



**THE DESIGN AT BEST PRACTICE  
FRAMEWORK IN ICT CONCEPTS IN  
FACILITIES MANAGEMENT**

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**4. Tajuk bahan yang diperolehi :**

- i. The design of best practice framework in ICT concepts  
ii. in facilities management  
iii. \_\_\_\_\_

5. Tarikh Seminar/Kursus/Bengkel/Persidangan/Simposium : 6-7 Disember 2004

6. Tempat : Hyatt Regency Hotel, Kuantan, Pahang

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# THE DESIGN OF BEST PRACTICE FRAMEWORK IN INFORMATION AND COMMUNICATION TECHNOLOGY CONCEPTS IN FACILITIES MANAGEMENT

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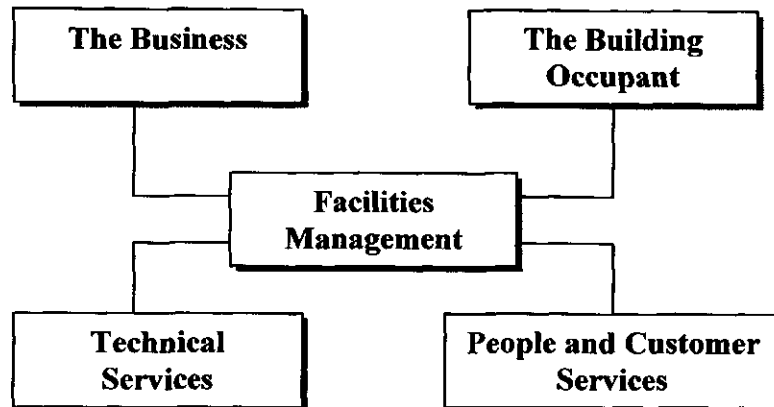
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**ABSTRACT:** Information and Communication Technology (ICT) become more important nowadays. The Malaysia government has also define attractive policies to make our economy environment more attractive such as Multimedia Super Corridor which is emphasize the implementation of ICT in various economy sector and also to make ICT as an important agenda. This includes facilities management sector in Malaysia. Therefore, this research will be planned to build a national ICT Management Framework for facilities management sector in Malaysia. This framework is a strategy and synergistic combination of a number of key components, working in tandem. The framework is best viewed as an interconnected triangle consisting of three key elements, namely, people, infrastructure and applications. The ICT Management framework must identify the importance to innovation of building strong link between ICT and facilities management sector. These will enhance facilities management sector capability to produce and deliver globally competitive product and services, to facilitate growth.

## Introduction

People have been asking these questions for years. Facilities Management (FM) is still a relatively new concept, which makes it difficult to present a definitive description. Facilities Management can be described as multifarious because of the diversity of its core components; it is an amalgam of technical, financial, administrative and management skill. FM is the management of commercial and public buildings and the provisions of services associated with the day- to – day operational elements of building occupation and, in the current economic climate extend to empty buildings. Facilities management could also be described as the management of any activities outside of a company's core business. There is numerous description of Facilities Management. One of which comes from the Center for Facilities Management (University of Strathclyde, 1992). "The process by which an organization delivers and sustains a quality working environment and delivers quality support to meet the organization's objectives at best cost". And goes on to say, "Facilities Management should reflect a service offering which combines service provision with service management".

The scope of Facilities Management will depend mostly on the company of which it is a part. Some companies may consider that the FM department should all non-core activities. This could therefore include departments such as purchasing, accounts, legal, and travel and car fleet. Other companies' may have their FM department incorporated into another support service function, such as finance or personnel. Facilities continues to evolve, and although it is mainly relevant to larger organizations, the discipline is spreading to smaller companies who have identified the need for a professional approach to building services management. Facility managers in all sectors now require a greater understanding of the business they support then their predecessors in order to enhance the core business of the company, i.e. profit. Figure 1.0 shows the management and support of facilities management.



**Figure 1.0: The Management and Support of Facilities Management.**

Information and Communication Technology (ICT), continues to sit 'out on a limb' and is less well integrated into the Facilities Management domain than others. In organizations IT tends not to be managed by those responsible for Facilities Management, but as a separate function and those companies offering ICT services tend not to see the links with the other service areas listed above. The ICT industry define Facilities Management in terms of ICT outsourcing rather than in the wider terms. As the use of computers and telecommunication 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 organization in the business environment. According to Konsynski and Tapscott (1996), 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 companies must take part and alert with new ICT system because to enter in globalization business, all the management system must be up date and all staff in the companies should know about ICT very well especially for managerial task.

