

OPTIMISING THE ROLE OF FACILITIES MANAGEMENT (FM) IN THE DEVELOPMENT PROCESS (DP): THE DEVELOPMENT OF FM-DP INTEGRATION FRAMEWORK FOR SUSTAINABLE PROPERTY DEVELOPMENT

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The purpose of this study is to establish the critical success factors needed to optimise the integration of facilities management (FM) into the full development process (DP). This paper offers an initial finding towards development of FM-DP integration framework. An extensive literature review is provided, drawing critical links between FM, project management and property development and highlights the importance of integrating FM in the wider property life cycle. Differences in opinion with respect to the contribution of FM-DP integration to sustainable development are also highlighted. The paper found a broad understanding on the development process and different views on the most effective position of FM within the development process. FM aspects can be incorporated in four strategic areas in the development project namely the early stage (investment program, project initiation and planning and design stage), construction stage, operation stage (after handing over and occupational) and/or can be implemented throughout development process. The proposed FM-DP framework offers a new perspective on the role of facilities management in the full development process, and its wider contribution to sustainable development. This research provides new ideas into the current views on the importance of FM-DP integration. The framework provides social implications for the consideration of FM within the property and construction industry, and considers the critical factors required to fully integrate FM within this process.

Keywords: development process, facilities management, framework, optimisation, sustainable development.

INTRODUCTION

A review of related literature found that there are various elaborative descriptions and understanding of the property development process. Chodasova (2004) described the development process as a concept that involves various processes beginning with the project initiation, preparation of business case, design, construction proper, space utilisation, building operational and maintenance and business of the buildings.

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Moreover, the development process comprises various expertise and skills in the management discipline inclusive of project management, construction management (Morris, 1988), briefing process (Yu, *et al.* 2010; Jensen, 2010), design management (Tzortzopoulos & Cooper, 2007), facilities management (Felten, *et al.* 2009), operational management (Quah, 1992), administration of property, service management, sustainability implementation, knowledge management (Blakstad, *et al.* 2010; Ruikar, *et al.* 2007) and space management.

Integration of facilities management (FM) in the development process is always a challenge to professionals in the property development and construction industry due to the complexity and multi-disciplinary professions in the construction project (Felten, *et al.* 2009). A number of studies have been carried out to harmonise multi-disciplinary knowledge and various experts in the early stage of development process (Jensen, 2006; 2008; 2009; Macomber, 2001). However, there is a lack of understanding and no real consensus on the importance of the integration of FM, to which there is a limited role of FM in the full development process. Even though FM is focused on the non-core service support to a business's core organisation objectives, the value added that FM could bring to the organisation should be taken seriously through strategic and systematic planning (Tucker & Pitt, 2009). It is argued that the integration of FM in the full development of a building will have a huge impact to the longevity of the building lifecycle, and have a positive influence on its sustainable development.

OVERVIEW OF THE DEVELOPMENT PROCESS

The development process is a concept that involves various processes beginning with the project initiation, preparation of business case, design, construction proper, space utilisation, operational and maintenance and business of the buildings (Chodasova, 2004). Building and facilities provided should serve its purpose of existence and satisfy the user's needs for its whole life cycle.

