

INTEGRATED FACILITIES MANAGEMENT PRACTICES IN SRI LANKA: A PRELIMINARY INVESTIGATION

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ABSTRACT

In this era of globalisation and fierce competition amongst businesses, most companies around the world faces relentless pressure to reduce cost, add value and support business goals for sustainability. Hence, innovative ideas, concepts and methodologies are needed to meet these demands. Integrated facilities management is one such concept, which extended beyond the traditional firm boundaries by enforcing external relationships. Few researchers have identified formation of networks, partnerships, or inter-organisational collaborations among neighbouring built environments as successful mechanisms in optimising the performance of facilities management (FM) functions. Although it is commonly agreed that organisations could benefit from integrated FM, a systematic framework for integration of FM functions has yet to be derived. Therefore, there is a need to investigate existing integrated FM practices and the applicability of integrated FM concept to built environments. The aim of this study is therefore is to review the concept of integrated FM and to investigate the existing integrated FM functions in Sri Lanka. The aforementioned research question was approached through a multiple case study including four cases that have integrated building facilities and FM functions with another organisation/s. Data was collected using observations and semi-structured interviews with facilities managers in the respective organisations. The findings revealed that if the firms are in close proximity, although the core businesses are same or not, there is a high potential of sharing physical facilities and FM functions among the firms. There is also a possibility of integrating FM functions among distantly located facilities when, (i) they are under same ownership, (ii) there is a close relationship between organisations or (iii) they obtain the service from outsourced FM service provider. The findings of this study will be useful in integrating FM practices in Sri Lanka.

Keywords: *Integrated Facilities Management (FM); Shared Facilities; Shared FM Functions.*

1. INTRODUCTION

Globalisation has forced local businesses to create and adapt global best practice procedures in order to compete in the world marketplace (Roger, 2004). In order to offer greater value for the core business in this competitive business environment, facilities management (FM) has to be well equipped with specialists, standards, advanced technologies and sophisticated systems. Nature and characteristic of FM profession are likely to be varying based on core business prospects and the range of services that they provide. Chotipanich (2004) noted that organisations are differently reliant on their facilities and support services. In turn, the function, role and scope of facilities management need to be aligned with organisational goals.

Further, it is evident that instead of conventional isolated organisations, collaborative approach has been contributed for gaining value for money as a realistic solution. In particular, the need for an integrated approach for FM could be considered as one of the sustainable solutions to built environments. Moreover, formation of network and strategic partnering enable solving most of the competing issues in FM, while delivering excellent services to the stakeholders. In this context, two or more cluster of firms, agree to integrate FM functions by creating a facilities zone could be one of the most favourable and sustainable approaches to FM.

Although it is commonly agreed that organisations could benefit from integrated FM, a systematic framework for integration of FM functions has yet to be derived. Therefore, there is a need to

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investigate the existing integrated FM practices and the applicability of integrated FM concept to built environments. Thus, this paper aims to:

- Review the concept of integrated facilities management
- Investigate the existing integrated FM practices and ability to implement the concept to Sri Lankan built environment

The paper structure begins in the following sections with a review of literature on facilities management and its functions, integrated FM, application of integrated FM to different built environments. The next section presents the conceptual framework developed for exploring integrated FM practices in Sri Lanka. Section 4 presents the research methodology followed by case study findings in Section 5. The paper finally presents discussions and conclusions of the study.

2. LITERATURE REVIEW

2.1. FUNCTIONS OF FACILITIES MANAGEMENT

Facilities Management (FM) is a profession with a wide scope. According to Becker (1990) facilities management is coordinating all efforts related to planning, designing, and managing buildings and its systems, equipments and furniture to enhance the organisation's ability to compete successfully in a rapidly changing world. Nutt (2000) identified the resource management at strategic and operational levels, as a primary function of FM. Further to the author, resource management comprises management of resources such as financial, physical, human, information and knowledge. Wiggins (2010) defined FM as a management function concerning three interrelated elements of business, i.e. premises, support services and information technology. Authors further identified following aspects under each element.

