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## **European "Smart Buildings" systems a 3 billion Euro market by 2005**

### Introduction

The operation and maintenance of buildings become smarter with the aid of sophisticated, electronic microprocessor based control systems. In such a "smart building" these control systems are operating several building functions such as heating, ventilation and air conditioning applications. The technology behind these systems is DDC, direct digital control, which collects, transmits and processes data in a highly accurate digital form, thereby allowing close control of building operations.

In recent years the so-called open protocol systems have been introduced, which means that end users are no longer confined to the installation of one manufacturer's equipment. That also means that Building Management System (BMS) suppliers are able to broaden their functionality to other areas of building management such as energy management, lift controls fire alarms, access control, security management and closed circuit television as well as sophisticated telecommunications, thus creating a truly smart building which minimise owning and operating costs by optimising energy use, comfort and safety.

The commercial sector put more and more pressure on owner / developers to build smart buildings as they are considered more attractive and easier to lease. Factors such as energy efficiency will have critical influence in the choice of a building. Energy management systems deal with the automation of a specific aspect such as lighting, heating and cooling. By controlling these areas with smart automated systems, the building is not only more functional, it is also much more energy

efficient. For example, by turning off unnecessary lights and not heating unoccupied rooms, commercial buildings can reduce their energy bills by up to 50%. Furthermore, an energy management system could be programmed to automatically operate building functions at the lowest energy price, just like letting your telephone center picking the telecom provider with the lowest rates.



Empty office spaces with air conditioning and lights on.

Through the integration of information technologies and smart automation systems, internet interfaces on computers and standalone 'internet enabled' devices will provide easy access to control smart buildings remotely, but also by providing 'virtual' thermostats and light switches for occupants of commercial buildings. Intranet / internet based systems enable a company to access building information through a web browser and could include information such as occupancy status, billing information and so on.

### The BMS market

It is estimated that the European BMS market will be worth 3 billion Euro by 2005, based on an average annual growth of almost 3%. Germany represents the biggest market in Europe with a share of 30% in 2001, followed by the UK with 14% and France with 10%. The Mediterranean countries Greece, Spain and Portugal have a joint share of 6% of the total market, while Italy represents almost 6%.



Out of the total BMS market approximately 63% consists of the systems themselves, while the remainder involves the maintenance and service of the systems. By 2005 it is expected that this ratio is 61% versus 39%.

### Maintenance

The maintenance segment covers of among others inspection, repair, standby service, logistics, software updating and spare part service. Maintenance may be based on failure, conditions of a contract or length of time. Failure based maintenance is generally applied to non-critical equipment. Time based maintenance is appropriate for hardware that is affected by legislation, such as emergency lightning and battery maintenance or fire and life support systems. Condition based maintenance is applied to all systems in order to predict and avoid failures often with the aid of remote monitoring. An increasing number of BMS maintenance contractors regard after sales services as more than simply maintaining and keeping a range of hardware systems in good running order. Indeed, added value support services that are aimed at aiding clients running their core businesses are an integral part of this market and considered a grey area between maintenance services and facility management.

It is anticipated that more companies will bundle BMS maintenance and services under an integrated facilities management contract, as a means of cutting costs to both the end user and the service provider. On the other hand the abundance of single service providers such as security companies, energy management providers, cleaning service providers etc. could restrain demand for integrated facility management services as end users prefer to evaluate the benefit of outsourcing each service separately.

In relation to the liberalisation of the energy markets there will be excellent opportunities in performance contracting. The performance contract has been an established function in the United States for a number of years, although it originated as part of the integrated facilities management concept in the United Kingdom. Generally, these contractual agreements guarantee end-users a level of



energy and operational savings. The BMS maintenance and services provider, in meeting established performance targets, is repaid over a set period of time.

Overall, the maintenance and services market has undergone a boom in activity in Europe due to the emergence of powerful maintenance applications, including preventive maintenance detection and scheduling applications, as well as the fact that end users recognise the importance of shifting their business philosophy towards the management of core business, while outsourcing non core activities.

End user analysis show that that especially the institutional / governmental sector is growing, while the commercial building sector is fairly stable and the industrial sector slightly in decline. Despite overall public spending cuts, the institutional / governmental market offer some good opportunities.

#### Market Drivers

- Emergence of open systems (interconnection of applications by several BMS suppliers);
- Increased Economic activities;
- Reduced Operation Costs and Increased Building Functionality;
- Technical Innovation (microprocessor and electronic technologies, intranet / internet based systems);
- Government Initiatives to promote Energy efficiency;
- Employee working time monitoring.

#### Restraints

- Deregulation of Energy markets (As energy markets are getting liberalised and it is expected that energy prices will drop sharply, end users have been less inclined to invest in BMS because the returns on investment have been reduced);
- Decline in new construction;



- Lack of Standards for seamless integration;
- Lack of awareness of BMS potential.

### Players

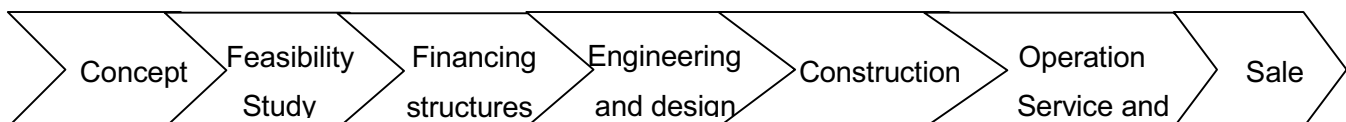
The European market for Building Management Systems consists of 20 to 40 manufacturers with a further 60 - 80 systems integrators / systems houses. However, the market is dominated by three multinational groups, namely Johnson Controls, Honeywell and Siemens Building Technologies (SBT) representing a market share of respectively 15.2%, 18.9% and 29.5%.

In recent years the market has been characterised by an increasing number of mergers and acquisitions, as the larger international operators such as Honeywell and Siebe Environmental Controls acquire domestic producers.

### BMS and the Construction Industry

As discussed in our previous article, the construction industry is increasingly shifting forward and backward in the construction value chain. Partnerships are of utmost importance in the early stages of the chain in order to save money further on in the chain in the segment "operation, service and maintenance" of a property.

When BMS suppliers are involved at the beginning of the value chain especially in the segment of Engineering and design, substantial savings can be achieved, while maximising client's satisfaction.



If possible, clients would be part of the process by having a chair in the building team together with developers, architects, installation companies and contractors.