Electronic commerce is a powerful new way of conducting business and one that presents many opportunities for companies and consumers. Yet, despite the advantage that is technologies and practices offer, it has not been adopted as anticipated and has not reached its full potential. Several country specific barriers and factors have slowed down the wide acceptance of electronic commerce. Key players in Facilities Management, in particular, hesitate to adopt it for reasons that include resistance to change, lack of awareness about the potential of electronic commerce and lack of trust in the security of electronic commerce transactions. According to Organization for Economic Co- Operation and Development reports entitled "Global information infrastructure – global information society", lack of awareness is one of the most frequently reported barriers in the adoption of electronic commerce by these companies today, as they do not seem to realize the business opportunities offered by electronic commerce. According to more recent report Internet uptake is lower in smaller forms than in larger firms) OECD, 2000), while reports from various OECD countries confirm that there is correlation between the rate of adoption of the Internet and the firm size. More specifically, according to national statistical resources from Australia, Denmark, Finland, Japan and Holland (OECD, 1999) while the Internet penetration in large firms in 1999 was between 80% and 86% and for firms with 20 employees and more ranged from 61% to 95% for small and very small firms this number falls to a range between 19% and 57%.

The dramatic change in IT provision in the 1980s was the appearance of the PC. Processor speeds climbed from 4.5MHz to 25 MHz in that decade. In the 1990s they climbed from MHz to 500MHz. In the first year of this decade they will climb to 1 000MHz. They are specifications of products already in development and which have been announced. We are seeing therefore an unprecedented development of enabling technologies at a speed with which no previous generation has had to cope. What are our coping strategies and how should we go about predicting how such technology may be applied? For reasons of efficiency we bring together, five times per week or more, large numbers of people to make common use of large and expensive facilities centrally located. In this we repeat the commercial and management structures invented during the Industrial Revolution. These facilities are large, expensive and need control. Buildings are inevitably required to house them and commerce therefore has a vast investment tied up in such buildings and facilities. If a different technology enabled a similar commercial through-put without the use of such legacy capital investment, the new companies would be at a distinct commercial advantage.

The challenge for existing companies in such circumstances has never been more acute. What are the emerging enabling technologies that affect their market? Can they disperse their workforce and retain the controls needed to produce a commercially viable product? Can they retrieve the capital value of assets locked up in conventional buildings, equipment and land? What are their competitors doing and when? What will be the impact on their workforce? The need for strategic review and SWOT analysis has never been more acute. If the development of commerce is indeed Darwinian in nature, then those that can adapt will prosper. Those that cannot will be replaced by faster-moving, more flexible organizations. There is no opt-out option. But the use of the new technologies does not stand alone in the quest for future success. It would be unreasonable to assume that a dispersed organization linked by e-mail and perhaps PC to PC broad band video linkages would be sufficient to guarantee success. Other more subtle constraints need to be addressed. How will management style need to evolve? Input management will need to give way to output management. Reward for hours of work must give way to reward for units of work done.

Not all organizations have immediate IT drivers demanding change. Likewise large-capital-intensive manufacturing, pleasure-shopping, restaurant and providers of personal services and suppliers are likely to be the last affected. The immediate winners are likely to be information-based companies which can adapt, retailers who do not have a legacy capital – overhead, and warehousing and distribution, servicing the new retail distribution mechanism. It can also be argued that the 'worker' gains from less commuter traveling and the environment from a reduction in pollution caused by this lessening of physical travel. The immediate losers will be companies, particularly retail outlets, which cannot adapt fast enough. Providers of services no longer needed may also look forward to a substantial drop in profitability. There must be few organizations that have not thought, at least in passing, of the challenges, that developing such a strategy would present:

- i. Would the employees have sufficient space at home?
- ii. Is the right type of technology sufficiently developed
- iii. Can we develop adequate control strategies?
- iv. What risk would be run by doing this and how would we manage the risk?
- v. How will the market and particularly our customers view such change?
- vi. Do we have the change management resources, particularly project management and appropriate technology skills?
- vii. If not how can we get them?

Radical change is not so much in the offing as in the process of starting to take hold. Broad-band video linkages, Internet and Wide Area Networks give the commercial imperatives to disperse, a technological solution. The Facilities Management will consequently change can be taken as a given. Facilities Management will not cease, but its nature must change to reflect the changing facilities that is required to manage. The support of a dispersed estate and the increasing IT component demand a different and developing skill-set and a new set of competencies.

