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Harnessing Knowledge Management In The Process of Performance Evaluation of Facilities in Malaysia: A Critical Success Factors

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Abstract

Knowledge is vital in decision making process similarly; performance evaluation of facilities is a strategic tool of generating and sharing new knowledge. Both contribute towards continuous improvement of organisational process performance. The systematic management of expanding knowledge within the Facilities Management organisation are obviously very crucial. However, the awareness and knowledge to incorporate user feedbacks as part of the overall building process in Malaysia is relatively low, and the mistakes done in managing facilities largely remain continuous un-documented. The reception towards continuous improvement in developing countries such as Malaysia is, arguably, still at its infancy, and the practice is yet to be fully appreciated by many. Those hindrances and successful factors need to be identified the threat and opportunities can be assessed. To date, critical success factors (CSFs) for implementing knowledge management (KM) in Facilities Management (FM) specifically in facilities performance evaluation process have not been systematically investigated. This paper is aimed to bridge this gap in Malaysia context. Existing studies on CSFs were reviewed to suit the facilities management field, industry and practice organisation. The identification of its critical success factors provides a means by which an organisation can access the threats and opportunities in overall facilities management environments.

Keywords: critical success factors, facilities management, knowledge management, performance evaluation

1. Introduction

The concept of KM has been broadly practiced in general management discipline, manufacturing, finance and marketing as well as in built environment field such as in construction industry. Several authors such as (Varcoe, 1993, Alexender, 1994, Carder, 1995, McLennan, 2000, Puddy et al.,2001, Sapri and Pitt, 2005, Pathirage et. al. 2008, Das et al., 2009, Wahid and Fernie, 2009) identified the needs of knowledge management in FM industry for a reasons such as profession progression, strategic approach, innovation, business opportunity and to prepare for future challenges. Nutt (2000) characterises FM as “information saturated” ”data rich” but “knowledge poor” and Sink (1991) suggests that performance measurement is a “mystery....complex, frustrating, difficult, challenging, important, abused and misused” function, the existence of KM in FM organisation become more essential.

In broader FM context, Nutt (2000) sets out to explore four basic FM ``trails". These trails correspond to the generic types of resource that are central to the FM function; the management of financial resources, human resources, physical resources, and the management of the resources of information and knowledge.

According to Nutt (1999), FM knowledge is of crucial importance and makes a proactive contribution to business, where FM still tends to be technically orientated and reactive. While the relevancy and potential value of available technical and management expertise is recognised, its application to the specifics of facilities operations and management is poorly developed. As contended by Nutt and McLennan (2000), the FM knowledge trail is at an early stage of development in which:

- it sets out from an ever widening and ill-defined sphere of activity;
- it still needs greater internal coherence for many working in the field;
- it lacks external coherence to many corporate and business organisations, and to the educated public at large;
- it has too few secure methods of its own to underpin good practice;
- it has already begun to make its own distinctive contribution within the management field; and
- it is insufficiently supported by an adequate knowledge base.

Performance evaluation of facilities Egbu et. al.(2003) contended that failure to capture and transfer knowledge leads to the increased risk of ‘reinventing the wheel’, wasted activity, and impaired organisational performance. They further stress that the successful KM could overcome learning barriers, in FM organisation, trough instilling a learning and knowledge sharing environment, providing vision and effective leadership and initiating knowledge sharing reward system.

The discussion of CSF’s in implementing knowledge management in performance evaluation of facilities are based on the knowledge management enablers such as strategy and leadership, culture, people and technology. Those enablers are examined throughout this paper from facilities management perspective in performance evaluation context.

2. Identification of critical success factors

Oxford University Press 2002 defined success as “the achievement of something desired, planned or attempted, an event that accomplishes its intended purpose”. Whereas, critical success factor are frequently applied by different management field in various industries in which organisation needs to perform best if it is to achieve overall success and organisational goal. Rockart (1979) define the CSF as;

“...limited number of areas in which satisfactory results will ensure successful competitive performance for the individual, department or organization. CSFs are the few key areas where "things must go right" for the business to flourish and for the manager's goals to be attained.”

