

SUSTAINABLE DEVELOPMENT: HIGH COSTS OFFSET BY EFFECTIVE PROJECT MANAGEMENT



CIB Facilities Management
Conference
Joint CIB W070, W111 & W118
Copenhagen 21 - 23 May 2014

T: 051 401 9111 info@ufs.ac.za www.ufs.ac.za

© Copyright reserved
Kopiereg voorbehou

UNIVERSITY OF THE
FREE STATE
UNIVERSITEIT VAN DIE
VRYSTAAT
YUNIVESITHI YA
FREISTATA



UFS·UV
NATURAL AND
AGRICULTURAL SCIENCES
NATUUR- EN
LANDBOUWETENSAPPE

INTRODUCTION



Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT).



Sustainability is considered a natural fit - “green” movement - preservation of the environment – reduction negative effects



A more effective facilities management process - integration of sustainable development - energy conservation and high performance buildings.

This may present a problem in South Africa - slow trend

May be due to onus of sustainability being on the client.

The “green” trend is on the increase – initial costs

The construction of or the upgrading of existing buildings is the way to go – upfront costs



Minimum requirements for sustainable construction

Mandatory requirements - Minister of Trade and Industry - amended National Building Regulations Act and Building Standards Act –
new commercial and residential buildings - 50% of its hot water requirements

Sustainable development is progressing - long way to go




Most South Africans are aware of the importance of sustainability and “going green” – performance - lack of commitment.

Secondary data - 84% survey were in favour of paying 10-20% more

The main cause of resistance invariably rests on cost implications - additional costs.

Limited knowledge - advantages comparative life cycle costing analysis and the potential of cost savings - resistance

The commitment of clients and professionals to a sustainable built environment - questioned,

PRINCE2 (2009) - Europe - dissimilar to the Project Management Body of Knowledge (PMBOK) (2008) and the Construction Extension to the PMBOK (2007) - as guidelines 

The Prince2's - more emphasis on the principles of project management - framework for good practice and themes for continuous evaluation.

The construction extension to the PMBOK addresses life cycles and specific practices - which serve as guidelines

Safety management,
Environment management,
Financial management and
Claims management.



Contemporary project management - focuses on the importance of life cycle costing for economical and efficient whole project control, - initial investment options - least cost alternatives - 20 years.

The implementation of lifecycle costing ?

To what extent are professionals applying the management areas?

Have professionals identified the potential of cost savings and relayed these and the advantages of comparative whole life cycle costs?

The purpose of the paper - current situation relating to sustainable development - and determine if cost saving opportunities - identified in order to generate available funds – offset cost implications

THE CONSTRUCTION EXTENSION KNOWLEDGE AREAS



The Construction Extension management- specifically used construction projects.

SAFETY MANAGEMENT



Health and safety compliance - lacking

The onus of compliance - transferred to all stakeholders – non-conformance

The client's responsibility is transferred - **the professional**

Employers relate to health and safety - minimum requirements - regulations.

If the culture of effective health and safety - entrenched in the values of construction stakeholders a commitment - safer and more cost effective.

Historical data - investing in health and safety → effective financial management

ENVIRONMENT MANAGEMENT



Environment management - impact the construction industry - environment - mitigate the negative effects

The project should be executed - violate government regulations .

The management of the environment - Environment Conservation Act 73 of 1989 - amendments.

Besides cost, time and quality, - considered a fourth objective of project management.

Sustainable development - technical materials and techniques.

A great deal of research has been conducted – green

These elements - price tag - “who is going to fit the bill?”.

ENVIRONMENT MANAGEMENT



“A 15% increase in initial building costs - 5% per year - running costs”.

Due to lack of funding - limited to the basic statutory requirements - technical materials and techniques required – performance buildings

Cost savings - on-site reuse - reprocessing of demolition and excavating materials.

Recycling of waste -limited to the construction site.

Research endorsed by the European Commission - transport of waste costs - greatest environmental impact.

FINANCIAL MANAGEMENT



Financial management - identification, procurement and management

The duties of the quantity surveyor - immediate cost planning-whole lifecycle costs

Relationship between financial, safety and environment management – weighing cost versus the benefits.

Need to identify the balance between environmental saving and capital cost, - “environmental equation”.

The construction extension to the PMBOK (2007) - limited to construction and not to “operations” or facilities management.

Emphasis has been placed on the construction costs - life cycle of the project.

FINANCIAL MANAGEMENT



Emphasis - importance of the project life cycle - defined decision points and deliverables.

Deliverables extend → facilities management - cost effective decisions are required to satisfy the needs of the client.

The IFMA → sustainability - professionals to become stewards of the built environment - advance sustainability → life cycle.

Comparative whole life cycle costs and cost savings - effective financial management.

CLAIMS MANAGEMENT



Claims management - mitigation of the negative effect - quickly and effectively.

Differences can be settled - conciliation on site - satisfactory end results

Research suggests - lacking.

Should professionals be aware of the skills required for effective conciliation – expeditious - lead to cost savings measures – avoiding costs - Alternate Dispute Resolution methods - mediation, adjudication and arbitration.