- Management – strategy or 'the thinkers'
- Operation – implementation or 'the doers'

FM researchers and practitioners express facilities management as a multidisciplinary area of development and opportunity (Tobi, Amaratunga and Noor, 2013, Chotipanich, 2004 and Grimshaw, 1999). However, the rapid growth of academic literature shows an expansion of interdisciplinary and organisational boundaries of FM. In this context, some researchers have introduced new concepts such as integrated facilities management (Kincaid, 1994), formation of strategic alliances (Pitt, Werven and Price, 2011), collaboration of infrastructure services (Cant, 2005), district oriented FM (Meneghetti and Chinese, 2002) and industrial symbiosis (Meneghetti and Nardin, 2012), which break traditional firm boundaries to share building facilities and management functions among organisations. Therefore, in recent years, it has become apparent that there is a clear shift towards integration of facilities and FM functions among organisations. The next sub-section reviews key literature on integrated FM concept.

2.2. INTEGRATED FACILITIES MANAGEMENT

Atkin and Brooks (2009) stated that there are common themes and approaches to FM such as in-house, outsource and a combination of in-house and outsource, regardless of the size and location of buildings. FM units deliver either in isolation or as an integrated function, which is a mixture of financial, asset and operational management activities, aligned to support the organisation's core business (Rogers, 2004). Tay and Ooi (2001) highlighted the importance of using an integrated approach for practicing FM in order to optimise the performance of FM functions.

Kincaid (1994) argued that FM activities can be coupled with knowledge in order to provide effective solutions to built environments. Operational activities, management roles, facility knowledge and management knowledge were identified as the major part of integrated facilities management. In order

to integrate FM functions effectively, Kincaid (1994) proposed the following three (03) key characteristics that must be recognised by an organisation.

1. Facility management is a support role within an organisation, or a support service to an organisation,
2. Facility management must be linked strategically, tactically and operationally to other support activities and primary activities to create value, and
3. Within facility management, managers must be equipped with knowledge of facilities and management to carry out their integrated support role.

Further, Alexander (2003) stated that effective partnerships create an environment for optimum service delivery. Pitt, Werven and Price (2011) carried out a case study in aviation sector in order to explore the use of strategic alliances for facilities management. Strategic alliances are common in airline companies (James, 1999), where Vyas, *et al.* (1995) defined strategic alliance as an agreement between two or more partners to share knowledge or resources, with an aim to deliver a benefit to the parties involved. Airports generally outsource FM service to specialists. However, the current trend in airport management is the formation of a network structure with cooperation between two airports or between an airport and a third party for managing facilities (Pitt, Werven and Price, 2011). Further to Pitt and his co-workers, it is evident that FM in airports can be benefited from the use of strategic alliances and could be a method that FM can use to bring about organisational change to take advantage of changing external environment. Strategic alliance would enable FM to spread the risk of testing new technologies such as energy management and integrated building management systems among organisations. The authors have concluded that a strategic alliance between FM service providers, suppliers and building occupants could be an effective method to deliver organisational objectives.

Cant (2005) investigated the effectiveness of collaborating infrastructure services in regional retail centres using facilities management at the Birmingham Bullring, UK as a case study. In retail centres, infrastructure technology and facilities management needs to support a wide variety of retailer and visitor expectations. Therefore, Cant (2005) introduced four interlinked and interdependent trends for effective collaboration of infrastructure in order to meet investor expectations. Those four shifts are:

1. *Genuine collaboration and management integration* – encourage a mutually interdependent mini-economy, city centre management and incorporate FM and infrastructure as an implicit part of centre operation,
2. *Getting much closer to coalface* – investors getting closer to the retailers, use portfolio approach for property management, and focused and active management of the assets,
3. *Re-engineering of management of regional shopping centres* – restructuring to provide the capability to cross-resources and aggregate on a pan-portfolio, small centre management, and FM providers introducing innovation and experimentation at all levels of a retail shopping centre portfolio, and
4. *Embracing both strategy and detail* – building and maintaining more integrated working relationships, FM providers to understand the regional shopping centre market and respond accordingly, and focus on quality of the service at every level.

