

## **FACILITIES MANAGEMENT: PROPOSALS FOR PRACTICE IMPROVEMENT AND DEVELOPMENT SUPPORT THROUGH EDUCATIONAL PROGRAMMES IN SOUTH AFRICA**

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### **Abstract**

#### **Purpose**

*Globally the development of property, being part of the creation of fixed investment and wealth, is taking place unabated. The development of an universally acknowledge profession, designated to manage and optimise the utilisation of the ever compounding fixed investments in the products of the collective built environment, is observed. However, in South Africa this is still in an early formative stage. The objectives of this research are to contextualize facilities management by defining it, to identify bodies of knowledge/competencies and to establish a suitable educational knowledge framework and to address existing shortcomings. From a sustainability perspective serious shortcomings exist in many parts of the world and particularly so in South Africa and the rest of Africa. The sustainable utilization of buildings and infrastructure is seriously jeopardized due to underdeveloped facilities management.*

### **Design**

The problem at hand is to extract, from the present international practice of facilities management, a body of knowledge and secondly to formulate the results in terms of suitable tertiary and continuing education programmes to address shortcomings in South Africa.

### **Findings**

The results of this research found application in the enhancement of an existing short continuing education programme and the introduction of a new three-year tertiary education programme in a school for the built environment.

### **Value**

The value to be realised out of the structuring and presentation of formal educational programmes in facilities management is that a neglected area of the built environment family of disciplines are being addressed and elevated in South Africa, to what is fast becoming the norm elsewhere in the world. Professional facilities management can make a key contribution to create sustainable utilization of the products of the built environment.

### **Practical implications**

By offering formal education in facilities management a meaningful contribution will be made to satisfy the obvious dire needs of the private, and particularly the public sector, to

optimize the utilisation of the products of the built environment through continuous improvement of those facilities in a scientific and sustainable fashion, to the best advantage of all the stakeholders.

**Keywords:** Body of knowledge, built environment, facilities management, sustainability, tertiary and continuing education.

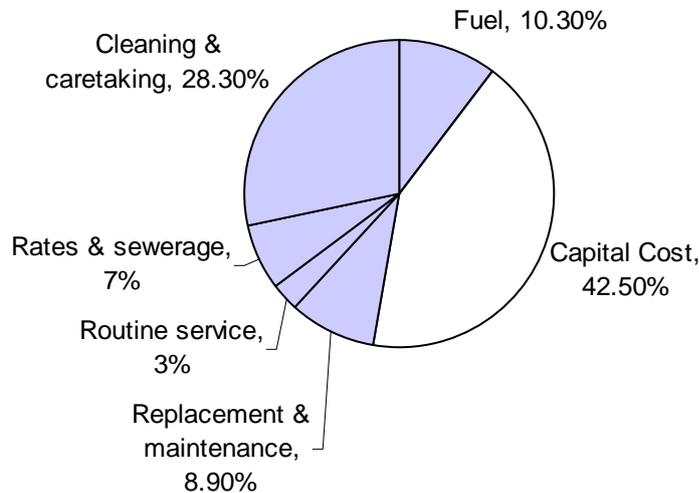
## INTRODUCTION

Investment in properties, as fixed assets, is growing continuously internationally. These property development activities are served by a multitude of highly skilled professionals such as engineers, architects, quantity surveyors, construction managers, project managers, town planners, land surveyors and others. The development of a universally acknowledged profession of the same standing, designated to manage and optimise the utilisation of the ever compounding fixed investments in the products of the collective built environment (buildings, engineering structures and infrastructure), is necessary. This situation may be explained by the fact that, in the present day accepted vocabulary, facilities management as a managerial concept developed in the United States of America only during the 1970's, when a Facilities Management Institute was founded and the first known formal symposium was held in Washington DC in 1989 (Binder, 1989). Though these events started approximately 30 years ago, the development and spread were slow, and in comparison with the other built environment professions, it is still in its infancy. However, although perhaps lacking some of the prestige associated with other professions, there are reasons to believe that facilities management is one of the fastest growing "new professions" in the built environment. Sustainability in ensuring that buildings and infrastructure are fit for purpose is paramount. Furthermore, it is becoming evident that facilities management is in the process of becoming a driving force, not only of scientific management and optimisation of fixed assets, but as an initiator of development in the built environment.