The Facilities Management will not cease, but its nature must change to reflect the changing facilities that it is required to manage. The support of a dispersed estate and the increasing IT component demand a different and developing skill- set and a new set of competencies. The Facilities Management profession, and the institutions that support it, must also change to reflect the different disciplines, competencies and the training/ education needed. The new competencies need to be identified and translated into a comprehensive training program through which access to a relevant qualification can be achieved. Even this is not enough. Given that the requirements will change rapidly with time it will change rapidly with time it will be necessary to constantly review the competencies. Date related qualifications may be needed which can be up dated as new components are added in later years. In post training must come to be seen as the norm rather than the ad hoc arrangements often seen in the current market. The mechanisms by which such training can be delivered may be the subject of further debate.

Facilities management (FM) is often seen as the management of cost- efficiency rather than as a method of achieving the multi- dimensional enhancement of business competitiveness. If the role of FM is to be recognized for the literally facilitating strategic mechanism that it represents, organizational structures must be constructed in an enabling rather than a disabling form (Micheal Pitt, 2001). In future, nature of building management needs to move towards strategic and knowledge- based management processes as drivers for the growth in a more strategic and enabling form of business support. Moving towards knowledge- based management means it must absorb an Information and Communication Technology (ICT) element. Thus, a framework for best practices in Facilities Management (FM) is very important because framework is collaborative community based effort in which these commonly needed data themes are developed, maintained, and integrated by organizations. FM practitioners must see framework as a way to share resources, improve communications, and increase efficiency. Framework is best viewed as an interconnected triangle consisting of three key elements, namely people, infrastructure and applications.

Many types of organizations participate in developing and use the framework for their management. Although different organizations have characteristics data use pattern, all organizations need different resolutions of data at different times, particularly when they are working together. The framework represents a nationwide community for data sharing, and provides the benefits for the companies as guidelines to involve in globalization market. Developing ICT framework take a long time but, it is very important especially for facilities management in the companies. In Malaysia, facilities management stills a relatively new concept, which makes it difficult to present a definitive description. Facilities Management can be described as multifarious because of the diversity of its core component such as technical, financial, administrative and management skill.

As a result, key players in Facilities Management can manage effectively if they have a better system. For these situations, a framework is important to clearly for organize their company as a guideline and basic step to make any changes their process management to enter in era globalization.

## **Methodology**

### **Phase 1: Identification of the Population**

The subjects for the study comprises of Facilities Management companies in Malaysia involved primarily in the following areas of services: property management, valuation, land administration, support services, government and others related in build environment. Only companies that have more than 5 years track record will be considered for the study.

## **Phase 2: Sampling**

Stratified sampling technique will be used to identify respondents from selected Facilities Management companies. Special attention will be given to ensure all construction consultant companies will be fairly represented due to the different demographic background of firms, e.g. local or foreign owned, paid-up capital etc.

## **Phase 3: Instrumentation**

Data for the study will be collected by a survey questionnaire designed to obtain a comprehensive assessment of ICT are related. Both closed and open-ended questions are used in the survey questionnaire. Close-ended questions comprised of Likert scales to measure differences in perceptions along a five-point scale.

The Language Translation Unit will assist in the translation of the questionnaire. Back-to-back translation of the instrument developed will be conducted to ensure consistency of the questionnaire. Subsequently, the questionnaire will be pilot tested among several clerical staff for content validity. Finally, reliability analysis using Cronbach alpha will be conducted for each sections of the questionnaire. Rectifications will be made for leading questions while ambiguous items will be deleted accordingly. By then, the questionnaire is ready to solicit the necessary data. At the same time, several rounds of Delphi assessment will be conducted whereby experts will be asked to identify KM strategies and IT infrastructures deemed as important to the Facilities Management companies.