Furthermore, Meneghetti and Chinese (2002) analysed the possible evolution of FM in industrial districts, with special emphasis to Italian industrial system. Pyke and Sengenberger (1992) defined industrial district as a geographically determined productive system, performed by large number of firms who are involved at various stages and in various ways, in the production of the same product. Considering the technical and physical features of industrial districts from an external observer's point of view, Meneghetti and Chinese (2002) identified the following two dimensions of industrial districts.

- level of homogeneity in service demand, and
- physical proximity of firms

Authors further mentioned that service demand of different firms can be homogenous or heterogeneous, while their physical proximity can be high or low. Meneghetti and Chinese (2002) proposed “aggregation matrix” considering all possible combinations of events leads to clustering industrial district firms. The proposed aggregation mix is shown in Figure 1.

	Physical Proximity	Physical Distance
Homogeneity	Centralised facilities and management	Replicated facilities and polices
Heterogeneity	Distributed solutions	Specific facilities and management

Figure 1: The Aggregation Matrix for Facilities Management in Industrial Districts
 (Source: Meneghetti and Chinese, 2002)

Firms with similar requirements located in close proximity can offer technical conditions for centralisation of some facilities and management functions. This scenario is highlighted by Clara (1998) through the research on central effluent treatment plant in Arzignano for the leather manufacturing district and by Karunasena and Kannangara (2012) through the research on effective waste management system by integrating all factories in one of the free trade zones in Sri Lanka. Meneghetti and Chinese (2002) found that it is difficult to implement centralised facilities and proposed replicated facilities and policies to assist effective facilities management for the firms with homogeneous demand but located in physically long distance. The authors further proposed distributed solutions for industrial districts with heterogeneous demand but located in close proximity, and specific facilities and management policies for industrial districts with heterogeneous demand and relative physical isolation from other organisations. The study revealed that cluster of organisations together conducting FM functions can be more proactive and beneficial to all the parties.

Meneghetti and Nardin (2012) noted the benefit of integrating FM functions through industrial symbiosis. Chertow (2000) defined industrial symbiosis as engaging “traditionally separate industries in a collective approach to competitive advantage involving physical exchange of materials, energy, water, and by-products. The keys to industrial symbiosis are collaboration and the synergistic possibilities offered by geographic proximity”. Meneghetti and Nardin (2012) concluded that the role of enabling industrial symbiosis can be played by a FM provider, when it embraces a district-oriented FM approach. They further highlighted the importance of moving from traditional solutions for single organisation to technical solutions specifically designed for clusters of firms.

3. CONCEPTUAL FRAMEWORK FOR EXPLORING INTEGRATED FM PRACTICES IN SRI LANKA

Meneghetti and Chinese (2002) and Meneghetti and Nardin (2012) proposed an effective model for optimisation of facilities management functions in industrial districts. However, there is a lack of study of integrated FM functions in non-district-oriented scenarios. Thus, this study broadens the borders of industrial clusters however use of the aggregation matrix and the following two dimensions proposed by Meneghetti and his co-workers as the basis for this research.

- Distance between organisations
- Nature of core business

From the past research, it was evident that firms could exchange some of the FM functions and facilities. The main focus of this study is therefore to explore the ability to integrate the following two aspects in-built environments.

- Integration of physical facilities among organisations
- Integration of facilities management functions among organisations

Sharing of facilities and related management functions with other firms is mostly depending on the ability of top management to create strategic alliance, nature of business, demand and supply of resources. The study investigates the possible exchanges of physical facilities and FM functions among firms, in order to add value to the core business. To optimise FM function, limitations for integration, economies of scale and scope have to be explored.

The aim of this study is therefore to investigate the impact of distance between organisations and the nature of core business in integrating physical facilities and FM functions among organisations in Sri Lanka. The conceptual framework developed for the empirical study with this aim and based on the literature review is shown in Figure 2.