Perhaps not adequately acknowledged in the past, is that facilities management deals with 57,5% of the life cycle costs of a building. See Figure 1. Although this % is not universal for all facilities, it underscores the importance of facilities management as discipline. Although life cycle costing is often sighted as a knowledge area in facilities management, it could be argued that the extend to which life cycle costing rests with facilities managers may be underestimated and warrants further research.

Although facilities management is a "new" profession, it is observed that comprehensive sources of literature are constantly being developed. Also noteworthy is the associations that have been established globally. Although in its infancy in South Africa, in some countries tertiary education in facilities management is developing rapidly, supported by research activities.

The terms facility (singular) and facilities (plural) will be used synonymously, as will also be evident from referenced sources, although "facilities" will enjoy preference.



**Figure 1:** Local authority school life cycle cost (Cloete, 2001a: 178)

## LITERATURE SURVEY

Literature was selected by undertaking a web search in order to identify and obtain suitable works regard facilities management and by identifying and utilising known local South African works, commonly used by training and education providers. For obvious reasons “all” literature available internationally has not been reviewed. A selection was made of those sources regarded as presenting a fair overview related to this study. The contents of the following literature have thus been analysed in order to establish what appears to be representative of a general knowledge profile in literature: Barret and Baldry (2006), Bender (2002), Best, Langston and de Valence (2003), Cloete (ed) (2001a), Cloete (ed) (2001b), Cloete (ed) (2002a), Cloete (ed) (2002b), Collins and Porras (2000), Cornwell (1973), Cotts and Rondeau (2004), Crocker (1990), Gross (2002), Friday and Cotts (1995), Hauptfleisch (ed) (Volume 1&2) (1999), Hauptfleisch and Sigle (2009), Magee (1988), Means Company (1996), Occupational Health and Safety Act (2003), Owen (1993), Pearce and Robinson (2000), Project Management Institute (2004), Robinson (1999), Rondeau, Brown and Lapidés (2006), Seeley (1987), Wang (2010). To this was added those knowledge areas regarded to be of importance in continuing education programmes and in formal academic degree programmes.

Table 1 (placed in later section) provides an analysis flowing from surveying the sources as described above, divided into three categories: Firstly dealing with the “contextualising of the managerial challenge”, secondly with the “practice” of facilities management and thirdly with “property maintenance”. The topics contained in Table 1 are in main heading format, synthesised from comprehensive subdivisions.

It should be noted that the literature survey covers sources from 1973 to 2010 but that the bulk of it has been published since 2000. For this reason no attempt was made to place the

development of a knowledge profile on a developmental time scale. Figure 2 therefore represents an attempt to provide a contemporary “balance sheet” rather than a “developmental pathway”.

## **METHODOLOGY**

The problem at hand is to extract a body of knowledge from the present practice of facilities management, and secondly, to formulate suitable tertiary and continuing education programmes. This was done through literature study, web-searches and by obtaining feedback from facilities management practitioners attending continuing education short courses (in order to create a limited statistical sample), and from non-quantified observations in practice. A qualitative and quantitative survey was conducted amongst stakeholders in order to obtain their views regarding a proposed three-year tertiary education programme on undergraduate (degree) level. Figure 2 shows the generally perceived position of facilities management, in context of overall asset management, within an enterprise that holds built environment assets. This diagramme was tested for general correctness by subjecting it to assessment by 12 different groups of facility management practitioners taking part in continuing education short courses over a period of four years.

The general support that it received was taken as indicative of actual facilities management practice in South Africa, offering some guidance in the creation of a primary body of knowledge for education.

From Figure 2 (own diagramme) it is clear that the research done was not hypotheses testing. The intention was to establish current thinking regarding where facilities management could be placed in the bigger context of asset management, thus contributing towards the development of academic programmes, pre-empting the needs of industry, resulting in a structured knowledge profile, validated by a broad group of stakeholders.