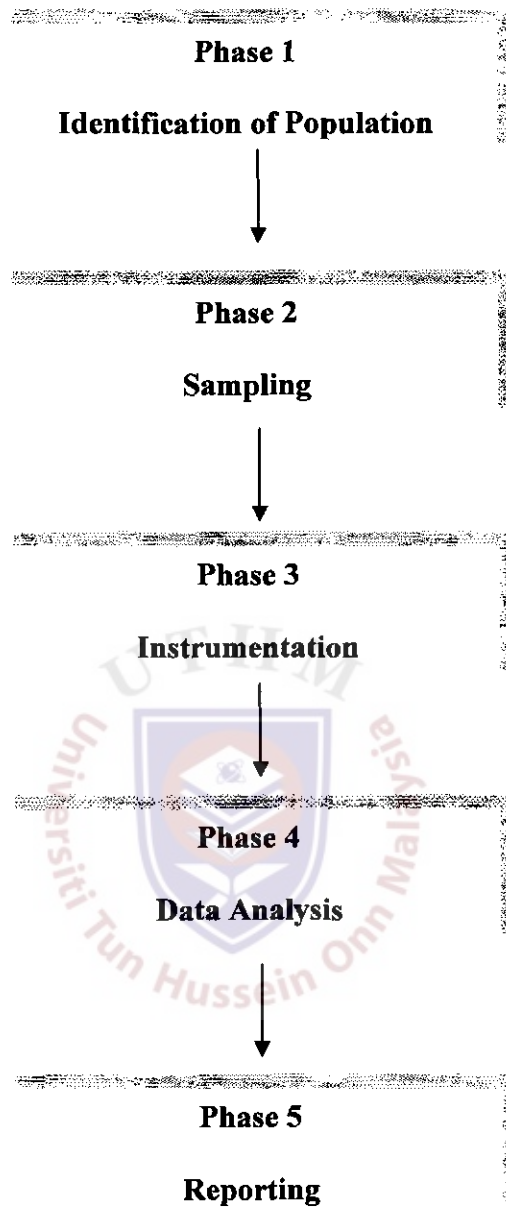
## **Phase 4: Data Analysis**

Quantitative data for close-ended questionnaire items that uses Likert scales will be analysed for validity and reliability first. Construct validity using factor analysis will be used to reduce and summarize data in which redundant items are combined and inappropriate items were deleted. Scale reliability using Cronbach's Coefficient Alpha will then be used again to assess the consistency of homogeneity among items. Subsequently the research will deploy descriptive statistics using average means to assess the central tendencies for the items. Due to the ordinality of the data collected non-parametric tests such as Mann Whitney U and Kruskal Wallis will be used to ascertain the differences in ranking of the respondents. The findings obtained will be able to differentiate the types ICT based on the types of construction consulting companies identified (refer Phase 1).

## **Phase 5: Reporting**

Finalisation of ICT best practice framework which incorporates all variables identified and tested

Figure 2.0 shows the flow chart of methodology.



**Figure 2.0 Flow Chart of Methodology**



## **Best Practice Concepts**

Earlier research conducted by the American Productivity & Quality Center (APQC) reveals that 'best practice' organizations treat FM as an investment, an asset that adds value, yields a return, links to strategy, and enables the organization to achieve its goals and objectives. The quality of the facilities management program is crucial to its ability to have an impact on the bottom line. To do so, it takes more than just numbers. It takes knowing both why and how organizations use a technology, outsourcing relationships, space utilization strategies, and preventive maintenance programs to affect the quality of the FM function. Information and communication technology (ICT) is becoming an especially prominent component of a quality FM function. Recent technology developments have allowed organizations to maximize the value of FM by simplifying key FM activities such as responding to service request, managing property portfolios, creating the FM strategic plan, searching for information, verifying data, and interacting with other organizational systems.

Much transformation has occurred within facilities management information and communication technology systems over the last three years. The increasing demand for cycle-time reduction, accurate information 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 FMICT makes to the organization. This has prompted management to invest in technology and integrate systems to give the maximum benefit to the entire organization. Organizations realize that customer involvement in the process drives continuous improvement and without it they will not succeed. Facilities management managers proactively work to build relationship and bring stakeholders together. This is also done with other divisions within the organizations. 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. FMICT managers also work in union with corporate IT to provide continuity in software applications and hardware.

## **Information System Planning in the Modern Context**

By the mid 1990's, it was arguably reasonably well established that some sort of formalized strategy information system planning was an appropriate undertaking for most organizations. Information system planning is to be closely allied to the organizations business planning activity, the accept wisdom at the time suggesting that ICT should only be attempted once a business strategy have been develop and articulate, and hence understanding reach of direction the organization planning to follow for the next few year, its goal, objectives, core business processes and its changes agenda, for examples. With this business strategy establish and share understanding reach among executives, an information system plan could be develop, determining the information and information system needs to support the business strategy, and thus guiding investment decision into the future.

An interactive and generative process is envisaged, recognizing a general trend of establishing a business strategy, then an information system strategy, and finally information technology, but acknowledging the constraints and pressures in the real world which may act to limit the strategies somewhat. Given the rate of technology change, and the potential and impact that modern ICT could have directly on business strategy, and the outset of this process it is important to be aware of technological advances that may impact or alter the chosen or desire course for an organization (Peppard,1993;Liedtka,1998). The examples for the strategy framework it shows at Figure 3.0.

