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A LITERATURE REVIEW ON KNOWLEDGE MANAGEMENT, FACILITIES MANAGEMENT AND THEIR POTENTIAL INTERRELATIONSHIPS

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ABSTRACT: This paper tries to scrutinize the nature of knowledge management and facilities management within their variety of definitions, through a literature review. It concentrates on identifying different broad views and definitions of each subject area. At the same time the paper concentrates on ascertaining the core features of each discipline during the literature review. By evaluating these core features of each discipline, the paper then discusses the importance of managing the knowledge within the facilities management domain. Finally, by evaluating potential interrelationships between knowledge management and facilities management, it describes how and where the concepts of knowledge management can be used to manage facilities for organisational success, followed by a discussion about how and where facilities management concepts can effectively be used for successful implementation of knowledge management exercises.

Keywords- Facilities Management, Knowledge Management, Organisations, Interrelationships

1 INTRODUCTION

Due to the ever lasting rivalry between competitors in the modern economic society, organisations are continuously searching for techniques which enable them to be on the competitive edge over their competitors. Addressing this issue, significant number of researches are being carried out during the last few decades, about how the organisational resources and integrated building facilities can effectively be utilised for organisational success. Even though the definitions vary significantly from study to study, the above issue is being addressed by researchers frequently under the classification of "facilities management". Facilities management, in its widest possible sense, is concerned with the dynamic interaction between an organisation's personnel, processes and place (Laird, 1994). Further, an evaluation of the definitions of facilities management provided in the past suggests that the focus of facilities management is clearly on the work place (Tay and Ooi, 2001). However, in recent years, it has become apparent that there are clear shifts in focus, as the practice of facilities management gradually matures (Shiem and Then, 1999). Further, Shiem and Then (1999) state that, more recently, the shift has been towards resource integration in facilities management. Emphasising the importance of resource integration aspect in facilities management, three major phases were identified by Atkin and Brookes (2000), in the process of establishing facilities management strategies in an organisation.

- Strategic Analysis
- Developing Solutions
- Strategy Implementation

Atkin and Brookes (2000) further state that during the strategic analysis phase, a resource audit is to be carried out to assess the current level of resources, processes and systems to provide a broad picture of the current provision of services. Further supporting this, Nutt (2000) highlights that the primary function of facilities management is to be the resource management at strategic and operational levels of support. This suggests that the

organisational resources are to be given a vital consideration when developing a facilities management strategy for an organisation. Further Nutt (2000) has also identified management of information and knowledge resources as a generic type of resource management central to the facilities management function.

In addition to managing the facilities of an organisation, managing knowledge within the organisation is also being considered as a vital area of research which contributes to the success of an organisation. As in the case with facilities management, knowledge management also suffers from its diversified nature of definitions. At the organisational level, knowledge management is being identified as a mechanism for capturing and disseminating the knowledge that exists within the organisation (Bollinger and Smith 2001). Furthering this view, Beijerse (2000) shows the application of knowledge management in a three levelled structure of an organisation. In the operation level, the knowledge management is to be considered as a process, while in the tactical level due consideration to be given to the tactical level parameters like organisational structure and organisational culture. And at the top level, the strategy for managing knowledge within the organisation is to be devised considering all the organisational objectives.

Considering the ultimate objective of maximum organisational success, both knowledge management and facilities management strategies are to be operational at the optimum level at any given time. Addressing the question of optimum utilisation of knowledge management and facilities management at the organisational level, it will be worthwhile considering potential interrelationships between these domains.

One of the main objectives of this paper is to explore the diversified nature of the definitions of knowledge management and facilities management. While attempting to achieve this objective, various definitions and views on knowledge, knowledge management and facilities management are being considered and being attempted to classify under broad categories within the each domain. Further to this objective, the paper also discusses about potential interrelationships between each domain.

The basis of this paper is a literature survey carried out to identify the diversified nature of the definitions in facilities management and knowledge management. Firstly, the report will highlight the most common views in literature about the knowledge and knowledge management. Then it will discuss about the various views and definitions about facilities management. At the latter stage of the report, an analysis will be presented to evaluate possible interactions between each domain. As an example, the latter stage of the paper discusses how knowledge management techniques can effectively be used to improve the facilities management implementations within an organisation and visa versa.