## **DEFINITIONS**

Facilities management is defined and analysed in a variety of ways by associations and authors of books. The following selected definitions are based on a survey conducted via internet to provide an overview of “what facilities management” is perceived to be internationally by facilities management associations:

### *International Facilities Management Association (IFMA)*

IFMA is a very comprehensive association, providing comprehensive input and educational opportunities in the discipline. Its head office is based in the United States of America (USA), but it also covers Canada as a North American body. IFMA also has chapters in other regions in the world. The IFMA (2010) web-page contains the following definition:

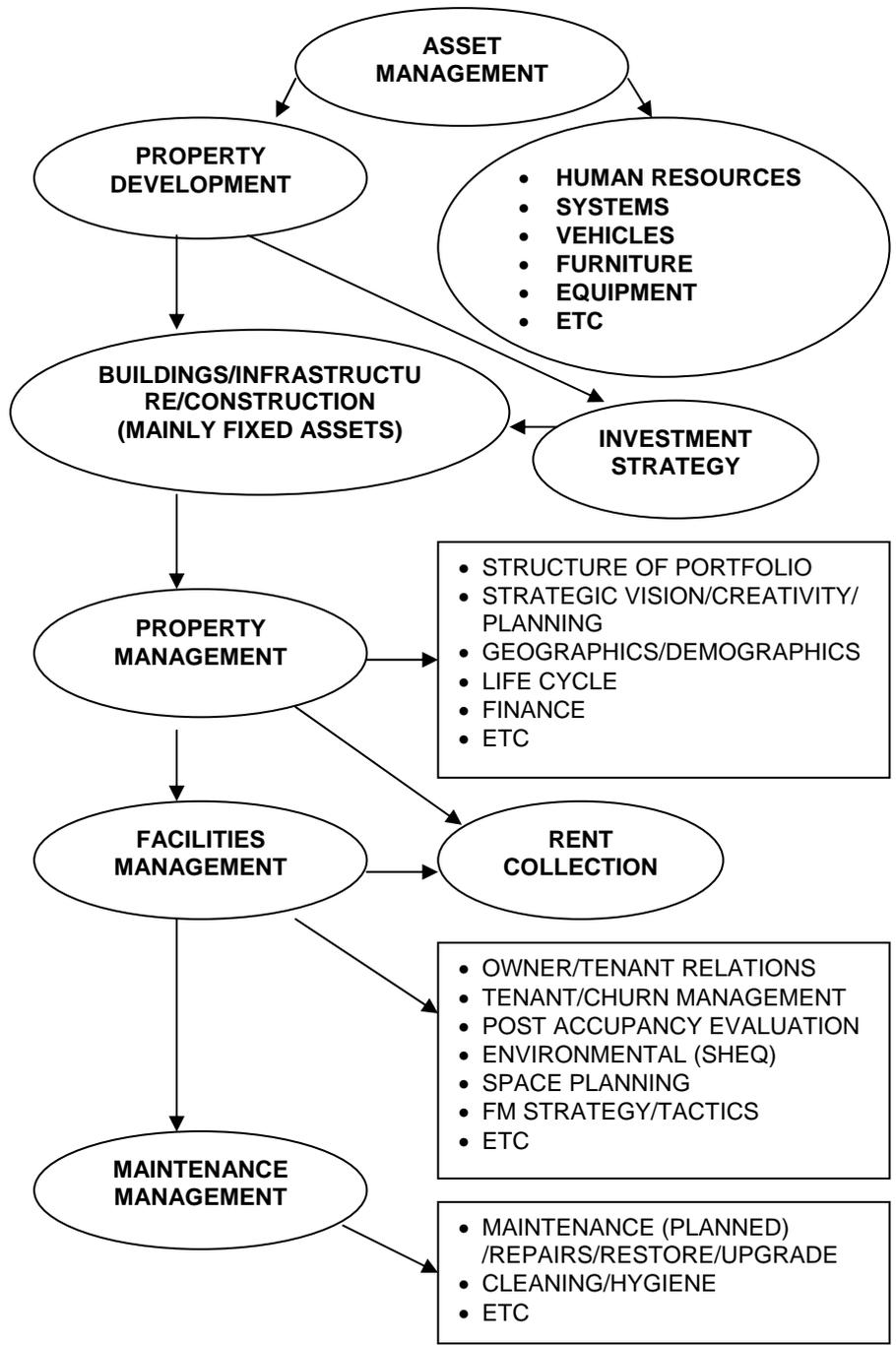
“Facility management is a profession that encompasses multiple disciplines to ensure functionality of the built environment by integrating people, place, process and technology.”