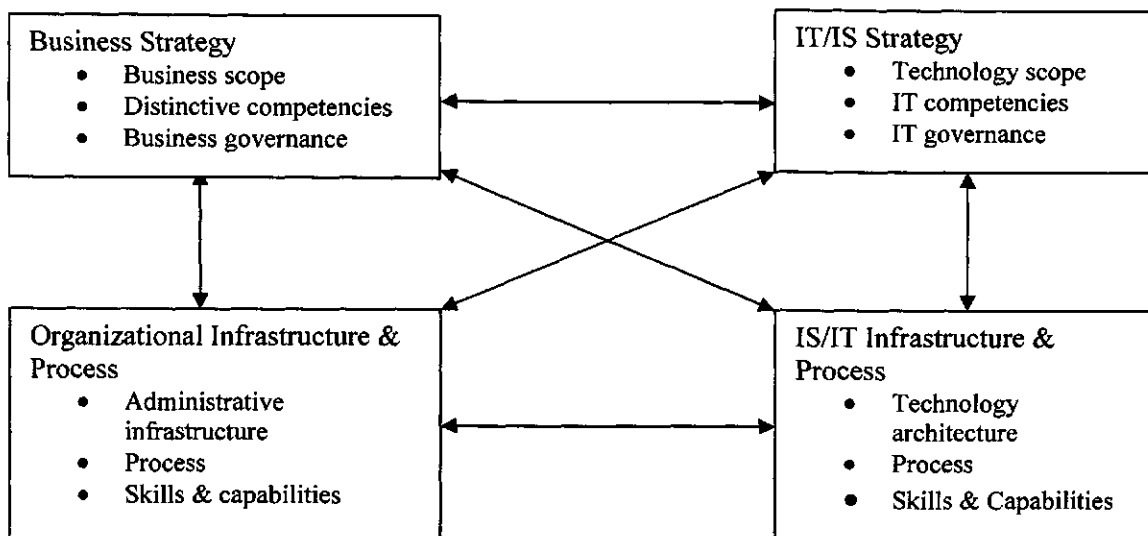


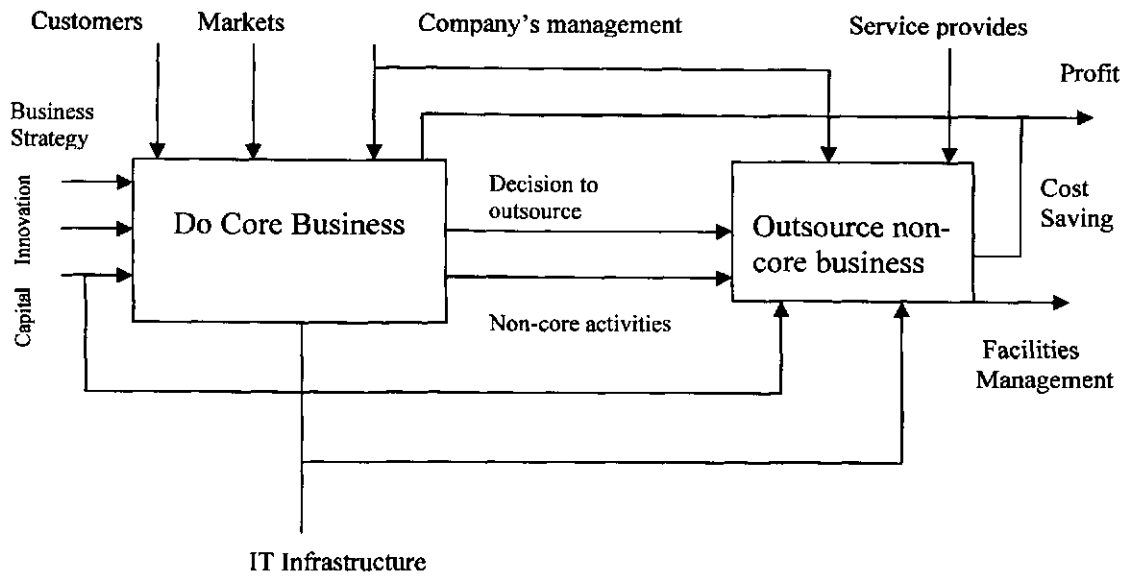
Figure 3.0: Achieving Strategic Alignment (Adapted from Henderson and Venkatraman, 1994)

### 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 is 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 conducive 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 4.0.



**Figure 4.0:** Basic relationship between core and non-core business

Company may not be aware of the extent to which value for money in facilities management can be improved. There are common themes and approaches to facilities management, regardless of the size and location of buildings, although these may not necessarily result in common solutions to problems. In some cases, estate-related and facilities services outsourced (contracted out) and in others retained in house for good reasons in each case. There are also many companies that operate what might be described as a mixed sourced in some measure as well as being retained in house.

