



**ENVIROMENTAL MANAGEMENT SYSTEM
(EMS) USING FACILITIES MANAGEMENT
INFORMATION SYSTEM: A PREMILINARY
STUDY**

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Environmental Information Management System (EIMS) Using Facilities Management Information System (FMIS): A Preliminary Study.

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Abstract:

This paper considers the links between environmental management systems using facilities management information system (FMIS). Environmental information management systems (EIMS) can assist firms in organizing internal corporate benchmarking efforts. It attempt to capture environmental impacts from activities throughout a facility under a single system and generally follow traditional benchmarking cycles of plan, do, check, and act. An environmental policy is the central component of and EIMS. The policy typically details the organization's recognition of environmental impacts and states commitment to continuous environmental improvement. Documentation includes a wide variety of elements, including the environmental policy, regulations to which organization is subject, procedures and protocols of activities, and records of monitoring and measurements. These documents define the activities of an EIMS and how personnel across the organization should act to fulfill responsibilities and hopefully meet target of improvement. Thus, how can EIMS relate to Facilities Management Information System? 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. 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 simplify the work in environmental management system.

Keywords: Facilities Management, Environmental 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 (1992), 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 environmental management, the companies can manage their project very well if they have a good system using facilities management information system (FMIS). According to BSI 'specification for environmental management systems (adopted from BS 7750), an EIMS should:-

- i. identify and assess the environmental effects arising from the organization's existing or proposed activities, products or services
- ii. identify and assess the environmental effects arising from incidents, accidents and potential situations
- iii. identify the relevant regulatory requirements
- iv. enable priorities to be identified and pertinent environmental objectives and targets to be set
- v. facilitate planning and control, auditing and reviewing activities to ensure both that the policy is complied with, and that it remains relevant
- vi. be capable of evolution to suit changing circumstances

The development of ICT in Facilities Management

The use of information technologies without the overarching direction of an 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 through the exchange of data on the facilities management process, there is a growing need to investigate the issues involved in developing a standard that can benefit this most important part of the business life cycle. This standard could then be used 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 system, 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 team 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.

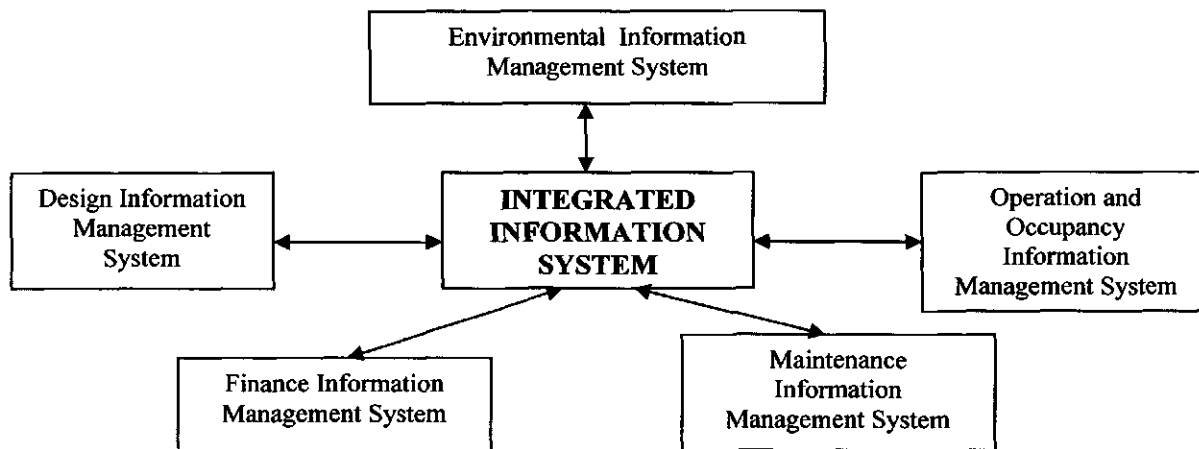


Figure 2 : Integrated Information Management System

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).