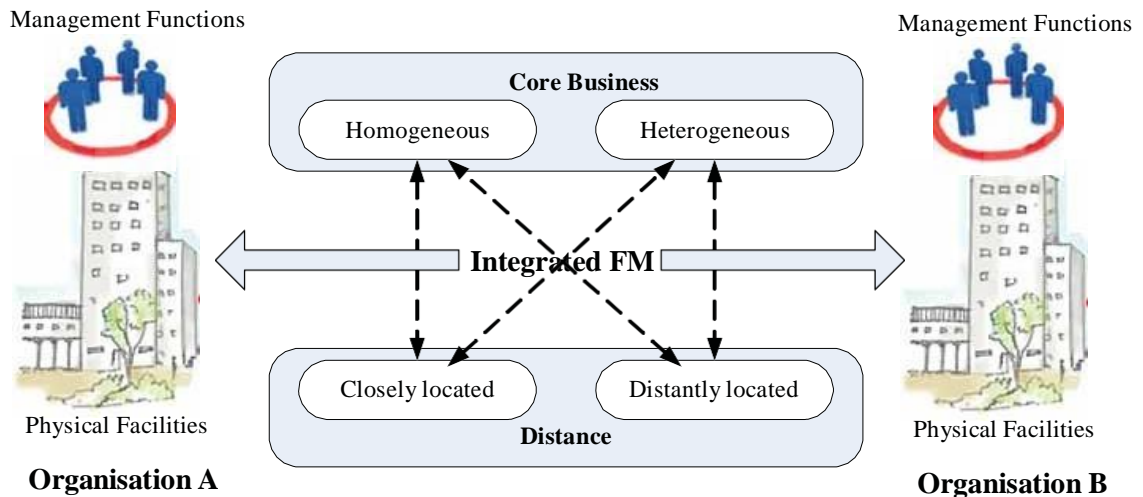


Figure 2: Conceptual Framework

4. METHODOLOGY

An extensive literature review was carried out to investigate FM functions and to explore the ability to integrate facilities and related functions. It is further expected to gain a better understanding about existing FM collaborative approaches. In addition, the review facilitated the development of a conceptual framework for empirical study. The study then carried out multiple case studies to explore the current integrated FM practices in the Sri Lankan context. Observations and semi-structured interviews with corporate level facilities managers, who have experience in integrating FM functions, were used as the data collection methods in the study. One case study from each quadrant of Figure 3, which has integrated physical facilities and/or FM functions was selected for the data collection.

		Distance	
		Closely located	Distantly located
Core Business	Homogeneous	Case Study –A	Case Study –B
	Heterogeneous	Case Study –C	Case Study –D

Figure 3: Selection of Case Studies

The next section presents the building facilities and FM functions that are integrated in the above four cases.

5. CASE STUDY FINDINGS

5.1. CASE STUDY - A

Organisations selected for the case study - A are located in close proximity and have similar core business function. Case study - A is an industrial zone with six factories. The industrial zone is around 165 acres and separated as industrial, training and leisure, and accommodation. Five of the factories are subsidiaries of the same parent company and their core business is garment production. Six industrial factories obtain several facilities and FM functions from centralised system located in the zone, from an agent of one service provider. The shared facilities and FM functions in the zone are given in Table 1 and the integrated system is shown in Figure 4.

Table 1: Shared Facilities and FM Functions in Case Study - A

Physical Facilities	Management Functions
Steam distribution system	Facilities management knowledge and skills
Water distribution system	Operational and maintenance standards
Wastewater treatment plant	Sustainability guidelines such as ISO-14000
Electricity distribution system	
Fire prevention system	