Whichever course of action has been taken, the primary concern is the basis for the decision. Where the companies approach has been arrived at for entirely proper reasons, such as demonstrating better value for money from one approach as opposed to the other, facilities management is working effectively.

### 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 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 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 5.0 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.

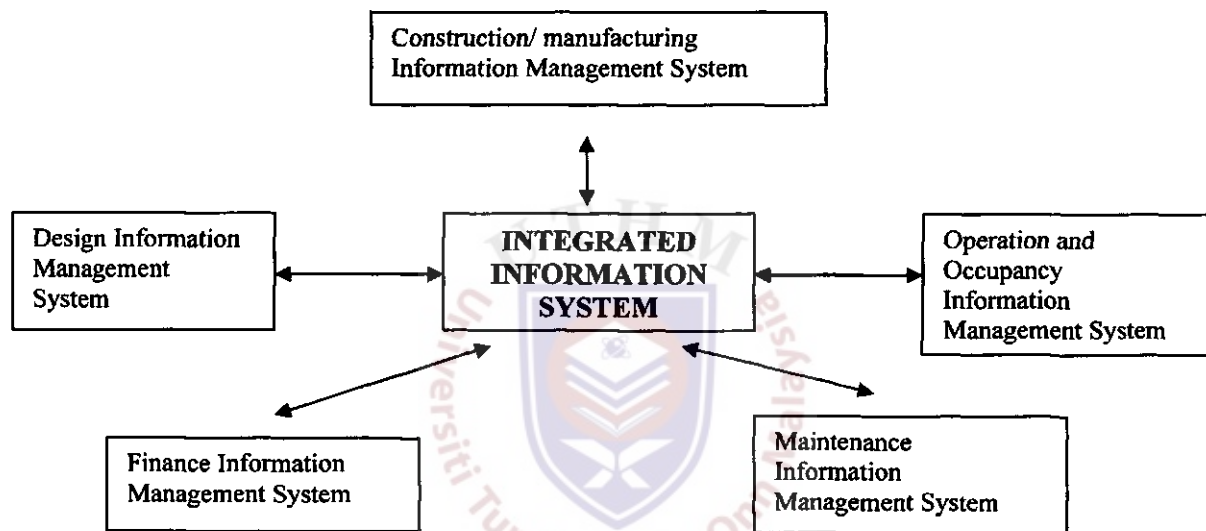


Figure 5.0: Integrated Information Management System

## Conceptual Framework

The overall conceptual framework that forms the basis of this pilot research project is shown at Figure 6.0.

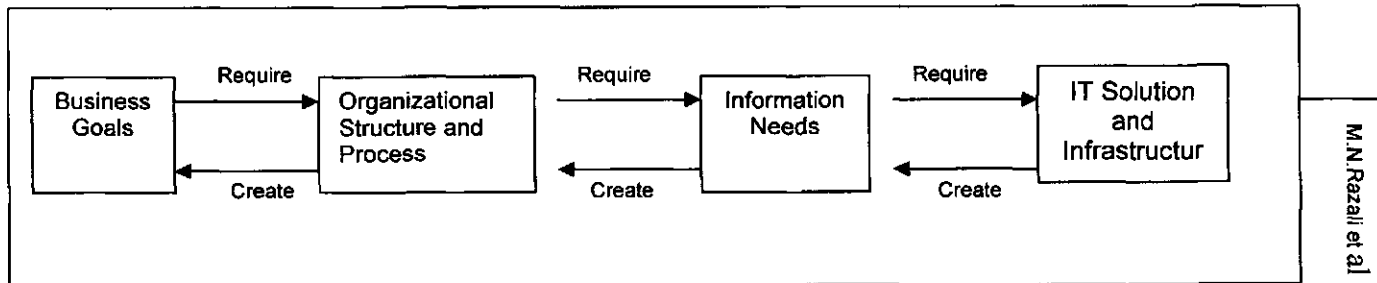


Figure 6.0 : Sample of Conceptual Framework

This conceptual model hypothesizes that information technology acts as both amenable (provides new possibilities for organizations to achieve business goals) as well as a source of innovation (emerging technology provides new possibilities for organizational structure and processes and may generate new business goals)

In addition, this model may influence organizations in at least three different ways:

### 1. Strategic positioning

Information technology may provide a means for organizations to uniquely position themselves in the market place in a manner that would be impossible without the availability of information technology. Examples of strategic positioning are emerging in the form of 'virtual organizations' which provide substantially improved value to customers compared to traditional organizations. Strategic applications of information technology may involve inter-organizational information sharing, such as the use of distributed database.