2   WHAT IS KNOWLEDGE?

Because of its intangible and fuzzy nature, defining knowledge precisely is difficult. What is knowledge for one person can be information for the other (Bhatt, 2002). One common way of defining knowledge is by evaluating it's validly as an organisational resource. Within this particular view, Bollinger and Smith (2001) define knowledge as a resource that is valuable to an organisation's ability to innovate and compete. Further, they state that it exists within the individual employees, and also in a composite sense, within the organisation. Borghoff and Pareschi (1998) contributes to the above view by describing the two types of knowledge within an organisation by using the terms, "tacit knowledge" and the "explicit knowledge". They describe tacit knowledge as personal knowledge embedded in individual experience and explicit knowledge as formal knowledge that can be packaged as information. They further shows that these two types are equally important to an organisation and those were described as two sides of a single coin. Bhatt (2001) also agrees with the concept of the tacit knowledge

and explicit knowledge and elaborate more on the importance of individual types by mentioning "however, organisational knowledge is not just a sum of individual knowledge. Organisational knowledge is created through unique patterns of interaction between technologies, techniques and people which cannot be easily imitated by other organisations, because these interactions are shaped by organisation's unique history and culture".

Considering the knowledge in its broader sense, Marakas (1999) describes knowledge as an organised combination of ideas, rules, procedures and information. This view is reinforced by Alexander et al., (1991) by suggesting that knowledge refers to an individual's stock of information, skills, experience, beliefs and memories. This view considers the knowledge independently from the organisation and claims to have an "information" dimension attached. Limiting its validity as an influential factor, Beijerse (2000) demands a clear distinguish between data, information and knowledge. He expressly states that knowledge can certainly not be assumed to be equal to a dose of data or to information. Beijerse (2000) further argues that knowledge can primarily be described as something that makes both data and information manageable. In conclusion he establishes that knowledge is characterised by information, a capacity and an attitude. In addition he defines knowledge as the result of multitude of factors such as experience, skills, culture, character, personality, feelings, etc. This demands more "human based view" about knowledge rather than considering it in a "information / technical based view". Seeing from a different viewpoint, Bailey and Clark (2000) suggest that knowledge to be "usable ideas" – ones which are current, relevant and accountable. Further exploring this definition, it may be arguable again that "usable ideas" will be based on information, skills, character and alike. However, the above shows that there is a strong concern about the relationship between the information and knowledge. Considering the fact that information is time and location dependent, whereas knowledge depends upon the person rather than the time or the location, it may be arguable that information to be regarded as a stimulus of knowledge rather than a part of it.

2.1   Managing Knowledge

With the growing concern about knowledge as an organisational resource, knowledge management have become an important area of research during the last decade. As Bollinger and Smith (2001) highlight, within its fairly diversified nature of definitions, knowledge management is discussed in the literature frequently as a mechanism for capturing and disseminating the knowledge that exists within the organisation. This suggests that the knowledge management is a process which provides a mechanism to manage the knowledge within an organisation. Enhancing this "process view" of knowledge management, Bhatt (2002) has identified a range of activities related to knowledge management ranging from learning, collaboration, and experimentation to integration of diverse sets of tasks and implementation of powerful information systems such as Internets, intranets and extranets. Newman (1991) reinforces this view by defining knowledge management as a collection of processes that governs the creation, dissemination and utilisation of knowledge.

Rowley (1999) have explored the knowledge management in a different perspective, by stating "knowledge management is concerned with exploitation and development of knowledge assets with a view to furthering the organisation's objectives". This definition treats knowledge as an organisational asset and considers knowledge management as a tool which utilises the knowledge asset to broaden the organisational objectives. Supporting this view, Grey (1996) defines knowledge management as an audit of "intellectual assets" that highlights unique sources, critical functions and potential bottlenecks which hinder knowledge flows to the point of use. It protects intellectual assets from decay, seeks

opportunities to enhance decisions, services and products through adding intelligence, increasing value and providing flexibility.