The general basis for an environmental information management system (EIMS) is to write how a task with an environmental impacts is to be done, do the task as it is written, and check periodically to verify that the task is being done as intended and, if not, correct the problem. This four step process of plan, do, check, and act is often cited as the generic framework for initiating and maintaining and EIMS. First, an organization should plan for environmental compliance requirements and environmental impacts that may occur. Second, the workers should do what is necessary to avoid non-compliance and environmental damage. Regularly, the plan should be checked to assure that it is operating properly and all environmental issues are covered. Finally, an organization should act to improve the system or charge any problems that have developed.

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 4.0 shows relationship between FMIS and project management construction.

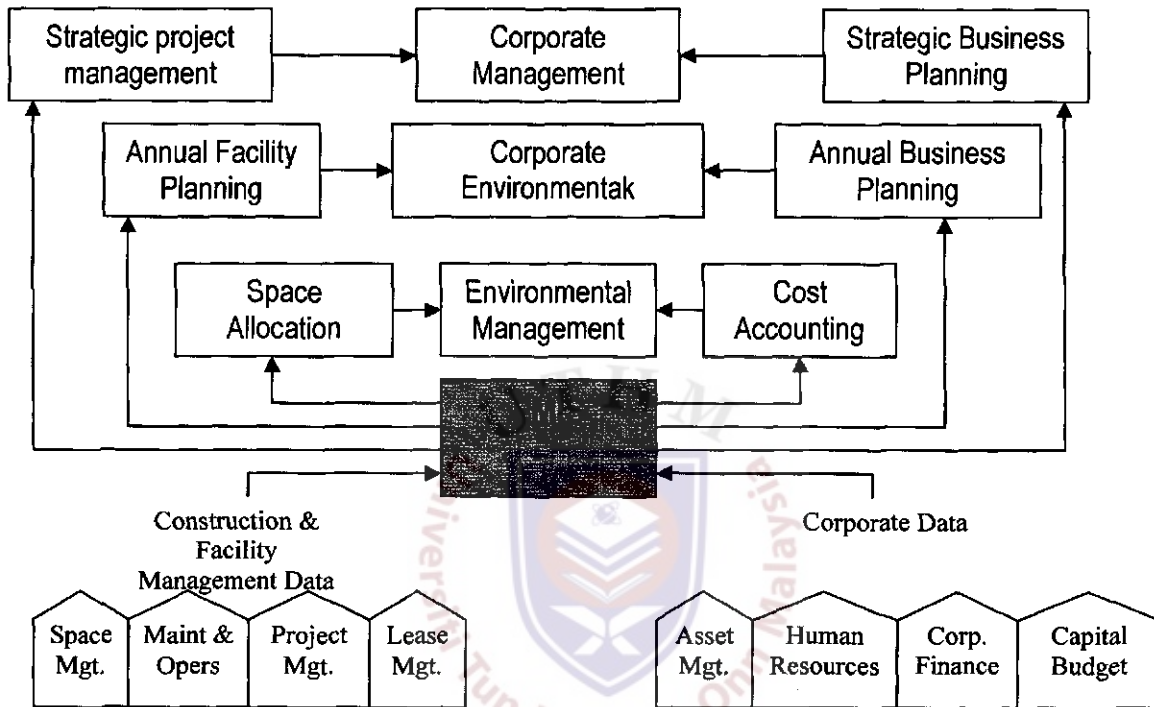


Figure 3: Strategic FMIS for decision support (Adopted from Eric Teicholz & Takehiko Ikeda, 1994).