### 2. Work group productivity

Instead of affecting the entire organization, work group productivity effect subsets of an organization. The use of groupware (e.g., Internet collaborative applications) has the potential to empower and integrate project teams for substantial improvements in project productivity and at the same time reduce the need for middle management.

### 3. Process redesign

Process redesign may affect the productivity of one or more individuals as jobs are reconfigured and processes simplified. Information technology can facilitate the task of process redesign by providing tools that eliminate routine jobs and decentralize decision-making.

## Strategy

According to APQC's, three dominant issues need to be understood as a strategic part of any facilities management organization.

- i. Corporate culture has been driving force in the way facilities management approaches strategic planning and how it view success for the company.
- ii. Relationships within an organization are key to an organization's success in the corporate world.
- iii. A high level of technology use within an organization allows it to function and prevail as a strong competitor within the corporate world.

Valued partners in the organization must have information that is important to the culture. Successful facilities management functions recognize this and work proactively to ensure their partnership with the organization. Before organization can select the right options and reap the benefits technology provides, they must understand FM's role as a strategic asset. This roles impacts each area of the balanced scorecard, strategy, financial performances, innovation and learning, customer satisfaction and internal processes. Once the organization understand FM's strategic role, more effective choices on how to use FM technology can be made. Facilities 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.

Placing all drawings into a database is a critical success factor in meeting the strategic objectives of the organization. This has proved to be a tremendous asset and makes it quick and easy to find drawings related to specific projects. By making information readily accessible and accurate, FM organizations impact the organization's bottom line. Informational silos are eliminated while sharing of information flourishes. Also, software bought uniformly across the organization replaces independent software, purchased indiscriminately in different departments.

## Awareness

At the moment, awareness in implementing ICT in business as whole and facilities management in specific is problematic. OECD in 1998 reports that lack of awareness is one of the most frequently reported in the adoption of ICT by these companies today, as they do not seem to realize the business opportunities offered by ICT. They also find it difficult to access information about cost, human resources and specific industry sector needs. Additionally, lack of trust in ICT, which also reported as one of the main reasons for the relatively low ICT adoption, can be attributed in part to the lack of awareness the possible risks and corresponding preventive measures. Thus, awareness is considered to be a fundamental element of ICT diffusion. Governments in Europe and USA have realized the need for awareness creation in the business community as well as the public in general. Thus, they support the effort to enhance the awareness and confidence of citizens and companies in electronic commerce and the development of relevant skills and IT literacy (EU- US, 1997). However the efforts made by public and private organizations to promote ICT have not produced the expected results.

According to Anastasia Papazafeiropoulou form Center for Strategic Information Systems., the awareness models can be grouped in 3 categories. Author had modified to suite with Facilities Management environment. These were:-

### Category I: General awareness activities

- i. Awareness material.

This model covers all types of activity that rely on using awareness material to encourage FM to adopt electronic commerce. Typical examples of the material are : books, newsletter, CD-ROMs, magazines, articles, videotapes, web sites, presentations, roadmaps, guidelines and case studies.

ii. Road show

This model is focused on the provision of best practice examples and information on electronic commerce to FM. The key players must willing to learn about new ways of doing business or even have immediate plans to invest in electronic commerce.

iii. Seminar and Workshops

This model is one of the most widely used and aims that raising initial awareness for FM and motivating them in order to invest on electronic commerce. Through this model SMEs gain the necessary information that will help them describe on the possible suitability of electronic commerce to their business.

iv. Showroom and exhibition

This model is based on the concept of an exhibition center for new technologies that includes electronic commerce applications. The center is organized into various specialist areas, where different live presentations take place. These are separated stands and visitors can move freely between them.

**Category 2: Intermediaries oriented activities**

i. Intermediaries networking

This model describes how a network can be organized amongst intermediaries in order to create a favorable environment for increasing electronic commerce activities. A 'virtual' center linking together all intermediaries can be created at a local, regional, national or even international level.

ii. Training the trainers

This model is aimed at educating intermediaries who in turn will raise awareness and provide support within FMs community. Through the use of this model local intermediaries can get the necessary know- how and skills to help FMs in the field of ICT without need for outside support.

iii. Trust and Confidence

This model covers activities of intermediary bodies positioned as 'trusted thirds party' (TTPs), guaranteeing and/or validating the content of an on-line information, offer or transaction. The model can cover simple awareness raising for the need for trust and

confidence tools or support awareness among intermediary bodies to help them position themselves as TTPs and help create the necessary co-operative consortia to develop these activities.