The IFMA (2010) web-page also provides a comprehensive structure, summarized below, of nine competency areas (others may call it knowledge areas, or a body of knowledge):

#### *I Operations and maintenance*

- a. Oversee acquisitions, installation, operation, maintenance and disposition of building systems

- b. Manage the maintenance of building structures and permanent interiors
- c. Oversee acquisition, installation, operation, maintenance and disposal of furniture and equipment



**Figure 2:** Facilities Management in Context of Asset Management (own diagramme)

- d. Oversee acquisition, installation, operation, maintenance and disposition of grounds and exterior elements

*II Real estate*

- a. Manage and implement the real estate master planning process
- b. Manage real estate assets

*III Human and environmental factors*

- a. Develop and implement practices that promote and protect health, safety, security, the quality of work life, the environment and organisational effectiveness
- b. Develop and manage emergency preparedness procedures

*IV Planning and project management*

- a. Develop facility plans
- b. Plan and manage all phases of projects
- c. Manage programming and design
- d. Manage construction and relocations

*V Leadership and management*

- a. Plan and organise the facility function
- b. Manage personnel assigned to the facility function
- c. Administer the facility function
- d. Manage the delivery of facility services

*VI Finance*

- a. Manage the finances of the facility function

*VII Quality assessment and innovation*

- a. Manage the process of assessing the quality of services and the facility's effectiveness
- b. Manage the benchmarking process
- c. Manage audit activities
- d. Manage developmental efforts of facility services to make innovative improvements in facilities and facility services

*VIII Communication*

- a. Communicate effectively

*IX Technology*

- a. Plan, direct, and manage facility management business and operational technologies
- b. Plan, direct, manage and/or support the organisation's technological infrastructure

*Facilities Management Association (UK) (FMA)*

FMA (2010) information from its web-page is limited, but the following definition is provided:

“Facilities Management is located in the Support Services Sector of the UK economy and is the efficient integration of support activities within the business environment which is essential to the successful performance of any organisation.”

*British Institute of Facilities Management (BIFM)*

BIFM (2010) defines facilities management as follows on its web-page:

“Facilities management is the integration of processes within an organisation to maintain and develop the agreed services which support and improve the effectiveness of its primary activities.”

The BIFM (2010) web-page provides the following 20 “strategic and operational” competencies:

- The Business Organisation
- Management Principles
- Risk Management
- Information and Knowledge Management
- Project Management
- Personal Leadership
- Human Resources Management
- Relationships with Suppliers and Specialists
- Quality Management
- Customer Service
- Management of Property
- Property and Building Services Maintenance
- Space Management
- Support Services Operations
- Sustainability and Environmental Issues
- Energy and Utility Management
- Financial Management
- Procurement, Contracts and Contract Management
- Legislation, Codes, Directives and Regulatory Issues
- Facilities Management – Development and Trends

*Facility Management Association of Australia (FMAA)*

The FMAA definition of facility management is stated by Best et al (2003:1) as follows:

“Facility management is the practice of integrating the management of people and the business process of an organisation with the physical infrastructure to enhance corporate performance.”

FMAA competencies are categorized as follows by Best et al (2003:3): “The broad categories are:

- Use organisational understanding to manage facilities
- Develop strategic facility response
- Manage risk
- Manage facility portfolio
- Improve facility performance
- Manage the delivery of services
- Manage projects
- Manage financial performance
- Arrange and implement procurement/sourcing
- Facilitate communication
- Manage workplace relationships
- Manage change”

The range of skills and knowledge required of facility managers, if they are to successfully carry out all of these functions, is quite alarming as it includes everything from computer networking and mechanical engineering to human resources management theory, occupational health and safety legislation, contract negotiation, future financial planning (eg budgeting, life costing, discounting), subcontract administration, construction management – the list is endless.”

*Euro FM*

Although no specific definitions or core competencies occur on the EuroFM (2010) web-page, it is noteworthy that it networks 80 organisations based in 15 European countries. These organisations represent professional associations, education and research initiatives and corporate organisations.

*Hong Kong Institute of Facility Management (HKIFM)*

The HKIFM (2010) web-page defines facility management as follows:

“Facility Management is the process by which an organization integrates its people, work process and physical assets to serve its strategic objectives. As a discipline, facility management is the science and art of managing this integrative process from operational to strategic levels for promoting the competitiveness of organizations.”