The concept was first introduced in 1962 by D Ronald Daniel with aims to assisting managers to better perform their jobs, especially in terms of direction, planning, management of operations, and control (Leidecker and Bruno, 1984). The process than refined by Rockart (1979) by identifying five prime sources:

- i- the structure of the particular industry
- ii- competitive strategy, industry position, and geographical location.
- iii- environmental factors
- iv- temporal factors, and
- v- functional managerial position.

In the context of harnessing knowledge management in the performance evaluation process of facilities, the critical success factors represent the few "factors" which are "critical" to the "success" of the implement the knowledge management in the facilities performance evaluation process.

2.1 FM as a support service

A review of various literature described facilities management as a support function (Olomolaiye, 2004; Alexander 1996,) to the organisation, but its role in the maintenance of building facilities and in property management are also critical and demanding (Amaratunga et al, 2000; Underwood and Alshawi, 2000; Barrett, 1995). FM is popularly viewed as being divided into two entities based on these two aspects which show the importance of the project life-cycle because they are inter-related and share information from the project brief through to the design life of the building.

As FM role in the organisation always referred as a secondary function in the organisation, part or whole functions of FM frequently out-sourced to the external parties. Whereas, the organisation are more focus to its main activities. The outsourcing is belief to give significant implication to harnessing KM in internal FM organisation if strategic approaches are not planned at the first place.

2.2 Malaysia FM industry

In Malaysia context, Mustapha and Adnan (2008) identified that the increasing awareness on the importance of a proper maintenance management system becomes the main contributing factor on the development of FM in Malaysia. Subsequent to this, the business management of various organizations has started to promote the need of facilities management as part of the business organization. However, up to the present date, no specific profession has been established in Malaysia. The responsibility of Facilities Manager is often being undertaken by various professionals, especially the Property Valuers, Mechanical and Electrical engineers and the Civil engineers. As noted, these professions are not specifically designed to cover the required skills and knowledge of what is expected from the facility managers.

2.3 Facilities performance evaluation

The measurement of facilities has three main components, namely, physical, functional, and financial (Williams, 1996). Physical performance relates to the behaviour of the building fabric and embraces physical properties such as structural integrity, heating, lighting, energy efficiency, maintainability, and durability. Functional performance concerns the relationship of the building with its occupiers and embraces issues such as space, layout, ergonomics, image, ambience, communication, health and safety, and flexibility. Finally, financial performance arises from the physical and functional performances of the building and comprises capital and recurrent (life-cycle) expenditures, appreciation and efficiency of use etc. as illustrated in Table 1 below.

Table 1: Typical facilities performance norms

Performance aspect	criteria	data source
<i>Physical</i>	<i>Structure Condition (defects identification)</i> <i>Services equipment</i> <i>Furniture and fitting</i> <i>Law compliance</i> <i>Level of comfort</i> <i>Safety and health</i> <i>Security</i>	<i>physical inspection</i> <i>observation</i> <i>as built document</i> <i>authorities' requirement</i> <i>user's feedback/request</i> <i>in-situ measurement</i>
<i>Functional</i>	<i>Space layout</i> <i>Integration of space and service</i> <i>Orientation and flow</i> <i>Environment</i> <i>Service efficiency</i>	<i>user experience</i> <i>observation</i> <i>in situ measurement</i>
<i>Financial</i>	<i>Space efficiency</i> <i>Maintenance efficiency</i> <i>Utilities expenses</i>	<i>tenancy/occupier record</i> <i>financial records</i> <i>reports and analysis</i>

As part of the strategic planning process in FM industry specifically in conducting performance evaluation, identification of CSF's is essential. The identifications is based on three levels of critical success factors analysis as suggested by Hofer and Schendel (1978) which is Macro/Environment level, Industry level and firm level analysis.

2.4 Environmental factors

In the CSFs context, environmental factors referred to economical and technological changes. Business factors such as service offered and player in FM industry are on the supply side. Demand side are referred to market size of the FM industry and client requirement and expectation from FM services.