### **Category 3: Focused Facilities Management Support**

i. **Community networking**

This model consists of bringing together FMs from a specific industry sector, providing them with appropriate awareness and subsequently implementing various electronic commerce solutions, which meet the need of the group. The group can then promote electronic commerce to other FMs key player.

ii. **Customize Support**

This model is based on providing FMs with customized advice that meets individual companies' specific requirement. It provides an informed and impartial sounding board for different groups of FMs, typically who need extra help and support before taking a new step in electronic commerce.

iii. **Hand- on Trials**

The model is based on the concept that FMs awareness activities can be significantly improved by the use of relevant best practice examples. These can gain even more credibility if they are related to local or regional companies. This model consists of working with groups of FMs companies, typically 15- 20, in a defined area in order to develop the experience and knowledge that can subsequently become best practice examples.

iv. **Tools assessment**

This model is aimed at helping to increase the uptake and integration of ICT tools within user companies. It could include dissemination of tools test results, demonstration of new tools and negotiations for special offers to FM companies with tool providers.

v. **Training course**



This model is aimed at increasing the awareness of FM about electronic commerce and training them in a range of specific topics. As a result FM companies should acquire the necessary know-how and skills to start planning and implementing electronic commerce application themselves. This model is useful for a more mature audience and companies that have a basic understanding about electronic commerce and need further guidance in their effort to implement it.

Awareness creation is an essential element in each phase of dissemination of technology and business innovation like electronic commerce. It is reported that FM companies seem to lack the necessary information in terms of technology, human resources, business practices and cost in order to proceed to full electronic adoption. The initiative aimed at supporting professional organizers (policy intermediaries) in implementing appropriate electronic commerce awareness activities. To this end, a number of best practice awareness models were defined and specific implementation guidelines were produced.

### **Financial Perspective**

ICT will often be required to go through an arduous process of justification every cost. Facilities Management's information technology growth can be impeded. Then, it also is becoming more prominent. It has been confirmed that even incremental improvements in FM have dramatic effects on the bottom line. Best practice organizations treat ICT as an investment, an asset that adds value, yields a return, links to strategy, and enables the organization to achieve its goals and objectives. ICT and the organization work together to meet ICT's funding needs.

### **Internal Processes**

Listening to customer feedback and implementing functions that add value and make a positive impact on a customer's ability to perform a task are driving forces that move organizations to continuously improve ICT systems. Integration of ICT systems is another way to maximize the ability to serve customers. Through use of leading-edge technologies, best practice organizations create fully automated FM systems. To stay on the cutting edge, they continually modify, update, or revise the existing systems. These leading edge technologies are sophisticated and handle almost any service FM organizations provide to the customers.

### **Customer Service**

Facilities Management is a complex challenging profession. Valuable information about facilities, to some, means knowing the exact details of everything having to do with that facility. Throw in the additional challenge of getting everyone to see information the way facility professional do, and an interesting scenario arise. The leading companies value customer feedback to understand what is important to their customers. Customer interaction in the process lets facilities management personnel know how the customer uses the data it gather from ICT systems. Having this information guarantees FM is delivering exactly what customers need, in an acceptable time frame and a format that allows to perform job-related tasks more effectively and efficiently. When customers know they will be able to get the tools and information needed to perform their jobs, they can then make informed decisions and plan their time accordingly. From customer feedback, partners were able to gather specific ways in which ICT assisted customers.

## **Innovation and Learning**

By keeping a high degree of flexibility and a willingness to change, FM departments are able to quickly adapt to customers' needs. Again, it can not be stressed enough how critical it is to engage in ongoing communication, gather feedback from customers, and then use that to drive changes within ICT systems.

## **Conclusion**

As developing countries, face the new opportunities and challenges of the global network economy, there is increasing debate about how ICT can more effectively enable socioeconomic development. Although several countries have in fact created national ICT task forces and developed national ICT strategies, the lack of comprehensive frameworks to illustrate how to use and deploy ICT development leaves nations struggling to identify effective strategies, sometimes even pursuing detrimental and costly approaches.

Strategies for use the ICT are not universal. Countries face different circumstances, priorities and financial means and should therefore adopt different strategies accordingly. The framework can be help in determining a strategy regardless of what goals have been established, since coordinated action along the five areas identified in the framework is always likely to yield more effective results. However, the evidence and analysis presented suggest that strategy that focuses its ICT interventions towards the achievement to development goals is more likely to achieve marked socioeconomic development.

Facility management is essentially workplace management. In essence, it is a manifestation of facility management as the interface that manages changes in people, facilities and technology. They are many opportunities and expansion areas be it in properties, human resources, finance or ICT. Facilities management should have the ability to anticipate as to what organizations will require in future years. In the past, the role of facilities was merely that of service provider, and now, facilities management as a business solution.

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