HKIFM (2010) identifies professional core competencies as per Figure 3.



**Figure 3:** HKIFM (2010) Professional core competency

*Japan Facility Management Promotion Association (JFMA)*

The JFMA (2010) web-page defines facility management as follows:

“It is a comprehensive management approach for the optimization of the ownership, utilization, operation, and maintenance of the business real properties (land, buildings, structures, equipment, etc.) and maintain them in optimal conditions (minimum costs and

maximum effects), so that they could contribute to the overall management of the business.” Core competencies are not provided.

#### *South African Facilities Management Association (SAFMA)*

The SAFMA (2010) web-page provides the following definition:

“Facilities management is an enabler of sustainable enterprise performance through the whole life management of productive workplaces and effective business support services.”

SAFMA however does not list the required core competencies required by facilities management on its web-page.

#### *Other definitions*

As previously noted, a large volume of literature exists and is growing rapidly regarding facilities management. A limited number is reflected below, being indicative of general points of view.

Best et al (2003:12) provide the following descriptive statement:

“Facility management is therefore about empowering people through provision of infrastructure that adds value to the processes that they support. Facility managers are charged with the responsibility of ensuring that the infrastructure is available, operational, strategically aligned, safe and sustainable. Above all, however, facilities must encourage high productivity through a continual search for ways to improve quality, reduce cost and minimize risk.”

Atkin and Brooks (2009:3-4) provide the following descriptive statement:

“Facilities management can therefore be summarised as creating an environment that is conducive to carrying out the organisation’s primary operations, taking an integrated view of the services infrastructure, and using this to deliver customer satisfaction and best value through support for and enhancement of the core business. We can develop this definition to describe facilities management as something that will:

- Support people in their work and in other activities.
- Enhance individual well-being.
- Enable the organisation to deliver effective and responsive services.
- Sweat the physical assets, that is, make them highly cost-effective.
- Allow for future change in the use of space.
- Provide competitive advantage to the organisation’s core business.
- Enhance the organisation’s culture and image.”

Barret and Baldry (2006:xiii) provide the following definition of facilities management:

“An integrated approach to maintaining, improving and adapting the buildings of an organisation in order to create an environment that strongly supports the primary objectives of that organisation.”

Although the *International Council for Research and Innovation in Building and Construction (CIB)* is obviously not a trade association, it is of value to review its position as a contributor to the creation of knowledge. The CIB (2010) web-page does not provide specific definitions, nor does it list core competencies. But, as a highly regarded international research facilitator (the work done, and reported through its work commission: CIB W070), its contribution to the creation and dissemination of best professional practice in education, research and practice is of high standing.

## UNDER-EMPHASISED KNOWLEDGE AREAS

The knowledge areas that are perceived as important for practicing facilities managers and the relevant emphasis of each in the surveyed literature are reflected in Table 1. The table therefore represents an “emphasis” evaluation, based on the extent to which various knowledge areas receive attention in literature. This analysis is not substantiated by quantitative and triangulated research procedures, but has value as an attempt to observe general tendencies to emphasise knowledge areas, required in a primary body of knowledge for the development and practice of facilities management. The table was compiled by the authors after scrutinizing what knowledge areas receives more or less (how much) emphasis in the surveyed literature.

KNOWLEDGE AREA	COVERAGE IN LITERATURE			
	OFTEN → SELDOM			
	1	2	3	4
<b>A. FACILITIES MANAGEMENT: CONTEXTUALISING THE MANAGERIAL CHALLENGE</b>				
1. INTRODUCTION TO FACILITIES MANAGEMENT	•			
2. AN OVERVIEW OF FACILITIES MANAGEMENT	•			
3. DEVELOPMENT OF FACILITIES MANAGEMENT	•			
4. FACILITIES MANAGEMENT PRACTICE MODELS	•			
5. GENERAL MANAGEMENT FUNDAMENTALS				•
6. STRATEGIC MANAGEMENT		•		
7. PROJECT MANAGEMENT				•
8. HUMAN RESOURCES	•			
9. LAW AND CONTRACTUAL ARRANGEMENTS		•		
10. FINANCE	•			
11. MARKETING OF SERVICES			•	
12. TOTAL QUALITY MANAGEMENT				•
13. SERVICE LEVEL ARRANGEMENTS	•			
14. INFORMATION TECHNOLOGY	•			
15. SUCCESSFUL FACILITIES MANAGEMENT		•		
<b>B. FACILITIES MANAGEMENT: PRACTICE</b>				
1. STRUCTURING THE ORGANISATION			•	
2. CLIENT AND/OR USER NEEDS EVALUATION	•			
3. DESIGN TO SATISFY CLIENT AND/OR USER NEEDS	•			
4. SPACE MANAGEMENT	•			
5. CONSTRUCTION TECHNOLOGY, BUILDING SERVICES AND COMPONENTS		•		
6. QUANTIFICATION AND TENDERING				•
7. PRINCIPLES OF LIFE CYCLE COSTING		•		