Bertels (1996) claims that, in the practical sense, knowledge management is the management of organisation, towards the continuous renewal of the organisational knowledge base. He further elaborate his definition by providing examples of creation of supportive organisational structures, facilitation of organisational members, putting IT-instruments with emphasis on team work and diffusion of knowledge (as e.g. groupware)

All the above definitions and views demonstrate knowledge management from a process centred perspective. Beijerse (2000) adds another dimension to knowledge management by seeing it from a strategic angle. At the same time he supports the process view of knowledge management in an organisation, and explains how each view fits in an organisational hierarchy. Beijerse (2000) uses a three levelled model to illustrate theses different views.
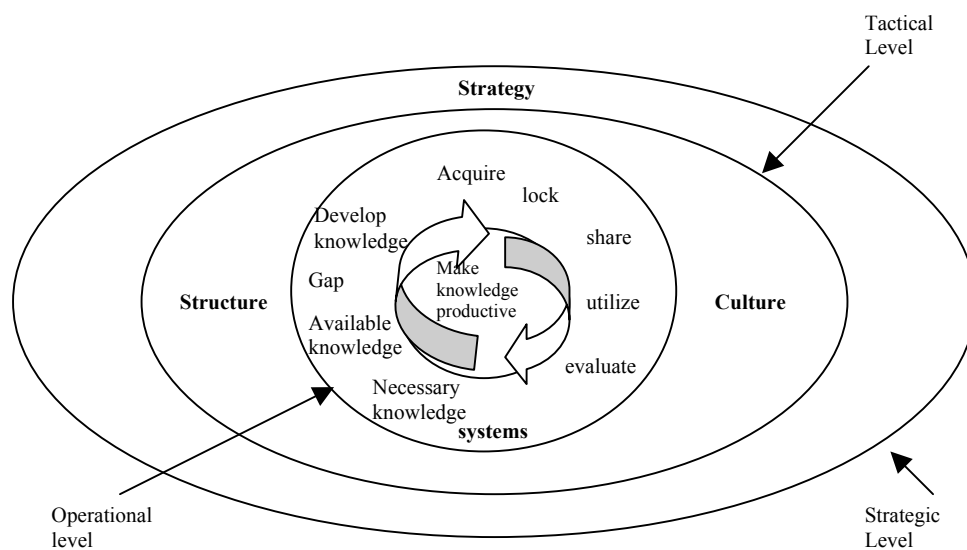

Fig. 1. An integral knowledge management model (Beijerse, 2000)

Figure 1 shows the application of knowledge management in various level of an organisation. The operational level managers see the knowledge management as a process driven approach, while the tactic level manager's task is to manage the applicability of tactical level parameters of knowledge (organisational structure and organisational culture). Top management should compile a knowledge management strategy for the organisation and a top-down approach will determine the tasks of tactic level and operational level knowledge management approaches.

This "organisational view" of the knowledge management may be further enhanced by elaborating on the interaction between the operational level knowledge management functions and tactical level knowledge management aspects. This interaction is illustrated in Figure 2.
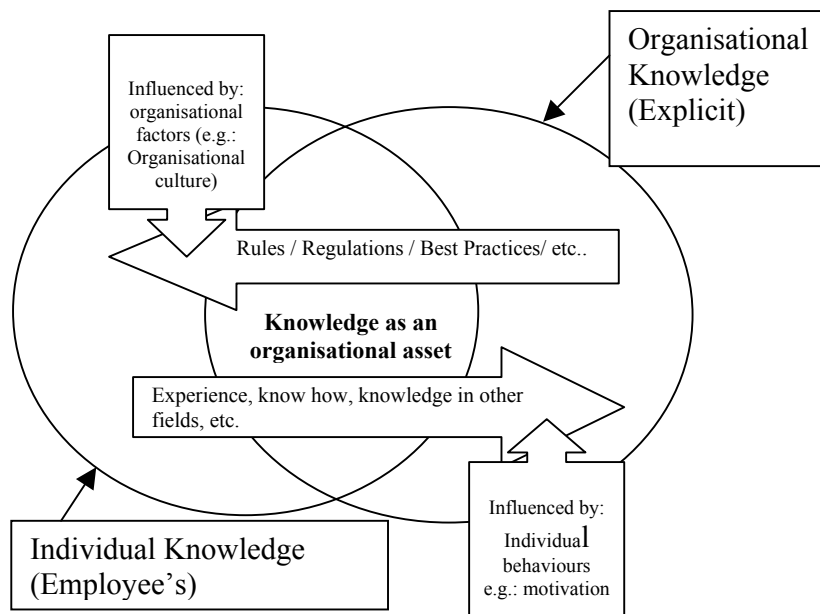
Fig. 2. Knowledge as an organisational asset

The above diagram shows that the combination of individual and organisational knowledge creates the usable or valuable knowledge for an organisation. It also shows the general learning mechanism of those two types and the influencing factors. The learning process contributes to the each type of knowledge within the organisation, thus increases the amount of usable knowledge (knowledge asset) in the organisation.