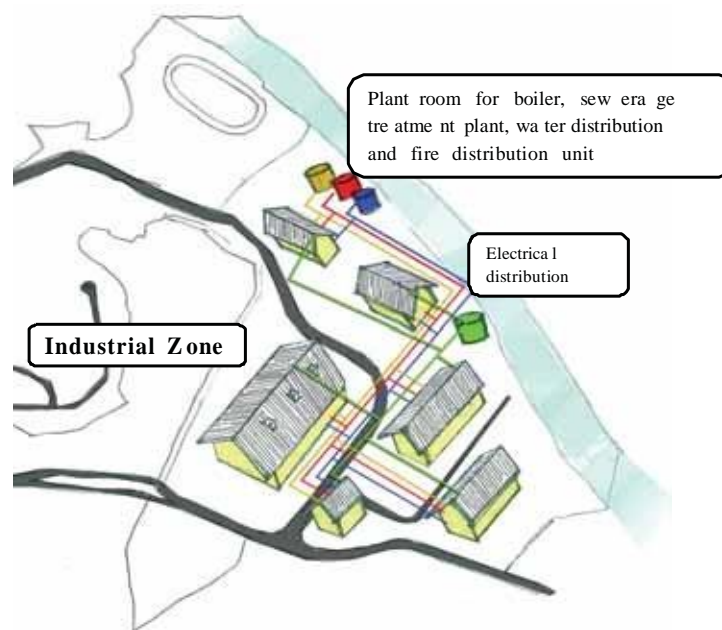


Figure 4: Integrated System in Case Study - A

The other building facilities and FM related functions such as heating and ventilation of factories, security, cleaning, health and safety, and catering are decentralised. The original design of industrial zone with centralised infrastructure and service distribution system facilitated the integration process of aforementioned services.

During the interviews, one Facilities Manager mentioned that “contracts for service level agreements and maintaining trust between each party are essential requirements to sustain the system”. They

further stated that “often communication and monthly meetings are essential for maintaining relationship between the service provider and the factories”. The factories frequently review performance of the FM service provider and use customer feedbacks to enhance their service efficiency. Managers further highlighted that “*low operational and maintenance cost, less expenses for technical staff, less number of highly technical staff and simple business structure encourage the integrated approach. However, factories must agree on certain regulations for successful implementation of centralised system*”.

5.2. CASE STUDY – B

Case study - B focused on of two garment factories with same core business located in two different geographical locations. The location layout of factories and their shared functions are shown in Figure 5.

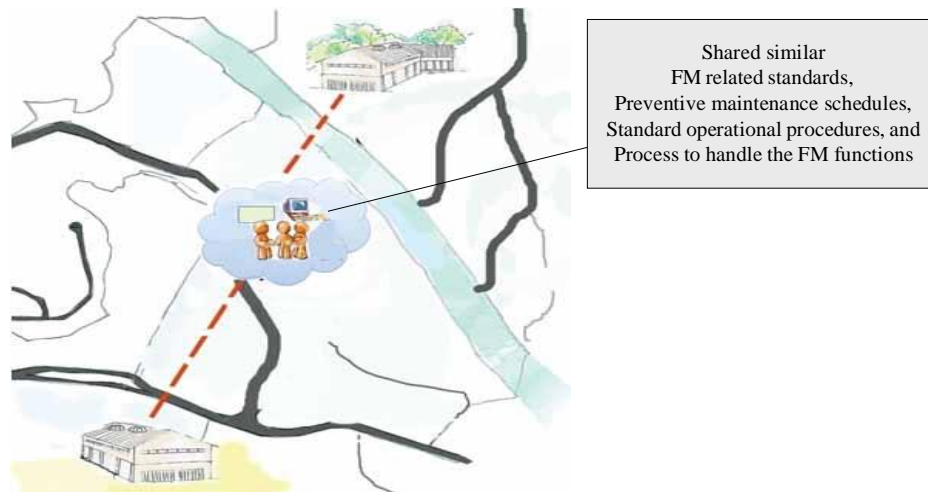


Figure 5: Integrated System in Case Study - B

Both selected factories are managed by one-parent Company. However, both factories consist of separate in-house FM team. Case study found that both factories follow a same FM related standards, preventive maintenance schedules, standard operational procedures, and a similar process to handle the FM functions. Consequently, FM mangers in both factories are also in collaborative approach to perform the FM operation. One Facilities Manager stated that “*discussions and sharing information are often carried out among managers to maintain similar process of FM between two factories*”. He further mentioned that “*due to the geographical distance, factories are not able to share the operational functions of FM and physical resources*”. It is also noted that collaborative approach at strategic level is high among the factories. As being subsidiaries, the factories have less restrictions and limited conflicts over integration of FM functions.

5.3. CASE STUDY – C

The case study - C focused on two organisations with different core business activities, however located in close proximity. One selected facility for this case study is a 39 storey high-rise commercial building, where as the other one is a 17 storey hotel. The organisations are two different legal entities having two separate FM divisions. The location layout of both buildings and their shared facilities are shown in Figure 6.