8. GENERAL SERVICES				•
9. CAPITAL PLANNING		•		
10. PROCUREMENT & OUTSOURCING			•	
11. RISK MANAGEMENT		•		
12. POST OCCUPANCY EVALUATION	•			
13. BENCHMARKING	•			
14. THE STRUCTURE OF THE BUILT ENVIRONMENT				•
15. OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS	•			
<b>C. FACILITIES MANAGEMENT: PROPERTY MAINTENANCE</b>				
1. INTRODUCTION TO MAINTENANCE MANAGEMENT	•			
2. MAINTENANCE CATEGORISATION	•			
3. PLANNING AND PROGRAMMING OF MAINTENANCE EXECUTION	•			
4. OPERATIONAL MANAGEMENT		•		
5. PEST CONTROL IN BUILDINGS			•	
6. MAINTENANCE FINANCE	•			
7. CONSTRUCTION, RENOVATION AND MAINTENANCE WORK		•		
8. INTELLIGENT BUILDINGS	•			

**Table 1:** *Facilities Management Primary Body of Knowledge (own table)*

### **ANALYSIS OF CONTINUING EDUCATION SHORT COURSES (5 DAYS) AND TESTING OF THE PROPOSED CONTENTS FOR AN ACADEMIC PROGRAMME (3 YEARS)**

The researchers have substantial experience in presenting short courses (5 days) in facilities management. As part of the structuring of a three-year tertiary education programme it is regarded valuable to source the views regarding the introduction of an academic programme from short course delegates. Their evaluation of the short courses was sought to test their acceptance / rating of the contents. This was further extended to also test their evaluation of the proposed contents of the three-year academic programme. Further enhancement of this was done by surveying two selected organised industry groups in the facilities and property industries. A final ongoing evaluation has been regularly conducted since introduction of the three-year programme by continues surveying of the importance attached to 20 core competencies selected by the authors.

### **ANALYSIS OF CONTINUING EDUCATION SHORT COURSES EVALUATION**

Table 2 is based on the results obtained from a limited quantified 100% covered survey, assessing broad disciplines covered during continuing education short courses, soliciting recommendations regarding course content. Delegates are also prompted to make alternative suggestions. This survey has been conducted six times (from 2004 to 2007) amongst delegates, after they have completed a five-day continuing education short course offered to middle (and top) management practitioners of facilities management. Table 2 contains the results that emanated from the last three courses offered during 2006 and 2007, before

structuring the reported academic programme. These courses are always well subscribed. Delegates that are required to take part in the above survey are also evaluated by way of assignments, in order to support continuous quality improvement. These evaluations have subsequently also been conducted from 2008 to 2010, with no noteworthy different result.

<b>KNOWLEDGE AREAS</b>	<b>ACTUAL LECTURE %</b>	<b>RECOMMENDED LECTURE %</b>
<b>Management (assets, property, facility, general)</b>	35	34.1
<b>Client care</b>	6	7.1
<b>Finance</b>	15	13.9
<b>Legal</b>	18	17.2
<b>Quality</b>	13	12.9
<b>Maintenance</b>	13	14.8
<b>Total</b>	100	100

*Table 2: Recommendations for Continuing Education Programme Content Weighting*

From the results reflected in Table 2 it is concluded that the respondents that have attended continuing education short courses, are satisfied that the course content is on target.