3 MANAGING FACILITIES

Various definitions by researches and practitioners in the field of facilities management show a broad scope of the subject. As mentioned before, for many academics in the field, the definition of "facilities management" remains a vexatious issue. As Tay and Ooi (2001) has identified, the definitions provided by various academics and practitioners in the field, have prevented a common platform being created, which is so crucial for a cohesive theoretical development in FM.

In broader sense, FM is to be concerned with the dynamic interaction between an organisation's personnel, processes and place (Laird, 1994). Further supporting this view, Becker (1990) defines FM as, what is responsible for co-ordinating all efforts related to planning, designing and managing building and their systems, equipment and furniture to enhance the organisation's ability to compete successfully in a rapidly changing environment. This view of facilities management is centred around the physical work place arrangement and its affect to the organisational success. In another view, the Centre for Facilities Management (1996, cited Alexander, 1996) defines facilities management as 'the process by which an organisation delivers and sustain support services in a quality environment to meet strategic needs'. Further Alexander (1996) describes,

- creating a facilities policy that expresses corporate values
- giving the authority to the facilities business unit to improve service quality
- developing facilities to meet business objectives
- recognising the values that facilities add to the business

as major points for an organisation to be considered in terms of its facilities management strategy.

Within the diversified definitions of FM, Tay and Ooi (2001) have identified some common recurring themes. Firstly, it can commonly be seen that some of the definitions of FM focus on the workplace. The workplace in this instance refers to a place where work (of

any nature) is carried out. As an example, Then (1999) emphasise that the practice of FM to be concerned with the delivery of workplace environment- the optimum functional space, that supports the business process and human resources. Further supporting this, Alexander (1994) states that;

"The facilities management movement can be summarized as a belief in potential to improve processes by which workplaces can be managed into inspire people to give of their best, to support their effectiveness and ultimately to make a positive contribution to economic growth and organisational success."

In addition, NHS Estates (1996) defines FM as the practice of co-ordinating the physical workplace with the people and work of an organisation and it integrates the principles of business administration, architecture and the behavioural and engineering science.

Tay and Ooi (2001) further suggest that the FM is applicable to all. This emphasises that the facilities management is not limited to one particular type of organisation or one industry. By integrating these facets and the blatant fact that the FM should contribute to the improvement of the performance, Tay and Ooi (2001) have concluded that, while FM has a single focus on the work place, to enhance the performance of the workplace requires a multi-faceted approach. (e.g. space management, environmental management, support services management, human resource management, financial management, etc.)

According to Shiem and Then (1999) it has become apparent that there are clear shifts on focus as the practice of FM gradually matures. Further they claim that the recent shift has been towards resource integration with the emphasis on provision of enabling working environment where the issues of people, processes and property are elements of the same problem seeking a common solution. Further, Nutt (2000) identifies resource management as a primary function of FM at strategic and operational levels of support. Further he identifies management of financial resources, physical resources, human resources and the management of the information and knowledge resources as generic types of resource management central to the FM function. The above discussion demands a consideration of FM functions in an organisation, not only in its traditional workplace view, but also in an integrated resource management view which considers both the physical resources and non physical resources like knowledge and information.

4   POTENTIAL INTERACTION BETWEEN KM AND FM

Considering the views and definitions discussed above, it is reasonable to state that in general, FM strategies are trying to explore the possibilities of utilising organisational facilities (traditionally the workplace) effectively to achieve organisational objectives. And as discussed before, the focus of FM in the recent past has moved more towards the concerns about how the workplace and other traditional FM elements to integrate with organisational resources (both physical and non-physical) for better achievement of organisational success.

On the other hand, the validity of knowledge as an organisational resource has also been discussed in this paper. This provides the foundation to analyse the potential interrelationship between these two domains in relation to effective achievement of organisational objectives and how each domain works as an enabler for the other domain.

4.1   How KM fits in FM

In evaluation of possibilities of incorporating KM techniques for improved performance in FM, various parts of FM strategies are discussed with appropriate KM techniques.