The technological aspect of FM industry mainly regarded to information technology (IT) and innovation. IT is broadly accepted as a tools to aid the FM processes and very crucial in conducting facilities performance evaluation. Nutt (1999) discussed broadly regarding to innovation in FM industry based on the four common origins of innovation as:

- i. Practice-led Innovation
- ii. Theory-led innovation
- iii. Personal based innovation
- iv. Contextual based innovation

From those sources, he further suggests that innovation can be achieved via three basic areas such as 1) innovation through practice; 2) Innovation through research and 3) Innovation through collaboration.

3. Critical success factors in harnessing knowledge management

The critical success factors and/or key factor of success in harnessing KM in organisation and processes has been discussed by many authors such as Skyrme and Amidon (1997), Devanport et al (1998), Liebowitz (1999), APQC (1999), Holsapple and Joshi (2000), Hasanali (2002), Wong (2005) and Akhavan and Jafari (2006). The discussion covered in a broad area of management, culture, technology, strategy, measurement, infrastructure, processes, and human resources.

Skyrme and Amidon (1997) has identified seven key success factors including a strong link to a business imperative, a compelling vision and architecture, knowledge leadership, a knowledge creating and sharing culture, continuous learning, a well-developed technology infrastructure and systematic organisational knowledge process in order to formalising knowledge management in organisation and enterprises.

Table 2: Literature analysis on CSFs (adopted from Wong, 2005)

<i>Skyrme and Amidon (1997)</i>	<i>Davenport et al (1998)</i>	<i>Liebowitz (1999)</i>	<i>APQC (1999)</i>	<i>Holsapple and Joshi (2000)</i>	<i>Hasanali (2002)</i>	<i>Wong (2005)</i>	<i>In Common</i>
<i>Knowledge leadership</i>	<i>Senior management support</i>	<i>Senior leadership support</i>	<i>leadership</i>	<i>leadership</i>	<i>leadership</i>	<i>Management leadership and support</i>	<i>Management leadership and support</i>
<i>A knowledge creating and sharing culture</i>	<i>Knowledge friendly culture</i>	<i>A supportive culture</i>	<i>culture</i>	-	<i>culture</i>	<i>culture</i>	<i>Culture</i>
<i>A well developed technology infrastructure</i>	<i>Technical infrastructure standard and flexible knowledge structure</i>	<i>Knowledge ontology and repositories</i>	<i>technology</i>	-	<i>IT infrastructure</i>	<i>IT</i>	<i>Technology</i>
<i>Strong link to a business imperative A compelling vision and architecture</i>	<i>Clear purpose and language</i>	<i>A KM strategy</i>	<i>strategy</i>	-	-	<i>Strategy</i>	<i>Strategy</i>
-	<i>Link to economic performance or industry value</i>	-	<i>measurement</i>	<i>measurement</i>	<i>measurement</i>	<i>measurement</i>	<i>Measurement</i>
-	<i>Organisation infrastructure</i>	<i>A Chief Knowledge Officer or equivalent and a KM infrastructure</i>	-	-	<i>Structure, roles and responsibility</i>	<i>Organisational infrastructure</i>	<i>Roles and Responsibility</i>
<i>Systematic organisational knowledge process Continuous learning</i>	<i>Multi channels for knowledge transfer</i>	-	-	<i>Control and Coordination</i>	-	<i>Process and activities</i>	<i>Processes</i>
-	<i>Change in motivational practice</i>	<i>Incentive to encourage knowledge sharing</i>	-	-	-	<i>Motivational aids</i>	<i>Reward and recognition</i>
-	-	-	-	<i>Resources</i>	-	<i>Resource training and</i>	<i>Other</i>

						<i>education Human resource management</i>	
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4. Harnesing knowledge management in performance evaluation of facilities

Performance evaluation of facilities is the tools in facilities management to assist decision and policy maker in facilities management organisation to make a decision, develop or revising existing policy on facilities, planning, benchmarking on users satisfaction, safety & health and security for workplace facilities (Yasin and Egbu, 2008). However, as the facilities management frequently viewed as a support function, commonly less attention towards harnessing KM approach in FM processes. As analyse in the Table 2, a communal factors with consideration of characteristic of the facilities performance evaluation in FM organisation, five core factors are proposed as a key in successful implementation of KM in facilities performance evaluation in facilities management organisations.