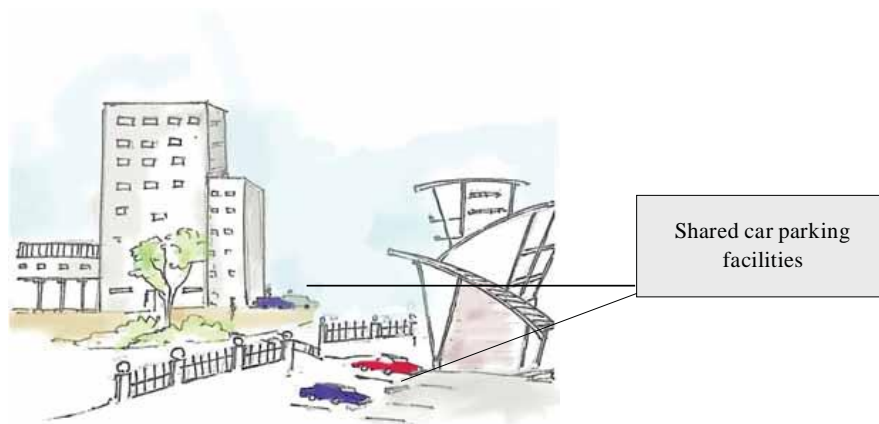


Figure 6: Integrated System in Case Study - C

Commercial property operates from 8 a.m. to 6 p.m. Managers in the commercial organisation noted that space available for car parking for their tenants and customers is insufficient during day time, which is the peak time for their business. However, during the night, the same car park is abandoned due to low demand from tenant. In contrast, it is found that hotel car park slots are available during daytime, however the hotel management is unable to satisfy car parking demand during night due to large number of guests demanding for lodging, attending banquet functions and having dinners. Considering the situation, two FM managers from both parties have agreed to share car parking facilities in two premises. The agreement was to allow using the car parking slots in the other facility, whenever their parking slots are filled.

Facilities Manager of the commercial property said, *“due to the nature of operations in both businesses, our demand on car park varies. However, due to this decision, problem of insufficient car parking has been solved. Also, the Corporate Management is happy on the decision of integration. The decision adds value to the customer.”* Although both organisations realised the benefits of integrated facilities, it is observed that they are reluctant to integrate further FM functions or facilities. Facilities Manager of the hotel facility said that, *“The existing regulations restrict the integration of facilities such as utilities. There should be a win-win situation in order to integrate the FM functions. Factors such as mutual trust between parties, transparent agreements and involvement in top management are essential to conqueror the integrated situation.”*

5.4. CASE STUDY - D

The buildings selected for case study - D are designed for two different core businesses and also located in geographically distance. One building is a multi-story apartment complex with over 1000 apartments and the other facility is a 39 storey two towers for commercial purposes. However, both the properties are invested and managed by one of the premier property developers in Sri Lanka. The property developer has their own FM division and hence, facilities management functions of both properties are managed by the division. Therefore, it is noted that two entities share several FM functions. The location layout of both buildings and their shared facilities are shown in Figure 7.

