Computer Aided Facility Management (CAFM) as a New Branch of Decision Making Support Technologies in the Field of Facility Management

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INTRODUCTION

Nowadays facility management (FM) and real estate activities contribute to about 5-10% of the gross domestic product (GDP) of advanced industrialized countries. For example the total value of FM activity including support services is about 8.2% UK GDP (Harris, 2002). Computer aided facility management (CAFM) software is a new class of information and communications technology (ICT) tools to support management in the preparation of relevant data in the decision making process especially in the area of illustration, evaluation, and control of relevant FM structures and processes. Recently, CAFM tools are developing from simple information systems to multifunctional decision support systems (DSSs) for private as well as public organizations. Until now however, little attention has been given to this relevant change in business and academic communities.

At the same time numerous software systems with various systematic approaches, functions, and varying success have been established on the market. Despite the multitude of suppliers and users in the different branches uncertainty concerning the procedures and achievable effects still prevails. This is closely related to the lack of well-documented, transparent, and successful case studies. In addition, little is known about how CAFM can be implemented successfully and the factors leading to its sustainable success. From an economic point of view it is very important to support this process in order to avoid wrong decisions and unnecessary investment. In particular, implementation strategies and formulae for success are of great interest (May, 2002).

The purpose of this chapter is to describe the relevance of CAFM as a decision support tool in the field of FM. The authors will illustrate the recent developments and market demands of FM and CAFM. The main part will provide an overview on the basic concept as well as building management, for example, CAFM and give detailed insight into the topic and how CAFM may serve as a DSS from an organizational perspective. The next part will introduce some examples of good practices. The chapter closes with an overview of future developments, trends, and research opportunities of CAFM as a decision support tool.

BACKGROUND

According to the survey by Berger (2001) we observe 70% of U.S. companies and 50% of European companies who consider their property and real estate as a strategic resource. The top management needs to regard this within their strategies and planning. The relevance of real estate is represented in the balance sheet. According to Cotts (1999) 25-50% of the assets are related to property or real estate. Life cycle costs are 5-7 times higher than the investment costs of buildings

(Grabatin, 2001). This shows the need to optimize the operating costs.

A professional FM can help to raise the efficiency of the secondary processes of companies, for example, building facilities and services (Brown, Kevin, Lapides, & Rondeau, 1995). Therefore the management will need the relevant information of the building services engineer for their decision making. Companies are challenged by limited budgets and high customer expectations. Especially in the field of building services engineering there is a demand for integrated ICT to provide relevant data for the decision support process (May, 2005).

FACILITY MANAGEMENT

FM is developing in various European countries. Certain historical and cultural circumstances, organizations, and business areas have been the basis for different views and approaches. In general, all organizations, whether public or private, use buildings, assets, and services (facility services) to support their primary activities. By coordinating these assets and services, by using management skills, and by handling many changes in the organization's environment, FM influences its ability to act proactively and to meet all its requirements. This is done also in order to optimize the costs and performance of assets and services. "FM is an integrated process to support and improve the effectiveness of the primary activities of an organization by the management and delivery of agreed support services for the appropriate environment that is needed to achieve its changing objectives" (European Committee for Standardization, 2006).

The concept of FM was not new when the term "facility management" was formed in the U.S. in 1979, as the management of large facilities or properties for a profit had already been practiced before. The definition used by the International Facility Management Association (IFMA) is: "Facility management is a profession that encompasses multiple disciplines to ensure functionality of the built environment by integrating people, place, process and technology" (IFMA, 2007a).

Computer Aided Facility Management

CAFM means the support of FM activities by modern information technology during the life cycle of real estates. It is focussed on the supply of information related to the facilities. All relevant data in the life cycle of facilities are collected, processed and evaluated electronically (German Facility Management Association [GEFMA], 2002). Typical CAFM systems combine database technology with graphical systems, for example, CAD systems.

Without IT support the ambitious goals of FM cannot be reached efficiently. The appropriate use of IT has become a critical success factor for the implementation of FM. Thus IT is a fundamental "Enabling Technology" for FM (May, 2006, p.17).

Figure 1. Growing number of CAFM providers in German speaking countries (Näevy, 2006)