## **ANALYSIS OF SURVEY REGARDING PROPOSED ACADEMIC PROGRAMME OBJECTIVES AND OUTCOMES**

Based on all the data obtained, a three year academic programme has been structured, to be offered in a distance learning format, as follows:

- Year One: Facilities Management Introductory Certificate (NQF Level 6: 80 Credits)
- Year Two: Facilities Management Intermediate Certificate (NQF Level 7: 80 Credits)
- Year Three: Facilities Management Advanced Certificate (NQF Level 7: 80 Credits)

Note: Some of the course contents/subjects may be offered as credits towards obtaining a BSc-degree.

The proposed contents of the above programmes/certificates have been subjected to a quantitative and qualitative survey in order to assess the validity thereof. Three stakeholder groups that could contribute to this process were identified and requested to take part in a survey. The quantitative results are reported in Table 3.

- Group 1: Practitioners that have participated in Continuing Education Short Courses.
- Group 2: The South African Property Owners Association (SAPOA) Facilities and Technical Services Committee members.
- Group 3: The South African Facilities Management Association (SAFMA) management committee requested prominent members to participate.

All participants in the survey were provided with details of the proposed course content, including the objectives and outcomes of each subject.

The focus of the survey was to determine to what extent the curriculum content was regarded as important. This assessment of a primary body of knowledge for a three year educational programme was conducted regarding the following quantitative data:

**QUESTIONNAIRE ON PROPOSED THREE YEARS COURSE CONTENT  
FOR CERTIFICATE PROGRAMMES IN FACILITIES MANAGEMENT**

1. Your response (x) should please indicate the importance of each subject as per the attached proposed modules for certificates in facilities management over a three year period.
2. Not important: 1  
Most important: 5

GRP	GRP	GRP
1	2	3

<b>FIRST YEAR: FACILITIES MANAGEMENT INTRODUCTORY CERTIFICATE (NQF 6:80 credits)</b>
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1.1	DQF 104: 16	Descriptive Quantification	4.12	4.25	3.50
1.2	COE 104:16	Building Economics	4.47	4.00	4.25
1.3	SBE 102:8	Structure of the Built environment	4.41	4.00	4.00
1.4	FAM 100:40	Facilities Management	4.88	4.75	4.75
	<b>AVERAGE</b>		<b>4.47</b>	<b>4.25</b>	<b>4.13</b>

<b>SECOND YEAR: FACILITIES MANAGEMENT INTERMEDIATE CERTIFICATE (NQF 7:80 credits)</b>
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2.1	DQF 204: 16	Descriptive Quantification	3.58	4.00	3.50
2.2	COE 204: 16	Building Economics	4.29	4.00	4.00
2.3	CSC 304:16	Construction Science	4.17	4.25	4.00
2.4	EGS 202: 8	Engineering Science	3.76	3.25	4.00
2.5	FAM 206: 24	Facilities Management	4.88	4.75	5.00
	<b>AVERAGE</b>		<b>4.14</b>	<b>4.05</b>	<b>4.10</b>

<b>THIRD YEAR: FACILITIES MANAGEMENT ADVANCED CERTIFICATE: (NQF 7:80)</b>
-------------------------------------------------------------------------------

3.1	COE 304:16	Building Economics	4.17	3.75	4.00
3.2	CCM 306: 16	Construction Contracts and Management	4.35	4.00	4.67
3.3	BSC 304:16	Building Science	3.76	4.00	4.25
3.4	PDE 302:8	Property development	4.29	3.25	4.00
3.5	FAM 308: 32	Facilities Management	4.52	5.00	5.00
	<b>AVERAGE</b>		<b>4.22</b>	<b>4.00</b>	<b>4.38</b>

*Table 3: Responses by stakeholder groups*

NOTE:

Group 1: From the 213 questionnaires delivered 19 responses were received (8,9%)  
 Group 2: From 22 committee members 4 responses were received (18.2%)  
 Group 3: It is unknown how many questionnaires were circulated, from which 4 responses were received.  
 Although the response rates are not high, it may be regarded as adequately indicative, coming from prominent interest groups.

<b>RESPONDENTS</b>	<b>VALUE</b>
Group 3: Course Participants	4,28
Group 4: SAPOA Committee members	4.10
Group 5: SAFMA members	4,20

**Table 4:** Average arithmetic results from all respondents on a 5-point scale

From Tables 3 and 4 it can be concluded that the proposed three year courses enjoy comprehensive acceptance and that the courses' contents are on target.

