The Role of Facilities Management Information System (FMIS) in Construction Project Management.

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Abstract: Facilities management and construction are both important disciplines for advanced study by building professionals. Both discipline attempts to meet resolve build- asset stakeholders' need for an effective means to meet their objectives shot or long term. Facilities management attempts to encompass a much wider spectrum of competencies that some time may be regarded as outside the normal training of building professionals. A popular definition for facilities management is the practice of coordinating the physical workplace with the people and work of an organization; it integrates the principles of business administration, architecture, and the behavioral and engineering sciences. Walker (1984) defined construction project management as the planning, control and co- ordination of a project from conception to completion (including commissioning) on behalf of a client. It is concerned with the identification of the client's objective in terms of utility, function, quality, time and cost, and the establishment of relationships between resources. This paper will study on how facilities management information system can simplified work in construction project management. In project management, the increasing demand for cycle-time reduction, accurate in real- time mode, and cost reduction, as well as the need to meet or exceed customer expectations, forces companies to recognize the value- added contribution FMIS makes to the organization. This has prompted management to invest in technology and integrate systems to give the maximum benefit to the entire organization. FM managers realize that if corporate IT understands what is taking place in FM; corporate is more likely to support the process and approve the budgeting needed for growth. FMIS managers also work in union with corporate IT to provide continuity in software applications and hardware. Facility management strives to understand the needs of its customers and provide them with information to strengthen their ability to do their jobs faster and with more accurate data. If a stake holder's request is easily obtainable, FM makes a point to provide it. By making information readily accessible and accurate, FM organizations impact the organization's bottom line. Information silos are eliminated while sharing of information flourishes. The software can be used in construction project management such as Computer Aided Facilities Management (CAFM) and Total Infrastructure Facilities Management (TIFM).

Keywords: Facilities Management Information System (FMIS), Construction Project Management.

Introduction

As the use of computers and telecommunications have changed over time, the portfolios of information systems suitable to an era of inward-focus automation of basic activities are unlikely to be suited to an age which focuses on information to support executive decision making, connect the organization to another organizations in the business environment. According to Konsynski and Tapscott, ICT is a factor in contemporary business environment to growth and as agent to link between two or more organizations with distinct and probably different structures, strategies, business process and organizational cultures.

The scopes of facilities management will depend mostly on the company of which it is a part. Some companies may consider that the facilities management department should manage all non-core activities. This could therefore include departments such as purchasing, accounts, legal, and travel. Other companies may have their facilities management department incorporated into another support service function, such as finance or personnel.

Nowadays, facilities management has become a profession. Quite different from the role taken on by the engineer in the early eighties which was described by Becker "Facilities management resided in the boiler room not the boardroom" (Becker, 1990). Facilities management is important and the companies should take serious with facilities department.

In case of construction project management, the companies can manage their project very well if they have a good system using facilities management information system (FMIS)

Rationale for facilities management

Most buildings represent substantial investments for organizations and usually have to accommodate and support a range of activities, taking into account competing needs. Within those activities is the organization core business, for which an appropriate environment must be created in buildings that may not have been designed for the purposes on organization might be on its core business, it cannot lose sight of the supporting services-the non-core business.

Company may have already considered the distinction between their core business and non-core business (such as cleaning and security) as part of the drive to deliver customer satisfaction and achieve better value for money. Since running costs account for a significant part of annual expenditure, there is bound to be pressure to look for savings in non-core business areas. Cutting operating budgets may be a financial expedient, but may not foster the company's long term development. Since the running of a company involve complex, co-ordinate process and activities, it is necessary to take an integrated view. A piecemeal approach to cutting costs in unlikely to produce the require savings and may impair the company's ability to deliver high-quality services.

Facilities management can therefore be summarized as creating an environment that is conductive to carrying out the company's primary operations, taking an integrate view of the services infrastructure, and using this to deliver customer satisfaction and value for money through support for and enhancement of the core business. Facilities management also can describe as something that will sweat the assets, that is make them highly cost effective, enhance the company's culture and image, enable future change in the use of space, deliver effective and responsive services, and provide competitive advantage to the company's core business. Relationship between core and non-core business in company shows at Figure 1.

