FACILITIES MANAGEMENT: VALIDATION OF A PRIMARY BODY OF KNOWLEDGE FOR TERTIARY AND CONTINUING EDUCATION IN SOUTH AFRICA

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ABSTRACT

Globally property development as part of the creation of fixed investment and wealth, is taking place unabated. In support of this process are a multitude of highly skilled built environment professionals such as engineers, architects, quantity surveyors, construction managers, town and regional planners, land surveyors, etc. The absence 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 observed. In South Africa, the above-mentioned professionals and others have cast themselves into the role of facilities managers. Of concern is the resultant diverse group of "facilities management" practitioners, sometimes without basic built environment education, often lacking any note worthy background or experience.

To the best of our knowledge this report reflects the first attempt in South Africa to collect quantified and qualified data from employers and beneficiaries of both continuing education (short courses/continuing professional development) and formal structured tertiary education. This research could guide local development of facilities management education in South Africa and should offer benefits to other institutions and practitioners elsewhere. It will be the reference base of what would be the first sustainable under graduate level tertiary and continuing education in facilities management by a university in South Africa.

Key words: Facilities management, body of knowledge, tertiary and continuing education, built environment, validation

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 absence 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 remarkable. 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. 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.

METHODOLOGY

The problem at hand is to extract a body of knowledge from the present practice of facilities management, and secondly, to contextualise the results in terms of other applicable managerial concepts. This was done through literature study 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 quantative survey was conducted amongst stakeholders in order to obtain their views regarding the proposed course content on under-graduate (degree) level. Figure 1 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 12 different groups of facility management practitioners taking part in continuing education short courses over a period of four years.

From the above it is clear that the research done was not hypothesis testing. The intention was to establish current thinking regarding facilities 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.

VALIDATION OF LITERATURE

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. 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), de Vries (2001), Grulke (2001), Gross (2002), Friday and Cotts (1995), Hauptfleisch (ed) (Volume 1&2) (1999), Hauptfleisch and Sigle (2007), Magee (1988), Means Company (1996), Occupational Health and Safety Act (2004), Owen (1993), Pearce and Robinson (2000), Project Management Institute (2004), Robinson (1999), Rondeau, Brown and Lapides (2006), Seeley (1987). To this was added those knowledge areas regarded to be of importance in continuing education programmes and in formal academic degree programmes. Table 1 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 2007 but that he 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. Diagramme 1 therefore represents an attempt to provide a contemporary "balance sheet" rather than a "developmental pathway" over time.



Figure 1: Facilities Management in Context of Asset Management

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. This analysis is not substantiated by quantitative and triangulated research procedures, but has value as an attempt to observe general tendencies to under-emphasise perceived important knowledge areas, required in a validated knowledge profile for the development and practice of facilities management.

COVERAGE IN LITERATURE OFTEN → SELDOM **KNOWLEDGE AREA** 1 2 3 4 Α. **FACILITIES MANAGEMENT:** CONTEXTUALISING THE MANAGERIAL CHALLENGE INTRODUCTION TO FACILITIES 1. • MANAGEMENT 2. AN OVERVIEW OF FACILITIES • MANAGEMENT 3. DEVELOPMENT OF FACILITIES . MANAGEMENT FACILITIES MANAGEMENT 4. . PRACTICE MODELS 5. GENERAL MANAGEMENT • **FUNDAMENTALS** 6. STRATEGIC MANAGEMENT • **PROJECT MANAGEMENT** 7. • HUMAN RESOURCES 8. • LAW AND CONTRACTUAL 9. • ARRANGEMENTS 10. **FINANCE** • MARKETING OF SERVICES 11. • TOTAL QUALITY MANAGEMENT 12. • SERVICE LEVEL ARRANGEMENTS 13. • INFORMATION TECHNOLOGY 14. SUCCESSFUL FACILITIES 15. • MANAGEMENT

Table1: Facilities Management Knowledge Profile

Α.	FACILITIES MANAGEMENT: PRACTICE				
1.	STRUCTURING THE			٠	
	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				٠
7.	PRINCIPLES OF LIFE CYCLE		•		
	COSTING				
8.	GENERAL SERVICES				•
9.	CAPITAL PLANNING		•		
10.	PROCUREMENT & OUTSOURCING			•	
11.	RISK MANAGEMENT		٠		
12.	POST OCCUPANCY EVALUATION	•			
13.	BENCHMARKING	•			
14.	THE STRUCTURE OF THE BUILT				•
	ENVIRONMENT				
15.	OCCUPATIONAL HEALTH AND	•			
	SAFETY ACT AND REGULATIONS				
C	EACH ITIES MANAGEMENT.				
0.	PROPERTY MAINTENANCE				
1.	INTRODUCTION TO MAINTENANCE	•			
	MANAGEMENT				
2.	MAINTENANCE CATEGORISATION	•			
3.	PLANNING AND PROGRAMMING	•			
OF	MAINTENANCE EXECUTION				
4.	OPERATIONAL MANAGEMENT		•		
5.	PEST CONTROL IN BUILDINGS			٠	
6.	MAINTENANCE FINANCE	•			
7.	CONSTRUCTION, RENOVATION		•		
	AND MAINTENANCE WORK				

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. 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.