4.1 Management leadership and support

Policy and decision maker within the organisation are responsible and has a key role in influencing the success of knowledge management. In the performance evaluation of facilities context, these key roles mainly are on the facilities managers and the evaluator team. In the event that the performance evaluation task being outsources to the external experts, the facilities managers are important to inculcate successful implementation of KM. Internally, the facilities managers should exhibit a willingness to share and offer their knowledge freely with others in organisation, to continuously learning and to gain new knowledge. As a policy and decision maker in facilities management organisation, facility manager are in the position to create the organisational culture to harnessing knowledge management in the organisation, implementing new technology such as IT in the organisation, embedding KM elements in organisational processes and activities, draw a strategy for implementing KM in organisation at the first place and make the conducive environment for KM to successfully grown and practice in the organisation

4.2 Culture

Several authors (Devanport et al., 1998, Pan and Scarbrough, 1998; Martenssion, 2000), accept that culture was an imperative factor for successful implementation of KM in organisation. Akhlavan and Jafari (2006) works shows that culture and government support are the primary factors in successful implementation of KM at national level in ten countries in Europe. Performance evaluations of facilities frequently perform internally and in some occasion outsourced to external experts. In both cases the facilities manager are in the position to harnessing knowledge management via highly values knowledge and encourages its creation, mapping the knowledge, sharing and application. Diversity of practices and tools in performance evaluation and developing such a culture are belief to

be the hindrance and biggest challenge in KM effort. The obstacle of creating a culture in organisation for creating a successful knowledge based enterprise was reported in Chase (1997) survey.

4.3 Technology

Main technologies that crucial in successful performance evaluation of facilities are the information technology and measurement apparatus. Dealing with masses of information, IT has a vital role as an enabler in facilities management organisation particularly in conducting facilities performance evaluation. IT can enable rapid search, access and retrieval of information, and can support collaboration and communication internally or between external parties effectively. In essence, it can certainly play a verity of roles to support KM process (Alavi and Leider, 2001, Lee and Hong, 2002) even though Wong and Aspinwall (2003) contended that it is only a tool and not an ultimate solution. Based on the characteristic of performance evaluation of facilities as discussed earlier in this paper, it can be benefit from IT in many forms of categories such as practice improvement, knowledge base, content and document management, user and client relationship management, data mining, workflow, search, and knowledge networking and mapping.

4.4 Strategy and purpose

Literature shows that the KM strategy should link or integrate to the organisation strategy (Zack, 1999, Cook, 1999, Maier and Remus, 2002). Strategy in facilities management organisation specifically in conducting performance evaluation should include KM approach such as sharing knowledge, innovation, mapping knowledge and knowledge re-use.

4.5 Measurement

The facilities management organisations need to know on how success and effective the KM approach trough the performance evaluation process. Such assessment of the achievement will benchmark and indicates the achievement of KM in the organisation. It is essential to provide basis for organisations to evaluate, compare, control and improve upon the performance of KM (Ahmad et al 1999). Measurement is also needed to demonstrate the value and worthiness of a KM initiative to management and stakeholders.

KM process such as cited by Alavi and Leidner (2001) including knowledge creation, storage/retrieval, transfer and application are also important factors to consider. Successful KM implementation is also dependent upon resources (Wong, 2005). Financial support is inevitably required if an investment in a technological system is to be made. Human resources are needed to coordinate and manage the implementation process as well as to take up knowledge related roles. Human resources also need to be well equipped with the continuous training. Through such training, they will have a better understanding of the concept of KM and improve the perception of how they define and think about knowledge and KM.

5. Conclusion

The importance of knowledge management is clear to the organisation in various fields and in present days, many organisations search for the main reason and key factors for being successful in knowledge system design and implementation through their organisation. With analysing and cross reference to the previous works by various authors, the critical success factors for harnessing knowledge management in facilities performance evaluation has been identified as management leadership support, culture, strategy and purpose, technology, measurement as well as the KM process itself and human resources factor.

As awareness among the users grown towards the needs of performance evaluation and concurrently increasing role of FM, Knowledge Management is predicted to have a bigger role in the industry. Identification of its critical success factors is a strategic approach to ensure successful harnessing KM in organisation.

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