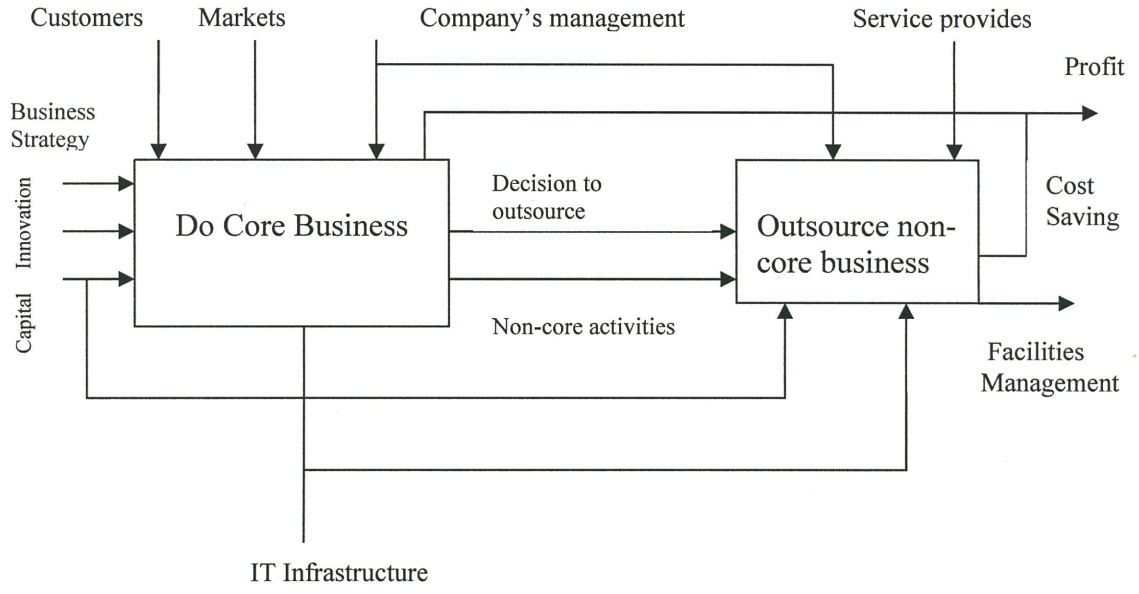

Figure 1: Basic relationship between core and non-core business

Elements strategic management in facilities as below can be implementing in construction project management:-

1. Corporate goals
2. Functional plans
3. Information management
4. Risk management
5. Property maintenance
6. Financial management
7. Value management
8. Building & quality assessment

The development of ICT in Facilities Management

The use of information technologies without the overarching direction of and information system, more often than not, leads to generation of voluminous, poorly focused and irrelevant information. The creation of excess information in this way is a good reminder of the need to evaluate an information system on the basis of a cost-benefit analysis.

The lack of information on products and components in terms of usage and cost can lead to difficulties in focusing the role of Facilities Management and establishing the supply chain within it. Difficulties in monitoring and tracking financial information can also prevent efficient budget control, accurate estimation of work, and contract and purchase management. Good planning in maintenance, operation and refurbishment can be hindered by the availability of life cycle information that is, for instance, crucial in the planning the replacement of components.

Currently, there are no standards that support information exchange and sharing across the building life cycle. Given that there is potential for improvement in business process though the exchange data on the facilities management process, there is a growing need to investigate the issues involve in developing a standard that can benefit this most important part of the business life cycle. This standard could then be use to assist in the development of an information management system to support the exchange of information and the assessment of facility requirements. Such an information system requires a large volume of data. Accurate assessment of a facility's needs requires knowledge of equipment standards from a design and construction information systems, access to accurate maintenance records and repair and replacement costs, access to operation and occupancy information, other operating costs, space management data, operation standards and data from occupational and health and safety information system and from a financial and commercial information system.

An integrated information system as shown in Figure 2 could assist facility managers and other project tem members to combine data and information on a facility's life cycle, and base on the integration of cost and commercial data, design and manufacturing and construction data together with facility operation and maintenance data.