In the context of multi facet approach to FM, the vital parts consist of space management, human resource management, support services management, financial management etc. Some

of these facets can be managed effectively using the principles in KM. for an example, it might be useful explore the possibilities of incorporating organisation's knowledge to the human resource management aspect when managing the facilities in an organisation. On way of implementing this is, by collecting and retaining employee's perceptions towards the facilities of the organisation. Considering the workplace management (layouts, space management, etc.) aspect, knowledge management techniques can be used to build a mechanism to collect information about how each individual is affected by various work place management strategies implemented from time to time. In addition, this approach will identify possible interrelationships between workplace arrangements and personnel behavioural issues like motivation. For an example, a draftsman working in a particular organisation may prefer to be seated in a specific seat next to a window. This characteristic may be a personal preference or it may be due to the nature of the work. These trends can be captured in a systematic way by using KM techniques. Modern information technological tools may be used to retain this knowledge within the organisation, (perhaps in the form of data or information) and can be used as valuable information when developing future FM strategies for the organisation. Another advantage is that, by employing knowledge management techniques to retain information of this nature, it accumulates to the organisational knowledge, ensuring the organisation is not loosing that knowledge when the employee leaves the organisation.

In another aspect, use of explicit knowledge creation techniques like proper organisation of organisational information related to support services or work processes might increase the effectiveness of the FM exercises within the organisation. For an example, if an organisation captures and creates the knowledge of formal and informal work processes within the organisation as a standard practice, when it comes to management of facilities, the organisation can utilise these knowledge to build strategies about space utilisation, power consumption evaluations, in scheduling regular maintenance activities etc. This potential incorporation of KM techniques ease the practice of FM within an organisation while potentially boost the performance of the same, thus KM may be used as an enabler for FM within an organisation.

4.2   How FM fits in KM

While KM acts as an enabler for FM in an organisation, it may also possible to consider possible incorporation of FM concepts for better KM implementations. In an organisation, KM has a vital role to play in knowledge retention. For an example, to minimise the intellectual assets out flow, mechanisms are created within the organisation to capture knowledge from exciting employees and accumulate that knowledge to the organisation knowledge base. One problem of this process is lack of proper path to flow knowledge from employees to the organisation. In general, formal protocols and reports are used for this knowledge capturing process and strategic implementation of FM methodologies may contribute positively to the success of this process. Specifically, if the FM strategy is developed after considering this information flow requirement, the office layout may be prepared to assist the knowledge flow with suitable work neighbourhood. This shows a potential area of application where FM effectively be used as an enabler for KM.

5   CONCLUSION

In this economic society gaining a small advantage over the competitors will carry an organisation a long way. Diverting from traditional physical resource based views, organisations are now seeking possibilities of exploring the optimum utilisation of intangible

assets like information and knowledge. During the last few decades this continues search has boosted the research concerns in areas of knowledge management and facilities management.

Both knowledge management and facilities management have been defined with great diversification by various authors and researchers. In the knowledge management, the most common definitions can be categorised into few major views. One view describes knowledge in the context of an organisational resource. And knowledge management is regarded as a process. In another view knowledge is defined in relation with information. Hence, in some instances knowledge management is considered as a technical process where the information technological tools are being used during the knowledge management process. As oppose to this "technical view" some researches have identified the knowledge as "more human". This view strongly refuses the IT application for KM, as they consider the culture, personality, experience, motivation, etc., as more appropriate to deal with, than information in managing knowledge. Adding to this, information can be explained as a stimulus of the knowledge rather than arguing it to be or not to be a part of knowledge.

In addition this "process based" view of knowledge management which can be seen at the operational level of an organisation, "a strategic view" of knowledge management has also been described in literature. This strategic view concerns with the tactical level of knowledge management parameters like organisational culture and organisational structure.

On the other hand, facilities management also has the same feature of diversified set of definitions. In a broader sense, one set of definitions can be classified as the "workplace view" of Facilities Management. Within this view, the FM has been defined as the possible integration between organisation's personnel, process and place. Diverting from this classical "workplace view" FM has been defined in another angle, which contributes to a multi facet approach. In this approach, the FM strategy has to consider additional parameters like space management concepts, human resource management concepts, etc. Further it could be seen that, there are clear shifts on focus as the practice of FM gradually matures. Recently, this shift on focus is being geared towards the resource integration within FM.

Considering the nature and characteristics of each domain, some areas can be highlighted as potential areas where knowledge management techniques can be used for a better implementation of FM within an organisation. Using knowledge management techniques to help in work space utilisation, use of standard knowledge management procedures to create knowledge which may be useful in compiling FM strategies could be stated as examples for the above. Ain turn, some of the FM strategies may have potential usages as strategic ways of implementing KM exercises. As an example, proper work place layout may help in capturing employee's knowledge more effectively.

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