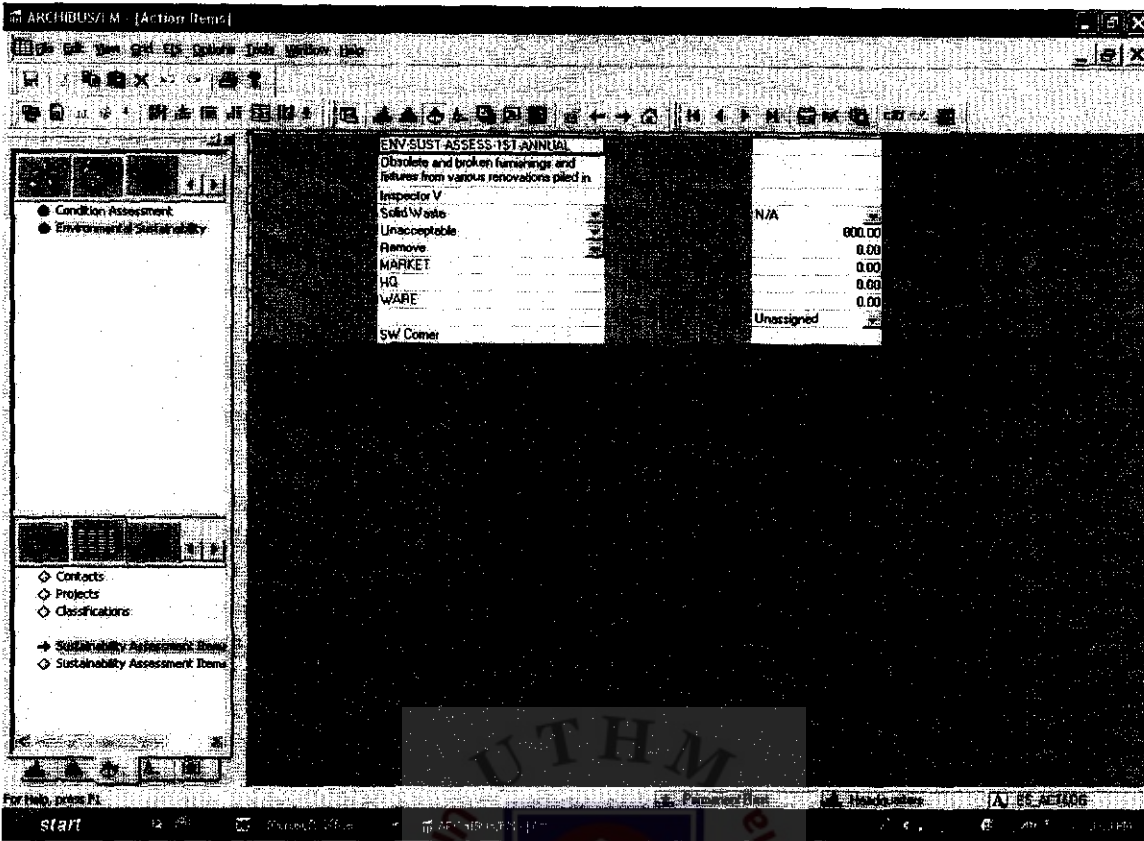


Figure 4: Interface of Total Infrastructure Facilities Management Using Environmental Sustainability module.

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)

Information Technology	Type of representation	Digital, non- digital
	Format	ASCII, TIFF, etc
	Type of usage area	Technical, financial, administrative
Content	Type of usage area	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.

Benefit of Environmental Management Information System using FMIS

The benefits of environmental management system if using FMIS are as below:-

1. Identifies which assets should be repaired, renovated, or replaced to achieve environmental efficiency goals or support.
2. Provides ability to assign budgetary values to improve overall facilities and infrastructure sustainability
3. Helps establish proactive sustainability processes that can improve operational efficiencies, enhance stakeholder perception, and boost property values

Organizations around the world are realizing the strategic value of environmental sustainability and the social responsibility they have to reduce waste generation and conserve natural resources. Although some may perceive 'going green' as an expensive initiative, such efforts often lead to long-term cost savings while promoting a healthier environmental and higher quality of life. The FMIS environmental sustainability assessment application provides an objective, systematic method of identifying and prioritizing efforts that can help us improve the balance between people, infrastructure, facilities, and their effect on the environment.

Conclusion

This paper is trying to make an inter-connection between facilities management information system (FMIS) and environmental management information system (EIMS). The aims of these 2 systems are toward a sustainable development. Thus, it can be connected between each other to make the system more establish. 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 organizations will require in the future. In the past, the roles of facilities were merely that of service provider, and now, facilities management is business solutions. Facilities management provides everything integrated in one umbrella. Thus, it is hoped that this new terminology can be solution of environmental problems nowadays.