The qualitative data that was obtained is not reported on in detail. It basically constitutes guidelines/suggestions and does not distract from the outcomes of the quantitative surveys.

Following the initial data collection reported above, both the 5-day continuing education programme and the 3-year certificate programme candidates have consistently been surveyed since, in order to strengthen the facilities management knowledge base, core competencies required, and to develop the relevant definitions supporting understanding of this multi-disciplinary profession. Table 5 reflects the outcomes of further surveys conducted amongst the 3-year academic students and the 5-day continuing education delegates during 2009-2010. A limited list of 20 knowledge areas/competencies was drawn-up and surveyed on a 5-point Likert scale. None of the delegates are school leavers, all are in full-time occupations. It is noteworthy that overall the 3-year students (people who have elected a serious study commitment), rate the overall importance of the knowledge areas higher than the 5-day continuing education participants. However, all assessments are higher than the 2,5 midpoint, indicating the general perceived importance. The 3-year students' evaluation produced a mean score of 3,86, whilst the 5-day delegates produced a mean score of 3,20.

<b>NO</b>	<b>KNOWLEDGE AREA</b>	<b>3-year students</b>	<b>Short course delegates</b>
1.	General management	3.72	3.12
2.	Strategic management	4.22	3.42
3.	FM Specific management skills	4.00	3.54
4.	Project management for facilities managers	4.22	3.31
5.	IT Utilization	3.61	2.54
6.	Contract law	3.67	3.19
7.	Construction technology, building & infrastructure services	4.11	3.35
8.	Space planning	3.61	3.12
9.	Energy efficiency and environmental control	4.06	3.50
10.	Support services	3.56	3.08

11. Maintenance management	4.28	3.96
12. Hygiene and cleaning	4.00	3.42
13. Total financial management	4.11	3.27
14. Procurement and outsourcing	3.89	2.88
15. Post occupancy and continuous evaluation	3.78	2.77
16. Front desk/reception services	3.33	2.81
17. Human resources	3.61	2.96
18. Marketing and public relations for FM services	3.50	2.73
19. Enhancement of FM practice	3.89	3.35
20. Total quality management	3.94	3.77
<b>Mean</b>	<b>3.86</b>	<b>3.20</b>

**Table 5:** Facilities management generic knowledge areas evaluation of importance in practice

## CONCLUSIONS: DEFINITIONS

From the variety of definitions observed and the various surveys that were made, the notion develops that facilities management comprehensively deals with the creation of fit for purpose working environments, or workplaces. The latter is rapidly expanding to become “places of business/work and centres of experience”. People globally preferably interacts in optimally created physical environments, whilst some may “live” only in cyber space, away from the physical workplace. The ability to serve these “customers” in the most efficient and sustainable fashion will be the future norm against which FM “services” will be measured.

A unified international definition nor unified core competencies however exist. From the contents of this paper the following definition has been created as focal point for future research: *Facilities management is the process that creates and continuously optimizes the productive utilization of physical operational spaces, services and infrastructure for its intended purposes.*

It is noteworthy that many formal associations apparently have not identified “core competencies” required to structure a unified body of knowledge. Unlike for instance project management, facilities management internationally has not developed a consensual body of knowledge. This is an important deficiency, placing providers of education in a position where each has to select its own, often in isolation.

The knowledge base of the traditional built environment professions offers an excellent point of departure in order to address the challenges offered by facilities management. Facilities management is a “new profession” in the built environment family of professions. It has however been neglected in this regard in South Africa, thus developing in “isolation”.

The knowledge gained from offering continuing education short courses, expanded with the analysis of a literature survey, non-quantified observations of academia and practice, and quantitative and qualitative surveys, this attempt in assessing a proposed primary body of knowledge for facilities management rendered useful information. Being a “new” discipline makes it a moving target that requires continuous evaluation and development, particularly regarding the structuring of tertiary education programmes.

The knowledge gained by the University of the Free State from offering continuing education short courses and a three year tertiary education programme have now lead to the structuring of a BSc-degree programme. This is a work in progress, of which the final curriculum will be developed during 2011, with first enrolments envisaged for 2012 or 2013.

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