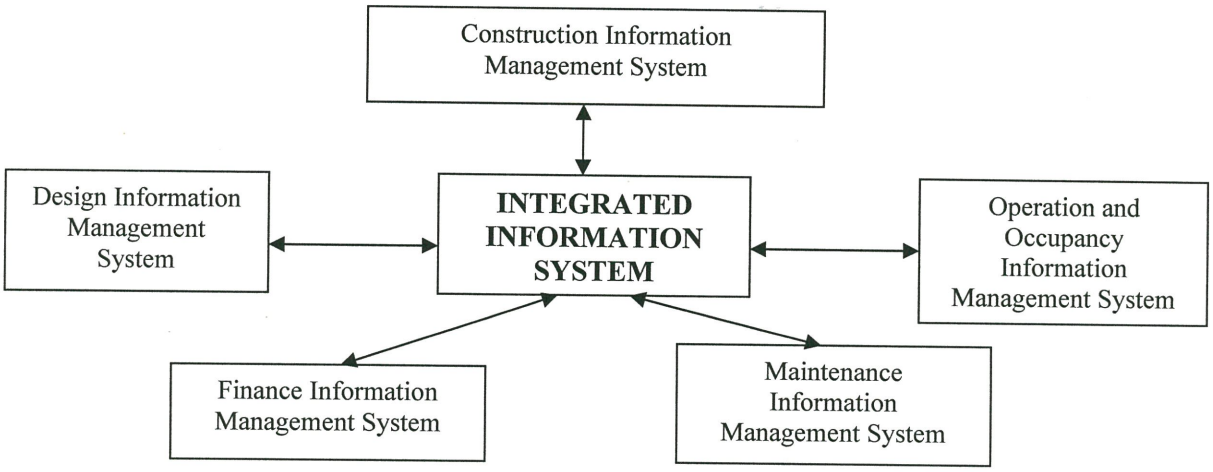

Figure 2 : Integrated Information Management System

The application of information technology to facilities management has been characterized by over promising and under performing. FM began by borrowing IT from other specialism; architecture, space planning, engineering maintenance, human resource. Gradually, developers brought out specialized applications and CAD. Now internet technologies such as Extensible Markup Language or XML offer a common language, an intuitive interface and a set of tools to be used by anyone. For facilities management, the textbook cross-discipline activity, the internet provides the means to combine the big picture with the essential detail, to give or open access as appropriate and to devolve information management.

The Role of Facilities Management Information System (FMIS).

Facilities management information system (FMIS) combine organisational, human and information technology based resources to generate the effective and efficient collection, storage, retrieval, communication and use of information. Good quality systems provide appropriate, accurate and timely information which can pull together a potentially disparate facilities management function into an integrated and organised one which is explicitly geared towards strategic corporate activities. This will promote and enable:

a. more efficient use of information at all managerial levels
b. improved decision making
c. improved managerial responsiveness
d. improved learning capacity and capability

These benefits will ultimately enhance both the quality and cost- effectiveness of the service provided by the facilities management function. This is of particular importance, of course, if the facilities management function is to elevate itself from a perceive overhead to a valuable internal generator of sustainable competitive advantage for the organisation as a whole.

Facilities managers should view information systems as being directed towards the design of optimal information frameworks within the facilities management function in order to maximise the effectiveness and efficiency of the decision- making process. ICT, in contrast, should generally be considered as subordinate to the information system in as much as it is concerned with the effective use of technological tools to facilitate and support the operation of the information system. This generalisation tends to neglect the mutually crafting interaction between the two; with ICT not only serving FMIS and supporting business operations, but at the same time having the potential to create new ways of carrying out organisational activities. It is latter interaction which managed, can lead to sustainable performance advantage within the facilities element of an organisation's value chain. However, the generalisation does provide a fruitful platform from which to understand and develop a FMIS.

In environmental management, strategic planning plays an important role to ensure the project is successful. Technology plays such an important part in strategic planning, it is important for facilities management to develop strategic FMIS plan with its own mission, strategic variables, and resultant plans. The overall goal associated with the development of a strategic model is to reflect the organization as a single system. This involves integrating facilities and corporate data and using this data for a number of purposes associated with property, corporate project and corporate management. Figure 3 shows relationship between FMIS and project management construction and figure 4 shows interface of facilities management information system software.