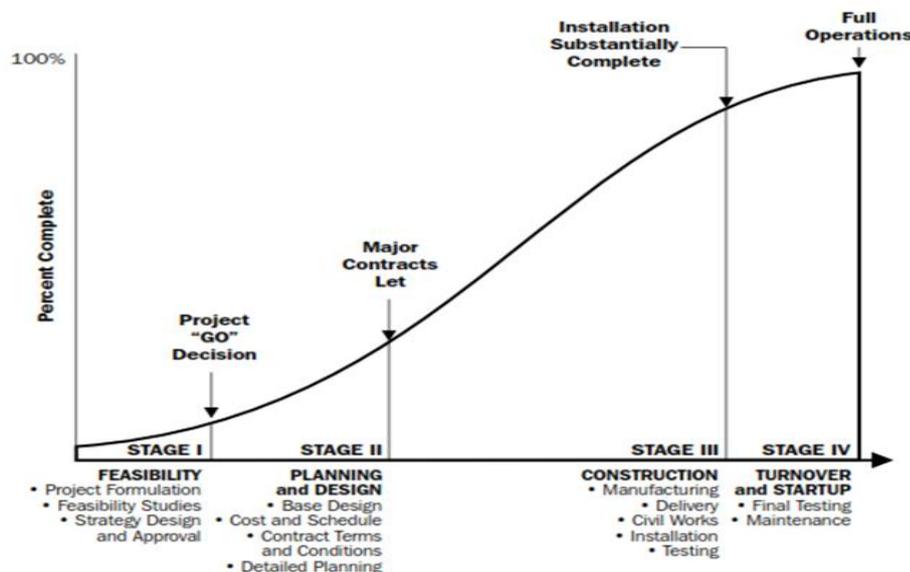


Figure 16: Life Cycle Stage

Morris (1988) illustrate that construction life cycle was divided into four stages. The diagram then was referred by the Project Management Institute (2000) which pointed out that construction project life cycle consist of Stage I: Feasibility, Stage II: Planning & Design, Stage III: Construction and Stage IV: Turnover and Startup. Refer to

Error! Reference source not found.. Due to complexity and uniqueness of construction projects (Felten, *et al.* 2009), the Project Management Institute (2008) in its latest publication presented a new approach of the project life cycle with an “Overlapping Phases” concept in a new building project. This new understanding allows overlapping between stages (Wilkinson & Reed, 2008). Although it was regarded as an action of taking risks, conversely it encourages efficient coordination in the construction life cycle.

The construction industry is naturally linked to property development which is represented by sequential and structured construction activities and indirectly influenced by the economic environment (Wilkinson & Reed, 2008). The property development process is defined by Cadman & Topping (2002) as a process that involves changing and intensifying the use of land to produce buildings for occupation’. For further understanding, Wilkinson & Reed (2008) listed the development processes as consisting of eight (8) main stages as shown in Figure 17.

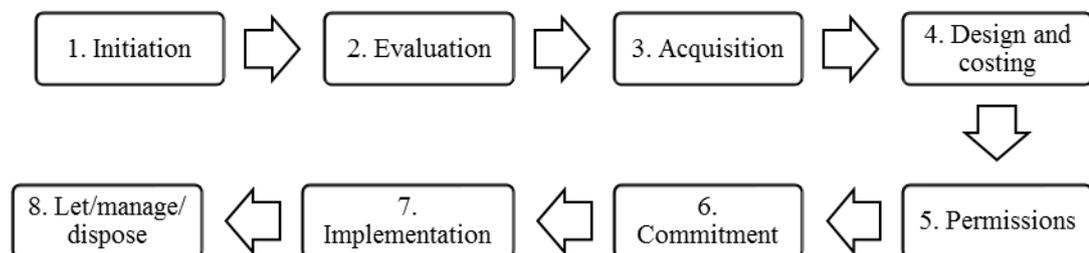


Figure 17: The Development Process

Further reading proves that the existence of differences in determining the levels of the development process. These differences indicate mixed views (Quah, 1992) from the stakeholders involve on the property development industry (Table 1). It is observed that FM was not considered important in the development process. This is in line with the view that FM is a non-core business that supports the organisation’s objectives. (Lavy & Shohet, 2004; Shohet & Lavy, 2004; Lavy, 2008). However, FM should not be neglected at any stage of strategic planning as FM can increase the profile of organisation (Tucker & Pitt, 2009; Razali & Manaf, 2005).

In previous studies, there is very little discussion about the role of FM in the entire development process. FM is seen as vital at the operational level which is the final stage of the development process (Winch & Carr, 2001; Chodasova, 2004). This situation must be improved by placing FM involvement at all levels of the development process. Moreover, optimising the role of FM in all stages of the development process will contribute to the sustainability of facilities.

