tools and systems and the research findings show a codification strategy being the dominant strategy within this organisational level.

Formal Learning and knowledge creation: the majority of the learning and knowledge creation identified with the organisational level were through the use of more formal means and methods. This type of formal knowledge creation involved the use of externally organised training and learning programmes such as formal training courses. Management also partake in industry related meetings/forums with various industry

associations - "It's an open forum to share ideas, network and meet new people within the industry" (Sales Manager). There are a number of other organisationally orientated forums such as with the Health and Safety and Frame and Truss committee's that are intended to bring those representatives from various national locations together with the goal of creating new knowledge - "the inclusion into working parties with head office and other branches, where there is intention for sharing ideas to problems and new initiatives that affect everyone within the organisation as well as nationally e.g. the drug and alcohol policy" (HR Manager).

6. The Misplaced Knowledge Management Strategy And Its Implications

From this case, there were two disparate knowledge management strategies indentified within the organisation. The frontline level created and transferred knowledge using what is typical of a personalization strategy. However, the focus from the management level was codification strategy, and this resulted in the following implications and knowledge management failures:

6.1. Explicit Knowledge Creation

There were a number of knowledge management technological tools and systems implemented by the management level that were identified as being flawed in a number of ways. The company intranet was seen as being limited in its usefulness due to its seemingly unlimited content. Frontline employees stated that it "produces a lot of irrelevant information and is information saturated". These criticisms of such knowledge management tools show that they are not performing the knowledge creating and sharing objectives that they have been purposed for.

There was a high reliance on a small number of tools and systems, which included the telephone, internet and email, with the telephone being the single most important tool utilised by Frontline employees to share knowledge. These tools were more utilized than the data and information storage facilities such as the company intranet, which were intended by management to be used as knowledge storage and reuse. Email and telephone possess richer media value in terms of immediacy of information/knowledge relay, which were deemed as critical for a number of the frontline roles. Other key results included:

- Access to technological tools was restricted only to those with direct access to computer terminals and authorisation. This finding meant that only half of the frontline employee groups were able to utilise the available technological tools.
- A number of the technological tools such as the employee training program that is made available to all employees were used by only a small proportion of the workplace employees with a significant number of employees not even aware of the tools existence.

In summary, the reliance a few selected IT based technologies used to facilitate the means for knowledge creation and transfer confirmed the view that a dominant codification strategy would stifle and clash with the socially orientated knowledge creating processes within the frontline level.

6.2. Tacit Knowledge Creation

There were limited and few recognised systems placed for the actual encouragement and accommodation of tacit knowledge creation within the frontline. This was attributable to the lack of understanding by management on how the majority of new knowledge is created and transferred within the frontline and how important a personalization strategy is for this level of the organisation. Where no direct orchestration provided from the management level for the frontlines tacit knowledge management needs, the frontline had indirectly forged their own knowledge creating means through the forming of "communities of practice", learning by doing, and using social networks that provide for tacit knowledge transfer, which proved to be effective for the frontline level to capture and share the tacit knowledge required in order to perform their specific roles and functions.

6.3. Reasons Behind The Misplaced Knowledge Management Strategy

These differences in perceived value of knowledge creating attributes by the different levels of the organisation outlined above reflect a potential issue for all SME's. The misplaced knowledge management strategy within this case study had illustrated the glaring differences between how the two levels within the organisation create and transfer knowledge and an imposed codification strategy by the management level without recognising the tacit knowledge needs of the frontline. The reasons for this misplaced strategy can derive from various organisational sources.

The lack of understanding about knowledge management: the findings from the research indicated a lack of cognitive understanding on the part of management, on how the various levels of the organisation effectively create and transfer knowledge. This contributory factor could be potentially indicative of many SME's. This could be attributed to the priorities that are placed by management for the operating of the business and that drivers such as finance, marketing and HR would demand more consideration than knowledge management.

Misconceptions about IT value in knowledge creation: The findings from the case study uncovered the over-emphasis of IT for knowledge creation and transfer needs, and that while the actions of socialization was known, the degree of importance to how much of a role socialization played in actual knowledge creation and transfer was not recognised by management. The focus on organisational learning styles, socialization, and the degree of tacit knowledge creation/transfer was often either ignored or unrecognised.

Ease in implementing standard solutions: The investment into standardised knowledge facilitation tools such as email, a company intranet and other technological tools was relatively easy. Therefore, with the aggrandizing of the role that IT plays in knowledge management, and the relative ease in implementing standard IT systems, the tendency towards a misplaced knowledge management strategy was not surprising.

7. Conclusion

The study provides a holistic view of wrongly implemented knowledge management strategy within an SME organisation. It is widely known that a significant proportion of new knowledge is generally created by those within the frontline due to the fact that they are more expert in the realities of a company's business and constantly immersed in the day-to-day details of particular technologies, products and markets (Coulson-Thomas, 2004; Nonaka, 1994). Within the case organisation, these day-to-day dealings were often played out using socialization techniques such as established "communities of practice" and networks, where one-on-one dialogue and teaching, as well as learning-by-doing were practiced that resulted in the transferring of tacit knowledge to one another. These characteristics of a personalization strategy were exemplified and compounded by how the information that is being dealt with by the frontline is usually very specific and constant due to the nature of the building industry, and while there is the difficulty in turning that information into knowledge, the social interaction amongst the frontline is recognised as a very rich source of knowledge creation when properly orientated (Nonaka, 1994).

The research surrounding the identification of the knowledge management strategy being used within the organisation had found an implemented codification strategy as its dominant knowledge strategy. What was also discovered was the frontlines discontent with a number of the technological tools purposed for explicit knowledge creation and sharing.

The importance of knowledge management for SMEs has been recognized. However the focus on implementing the right strategy and the potential implications associated with implementing the wrong strategy has not been widely studied, and this case study contributes to filling this gap. This is a single case study and the context of the study may be only relevant to this particular SME industry. Therefore, more research will have to be undertaken to ascertain the extent of misplaced knowledge management strategies within SME's. What is clear is the importance that is associated with recognising what type of knowledge is mostly created and transferred within SME organisations and that developing a strategy that caters best for that knowledge type will provide for effective investment of resources.

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