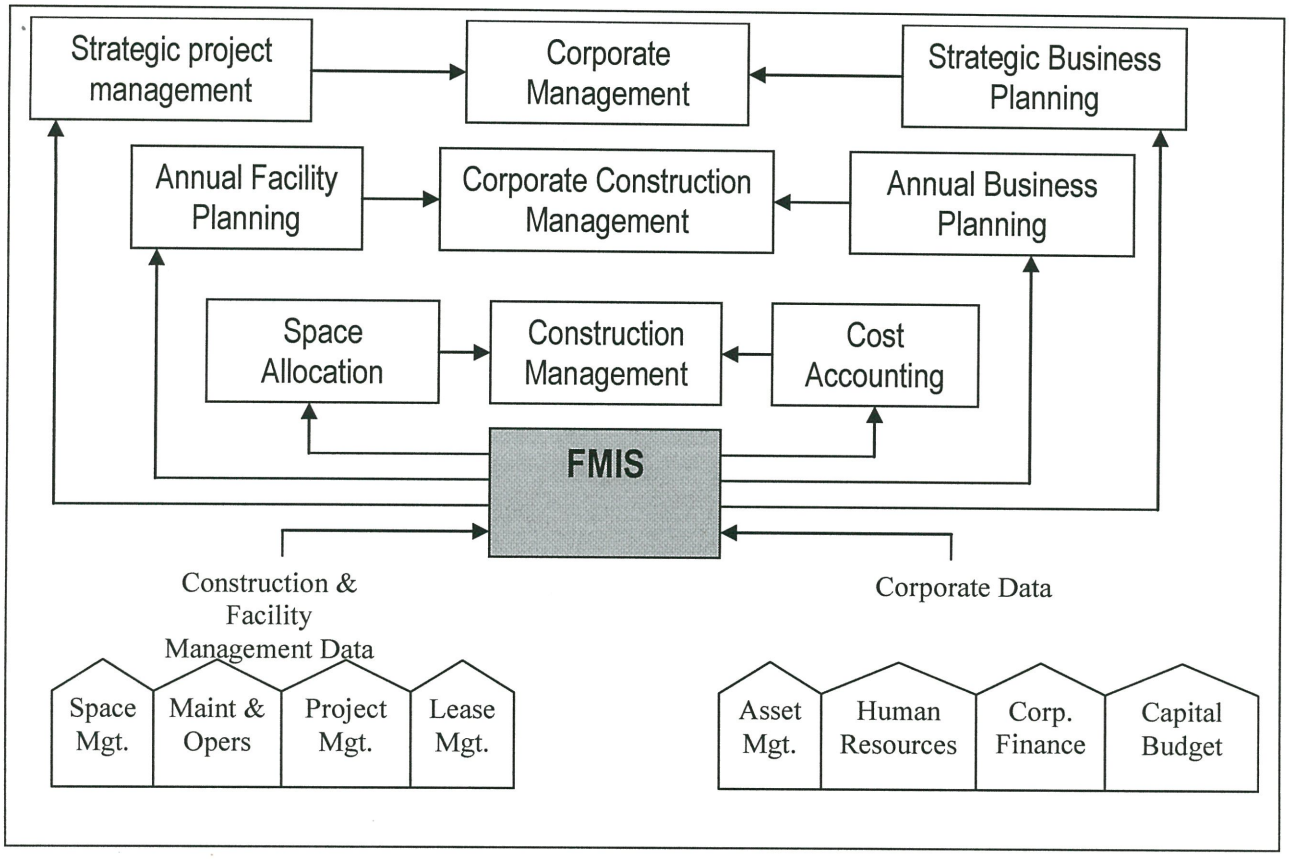

Figure 4.0 : Strategic FMIS for decision support (*Adopted from Eric Teicholz & Takehiko Ikeda, 1994*).

The FM process is an integrating and co-coordinating and the information used is of a very multi-disciplinary nature. Thus, it could be classified according to different view, according to table 1.0

Table 1.0: Classification of FM Information (Kjell Svennsson, 1998)

Classification view	Classification criteria	Classes
Information Technology	Type of representation	Digital, non- digital
	Format	ASCII, TIFF, etc
	Type of usage area	Technical, financial, administrative
Content	Type of usage area	Real estate and financial management, service management, spatial management, operation and maintenance, and renovation, rebuilding and expansion
	Level of decision pyramid	Strategic, tactical and operational
	Representation	Textual, numeric, integer, real, graphical, ets.
	Degree of accuracy	Working information, as-built information
Time	Degree of time relation	Syneronous (real time) information and non-syneronous (delayed) information.
	Life-cycle phase	Briefing/ programming, design, tendering, construction, delivery, usage, demolition & recycling.
	Event- traced	Simple, approved, stored, archived, etc.

Conclusion

This paper is trying to make an inter-connection between facilities management information system (FMIS) and project management construction. They can be connected to each other to make the system more established. In essence, it is a manifestation of facility management as the interface that manages changes in people, facilities and technology. There are many opportunities and expansion areas especially in properties, human resources, finance or ICT. Facilities management should be able to anticipate what organisations will require in the future. In the past, the roles of facilities were merely that of service provider. Nowadays, facilities management is a business solution. Could this be extended to improve project management construction. This requires a thorough and deep research. Facilities

management provides everything integrated in one umbrella. Thus, it is hoped that this new terminology can be a solution of project management construction problems these days.

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