POSITIONING FACILITIES MANAGEMENT (FM) IN THE DEVELOPMENT PROCESS (DP)

The British Institute of Facilities Management (BIFM) define FM as the ‘integration of processes within an organisation to maintain and develop the agreed services which support and improve the effectiveness of its primary activities’. Meanwhile, FM is defined by the International Facilities Management Association (IFMA) as ‘a service provision that encompasses multiple disciplines to ensure the satisfactory functionality of the built environment by integrating people, place, process, technology and environment’. From the various definitions of FM, the key element that pulls the attention is the integration of the process in the organisation function. It is very common that FM related issues in organisations receive a lot of complaints from end-

users with regards to the dissatisfaction with the operational services of a building. The problem is often caused by lack of the coordination between the stakeholders involved during the planning and design stage (Chodasova, 2004). There is an argument to suggest that properties can therefore not meet their purpose as a result of neglecting the operational elements of the building in the design stages.

In the property development and construction industry FM is supposed to play a major role in the planning stages and should be able to forecast the performance of the building at the commissioning and utilisation stage in order to satisfy the end users for the whole life cycle of the building (Felten, *et al.* 2009, p. 116). Therefore, the facility managers must be allowed to involve in the strategic planning level and should be able to monitor the achievement. Even if the decision for long term forecast (two to five years) tend to be inaccurate, Nutt (2000) pointed out that the organisation is able to maximise the prediction accuracy for the building operation based on the short term trends and behaviour of the building.

Based on the literature, there are various arguments on the importance of FM to be positioned in the development process and its significant contribution to sustainable development. Havard (2008) discusses the development process from tactical aspects specifically in commercial and economic perspective. The 'market-demand project based' that he introduced was purely focused on the return of investment from the property. Based on his doctrine of property development, FM is only applicable if it suits to the method of procurement. Otherwise, FM can be neglected. Meanwhile, Hodges (2005) opined that FM integration during construction stage will extend its lifetime as well as solicit perceived satisfaction of users, increase productivity and reduce the damaging effects on the environment. On the contrary, Chodasova (2004) consider that the domain of the activities of FM is pertinent during the conceptual stage and utilisation of the buildings. Moreover, Shah (2007) contended that whole building life cycle needs for FM elements as early development process have a huge impact to end-users operation and organisation culture. In the case of existing buildings that were designed and constructed without FM consideration, FM is perceived to be the alternative to minimise the buildings vulnerability by complying with building regulation and shall be proven with end-users satisfaction (Wood, 2006).

IMPORTANCE OF INTEGRATION OF FM IN THE DEVELOPMENT PROCESS

Kincaid (1994, p. 23) appreciated Nutt's (1988) suggestion and his effort for inventing a simple definition of FM. Nutt (1988) defined FM is 'the management of facility resources and services to support the operation of an organisation'. It is affirmed that FM should be taken into account in the development process. An effective role of FM will enhance the performance of the organisations, flexibility in space use, efficient service delivery and offers sustainability to organisation's core business. As a result, FM is able to boost the organisation's major operations as well as maximise end-users' satisfaction and optimise profit (Razali & Manaf, 2005). Failure in knowledge management (Ruikar, *et al.* 2007) and design management (Tzortzopoulos & Cooper, 2007) has become synonymous with the construction industry. This situation is due to the absence of the techniques and technologies that can be tailored to the complexity of the construction industry. Continuation of knowledge or knowledge transfer (Jensen, 2009) in construction was divided into two situations (Figure 18). With the implementation of FM in the development process, the continuity of knowledge can

be ensured. This will increase the profile of FM in the development process. Indirectly, it contributes to the construction of long-lasting facilities.

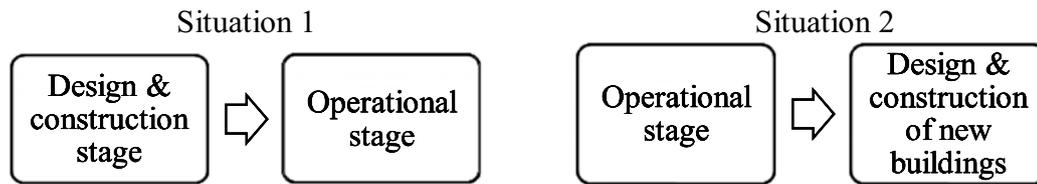


Figure 18: Knowledge continuity/knowledge transfer in development process

From the above arguments it shows that FM not only has a vital role to play in understanding and supporting the main activities of an organisation within the working environment (Amaratunga & Baldry, 2001; Junghans, 2011), but also in its contribution to the longevity of the buildings lifecycle. As Robathan (1996) states: 'Buildings-as property-are assets to be used to the long term advantage of the business. Indeed, it is only when organisations take the facilities director fully into the strategic planning process that the effect of the proactive management of facilities can be appreciated.' It is therefore apparent that FM knowledge should be formulated and implemented from the top down and it should be driven throughout the whole organisation by the encouragement of top management.