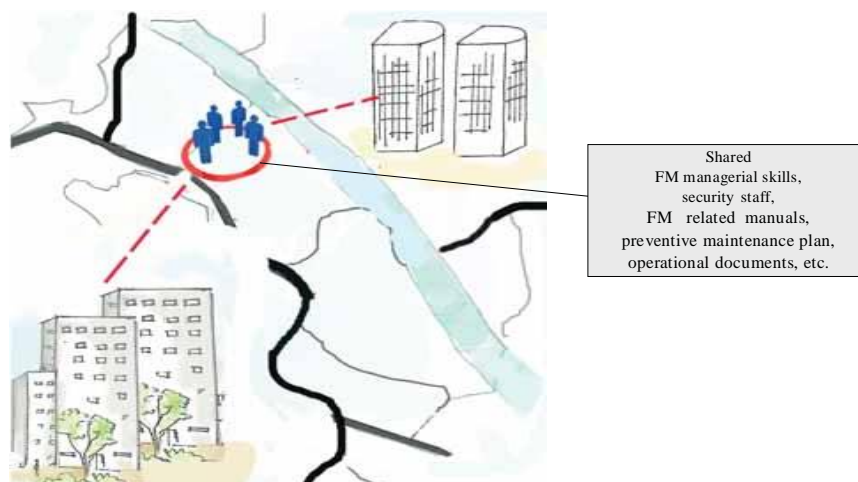


Figure 7: Integrated System in Case Study – D

The Facilities Managers in both business entities are facilitating core business operations. It is also observed that both entities are sharing security staff. One Facilities Manager mentioned that *“in case of deficit situation of one entity, surplus security staff of the other entity will be moved to that entity to satisfy the demand. However, there is no conflict situation of sharing resources. We are not sharing other physical resource such as property and equipment as it belongs to the separate entity whereas staff is managed under our organisation”*. Therefore both entities are sharing human resource such as facilities management skills and security skills, as being managed by sole FM service provider. Hence, FM related manual, preventive maintenance plans and operational documents are similar in both entities due to the collaborative approach. However, managers in FM division mentioned that *“distance between two entities restricts the integration of physical resources”*.

6. ENABLERS AND BARRIERS FOR FACILITIES INTEGRATION

There are enablers and barriers for facilities integration that need to be addressed to gain competitive edge. During the interviews with Facilities Managers in the above organisations, they have identified owner's and manager's commitment, mutual trust, infrastructure arrangement, close proximity between facilities and similar nature of core business as enablers of integrated FM. Further, they have mentioned cost of facilities integration, different nature of core business, long distance between facilities, operating hours, different expectations of service delivery as the main barriers for FM integration. These barriers are lowering the opportunity of integrating facilities. Barriers of distance between facilities can be overcome by outsourcing FM functions to an expert organisation. Further, it is viable to integrate facilities and FM functions among neighbouring facilities at the inception stage of an investment project.

7. DISCUSSION AND CONCLUSIONS

Organisations implement FM as a tool to overcome their workplace problems, while enhancing the value of core business. The rapid development of management concepts and technologies forced organisations to implement innovative FM strategies. Integrated FM is a novel sustainable approach for any of the organisations to meet the core competencies of the business environment.

Preliminary investigation through case studies and discussions with FM experts have revealed that there are examples of integrated physical facilities and FM functions among the built environments in Sri Lanka. Nevertheless, it is evident that there is a less motivation for integration of FM due to several reasons.

If the firms are in close proximity, there is a high potential of sharing physical facilities and FM functions among the firms. It is easy to integrate facilities and functions, if the organisations are in same core business as the service requirement and the pattern of demand is equal. Case study findings revealed that industrial zone facilitates integration of both physical and management functions related to facilities management. Further, there is a high potential of integrating physical facilities such as electricity distribution, water distribution, wastewater treatment, fire prevention and detection systems, and waste management systems, and FM functions such as FM operations and maintenance, FM knowledge and skills, and FM policies and standards among organisations in the same core business and located in close proximity. However, mutual trust between parties is essential for successful implementation of centralised FM system. Although the core business is different, there are possibilities to exchange facilities and FM functions among neighbouring built environments. Facilities can be shared, when one facility has a surplus or deficit to match with the other party. When the owner or FM service provider is same, there is a great opportunity for sharing physical facilities and FM functions.

On the other hand, there is a high potential for integrating FM functions among the distantly located facilities, which have close relationships such as same ownership or same FM service provider. Facilities management knowledge and skills, security service, catering, cleaning and janitorial services are some of the FM skills and functions that can be integrated among distantly located organisations. Further, FM policies and standards also can be shared among organisations.

The study identified owner's and manager's commitment, mutual trust, infrastructure arrangement, close proximity between facilities and similar nature of core business as enablers, and cost of facilities integration, different nature of core business, long distance between facilities, operating hours, different expectations of service delivery as barriers for FM integration.

Therefore it can be concluded that there is a high possibility of integrating building facilities and FM functions among businesses when, (i) they are in close proximity, (ii) they are under same ownership, (iii) there is a close relationship between organisations or (iv) they obtain the service from outsourced FM service provider. With the emergence of the facilities management profession, there is a great potential to integrate building facilities and management functions in Sri Lanka. Sustainable integration of facilities and management functions will enable organisations to achieve strategic objectives and meet the expectations of the stakeholders.

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