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

Table 2: Recommendations for 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 the results reflected above, a three year academic programme has been compiled, to be offered in a distance learning format, as follows:

- Year One: Facilities Management Introductory Certificate (NQF 5: 80 Credits)
- Year Two: Facilities Management Intermediate Certificate (NQF 6: 80 Credits)
- Year Three: Facilities Management Advanced Certificate (NQF 6: 80 Credits)

Note: Some of the course content/subjects may be offered as credits towards obtaining a BScdegree. The proposed contents of the above programmes/certificates have been subjected to a quantitative and qualitative survey in order to test the validity thereof. Three groups that could contribute to this process were identified and requested to take part in a survey. The quantitative results are reported below.

- Group 1: Practitioners that have participated in Continuing Education Short Courses. See Table 3.
- Group 2: Committee members of the Education, Training and Development Committee of the South African Property Owners Association (SAPOA). See Table 4.
- Group 3: The South African Facilities Management Association (SAFMA) management committee requested prominent members to participate. See Table 5.

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. The request relating to the quantitative data was as follows:

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

- 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

Table 3:Response by practitioners that have taken part in the continuing Education
Short Courses.

FIRST YEAR: FACILITIES MANAGEMENT INTRODUCTORY CERTIFICATE (NQF 6:80 credits)

	AVERAGE		4.47
1.4	FAM 100:40	Facilities Management	4.88
1.3	SBE 102:8	Structure of the Built environment	4.41
1.2	COE 104:16	Building Economics	4.47
1.1	DQF 104: 16	Descriptive Quantification	4,12

SECOND YEAR: FACILITIES MANAGEMENT INTERMEDIATE CERTIFICATE (NQF 6:80 credits)



THIRD YEAR: FACILITIES MANAGEMENT ADVANCED CERTIFICATE: CREDITS 80

	4.52
	4.52
3.5 FAM 308: 32 Facilities Management	
3.4 PDE 302:8 Property development	4.29
3.3 BSC 304:16 Building Science	3.76
3.2 CCM 306: 16 Construction Contracts and Management	4.35
3.1 COE 304:16 Building Economics	<u>+.17</u>
	1 17

NOTE: From the 213 questionnaires delivered 19 responses were received (8,9%)

 Table 4:
 SAPOA Education, Training and Development Committee members

FIRST YEAR: FACILITIES MANAGEMENT INTRODUCTORY CERTIFICATE (NQF 6:80 credits)

	AVERAGE		4.25
1.4	FAM 100: 40	Facilities Management	4.75
1.3	SBE 102:8	Structure of the Built environment	4.00
1.2	COE 104: 16	Building Economics	4.00
1.1	DQF 104: 16	Descriptive Quantification	4.25

SECOND YEAR: FACILITIES MANAGEMENT INTERMEDIATE CERTIFICATE (NQF 6:80 credits)

	AVERAGE		4.05
2.5	FAM 206: 24	Facilities Management	4.75
2.4	EGS 202: 8	Engineering Science	3.25
2.3	CSC 304:16	Construction Science	4.25
2.2	COE 204: 16	Building Economics	4.00
2.1	DQF 204: 16	Descriptive Quantification	4.00

THIRD YEAR: FACILITIES MANAGEMENT ADVANCED CERTIFICATE: CREDITS 80

	AVERAGE		4.00
3.5	FAM 308: 32	Facilities Management	5.00
3.4	PDE 302:8	Property development	3.25
3.3	BSC 304:16	Building Science	4.00
3.2	CCM 306: 16	Construction Contracts and Management	4.00
3.1	COE 304:16	Building Economics	3.75

NOTE: From 22 committee members 4 responses were received (18,2%)

FIRST YEAR: FACILITIES MANAGEMENT INTRODUCTORY CERTIFICATE (NQF 6:80 credits)

	AVERAGE		4.13	
1.4	FAM 100: 40	Facilities Management	4.75	
1.3	SBE 102:8	Structure of the Built environment	4.00	
1.2	COE 104: 16	Building Economics	4.25	
1.1	DQF 104: 16	Descriptive Quantification	3,50	

SECOND YEAR: FACILITIES MANAGEMENT INTERMEDIATE CERTIFICATE (NQF 6:80 credits)



THIRD YEAR: FACILITIES MANAGEMENT ADVANCED CERTIFICATE: CREDITS 80

	AVERAGE		4.38
3.5	FAM 308: 32	Facilities Management	5.00
3.4	PDE 302:8	Property development	4.00
3.3	BSC 304:16	Building Science	4.25
3.2	CCM 306: 16	Construction Contracts and Management	4,67
3.1	COE 304:16	Building Economics	4.00

NOTE: It is unknown how many questionnaires were circulated, from which 4 responses were received.

The average arithmetic results for each of the three years of studies, reflecting the values on a five (5) point scale, are reflected in Table 6.

Cable 6: Average arithmetic results from all respondents on a 5-point scale

RESPONDENTS	VALUE
Table 3: Course Participants	4.28
Table 4: SAPOA Committee members	4.10
Table 5: SAFMA members	4.20

From Tables 3, 4, 5 and 6 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.

CONCLUSIONS

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 quantitive surveys, this attempt in structuring a validated 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.

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L29/01/08