CONTRIBUTION OF FM TO SUSTAINABLE PROPERTY DEVELOPMENT

FM is in a strategic position to observe the activities in the development process and should be able to play a significant role in sustainable development. Considering the impact of the construction industry to natural resources and living environment, Khalil, *et al.* (2011) have revealed that there is a need for facility manager to play its role effectively in dealing with environmental issue. For years, sustainable development has become associated with the physical development that caused environmental deterioration.

Economic and social aspects are also an important issue in sustainable development (Hodges, 2005). Both aspects can be represented by facilities and human resources to demonstrate its impact to the sustainable development. Most organisations appreciate buildings from its tangible characteristics (Cooper, 1996) and considered building has less contribution to the organisation's core business. Conversely, Alexander (1996) claims that 15 per cent of organisation's turnover was spent to maintain and operate the facilities. Whilst, Hodges (2005) asserts that human resources are an organisation's largest expense and can count for up to 92 per cent of organisation's cost over its lifetime. Therefore, reduction in design and construction costs can have negative impact to the organisation's profit and working life. Hodges (2005) explains that facility manager can act as an advocate to sustainable development. He argued that sustainable development can be achieved through sustainable strategies initiated by facility manager. Deployment of FM knowledge can enhance sustainability value in the development process. Thus, optimising the role of FM is instrumental in achieving sustainable property development.

It is argued that FM can contribute in achieving the greatest environment, economic and social impact for a property development industry. It should also be stated that the success of sustainable property development lies in the capability of FM to optimise its role in the development process.

CHALLENGE TO INTEGRATE FM-DP FOR SUSTAINABLE PROPERTY DEVELOPMENT

Attending end-users complaints and carrying repair works on site is no longer appropriate for facility managers (Kincaid, 1994; Barrett & Baldry, 2003). The rapid evolution of technology have influence the users' needs. The needs keep changing and become more complex (Cigolini, *et al.* 2008; Jensen, 2010). Thus, the field of FM have to change and become more innovative in dealing with these challenges.

A study carried out by Elmualim, *et al.* (2005) found that the challenge for FM professionals to eliminate the vulnerability of the building design and operation is to enhance the efficiency of communication between facilities managers and other professionals. Inefficient communication contributes to the knowledge gaps (Elmualim, *et al.* 2009) that hinder the continuity of knowledge. Thus, the enhancement of communication in FM-DP needs to be improved. The field of FM is now occupied by various disciplines. This situation makes FM complex. A combination of inter-disciplines in FM should to produce better services and facilities. However, FM is exposed to the collision of professional interest (Felten, *et al.* 2009). Without mutual understanding, the project could suffer and even worse FM would be considered inappropriate in the development process.

FM is relatively new in the property and construction industry. Therefore, involvement of facility managers in the early stage of development process is perceived an alien. Conversely, the role of facility managers during operational is highly needed. This study contends that more can be done to drive these concepts into FM to better fit into the industry's culture and policy (Hodges, 2005).

MOVING FORWARD TO FM-DP INTEGRATION FRAMEWORK

As illustrated in the literature review, it became apparent that the role of FM in the full development process is critical, but the discussion about it is limited. It was therefore a need to develop a framework to optimise the role of FM in the development process which would in turn help enhance building design and usability. Due to lack of empirical knowledge about this area, a mixed methods approach was taken using 'sequential exploratory strategy' (Creswell & Clark, 2011). Refer Figure 19.

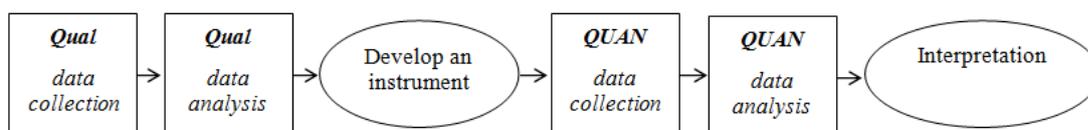


Figure 19: Sequential exploratory strategy with instrument development

A sequential exploratory strategy gives weight to the collection of qualitative data and to generate survey items and followed up by the collection of quantitative data in the second phase to help validate the initial qualitative findings.

CONCLUSIONS

The development process is complex because it involves various disciplines. This complexity creates confusion and gaps in the properties and facilities development implementation. Regardless of a generally wide understanding of development process, FM is not recognised except two common FM aspects: maintenance and operation. FM is acknowledged as a business support services in the organisation. However, if placed strategically in the development process FM can contribute to

increase the organisation performance in the form of operation output as well as corporate outcome. Continuous performance monitoring can be done through FM due to the ability of FM to fit into the organisation behaviour and culture. In the whole property life cycle, efficient FM service within the organisation will provide maximum return to stakeholders involved in the development process. FM is important to support sustainable property development. Ability of FM to extend the performance of buildings and facilities is an appropriate yardstick to measure the contribution of FM in the sustainable development. Challenges to integrate FM in the development processes have to be addressed and should be viewed as a success factors. Critical success factor is the approaches used to develop framework that will serve as a reference in optimising the role of FM in the property development industry.

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Table 6: Various Understanding of Development Process

Author	(Adams & Barndt, 1978)	(Morris, 1988)	(Winch & Carr, 2001)	(Chodasova, 2004)	(Project Management Institute, 2004)		(Macomber, 2001)	(Shah, 2007)
Stages of Development Process	Phase I: Conceptualisation Phase II: Planning Phase III: Execution Phase IV: Termination	Stage I: Feasibility Stage II: Planning & design Stage III: Construction Stage IV: Handover & Start-up	Define need Establish viability Conception Scheme design Detailed design Production planning Main trades Finishing trades Commissioning Facility management	Initial idea Conception Feasibility study Preparation of contract Origination of contractual obligations Construction works Completion and occupation Facilities management	Initial Phase Intermediate Phase Final Phase	Charter Scope Statement Plan Baseline Progress Acceptance Approval Handover	Formulation Design Construction Operations	Briefing Scheme design Detailed design Construction Operations Dismantling
Author	(Savolainen, et al. 2005)	(Wilkinson & Reed, 2008)	(Project Management Institute, 2008)		(Felten, et al. 2009)	(Jensen, 2009; Jensen, 2008)	(Barrett & Baldry, 2003)	
Stages of Development Process	Project Planning Design Construction Use	Initiation Evaluation Acquisition Design and costing Permissions Commitment Implementation Let / manage / dispose	Design Phase Construction Phase	Initiating Processes Planning Processes Executing Processes Closing Processes	Strategic planning Preliminary studies Project planning Invitation to tender Project execution Building operation	Decision Briefing Design Construction Occupation	Linear Process Planning Briefing Design Construction Occupancy	Cyclical Process Planning Briefing Design Construction Occupancy Evaluation
Author	(The Chartered Institute of Building, 2010)							
Stages of Development Process	CIOB Code of Practice for project Management for Construction and Development	Office Government Commerce	British Standards BS6079-1:2000	British Property Federation (BPPF)		Royal Institute of British Architects (RIBA)		
	Inception Feasibility Strategy Pre-construction Construction Engineering Services Commissioning Completion, handover and occupation Post completion review /project close-out report	Gate 0 Strategic assessment Gate 1 Business justification Gate 2 Procurement strategy Gate 3 Investment decision Gate 4 Readiness for service Gate 5 Benefits evaluation	Conception Feasibility Realisation Operation Termination	Concept Preparation of the brief Design development Tender documentation and tendering Construction	Appraisal Design brief Concept Design development Technical design Production information Tender Documentation Tender action Construction to practical completion Post-practical completion			