Presented at an additional cost.

CONCLUDING REMARKS



Financial management - supported by safety and environment - relating to cost savings - collectively supported - claims management - dispute

Interesting to note - cost savings guidelines - not included

APPROACH



Determined through interviews - preferred frame of reference

Literature review - four construction extension management areas - determine the current situation.

A mixed methods approach - quantitative and qualitative measures

Questionnaires - findings of the literature review - good practice.

100 questionnaires - practicing professionals - 41% response.

Determine how the professionals rate - importance - implemented

APPROACH

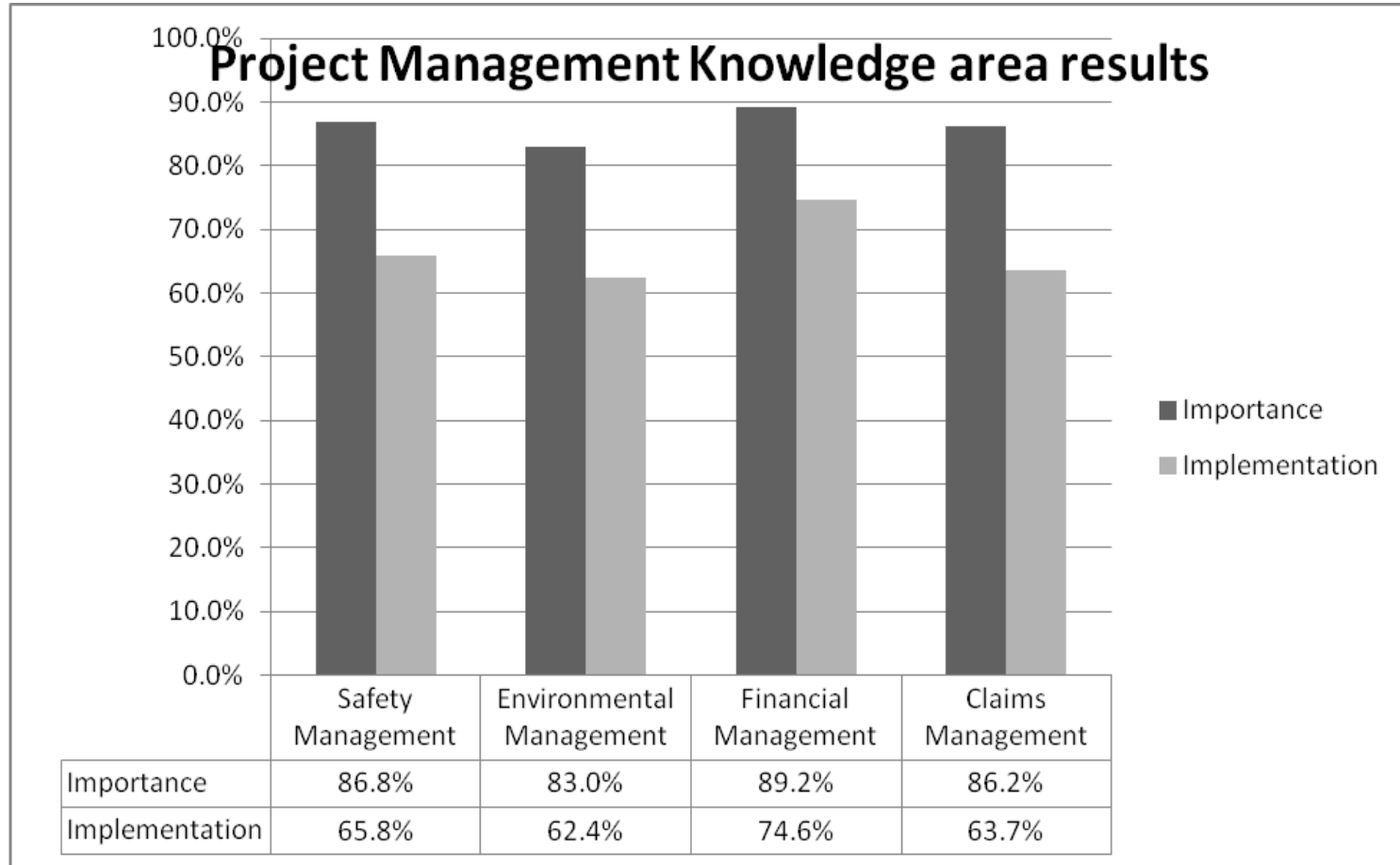


Qualitative analysis - opinions of professionals - cost saving methods - practice of the four management areas.

Interviews

- approach to cost savings in the management areas
- possible to save costs
- address these cost savings.

RESULTS



Respondents rated the four construction extension management areas

RESULTS



The findings of the literature review correlated with the qualitative data and to a large extent with the quantitative data.

The qualitative data - largely uniform culture of investing in safety - majority of respondents “*The more you spend on safety, the more you save.*”

Compliance is sufficient and “*at least you can sleep at night*”.

Professionals aware of the importance of safety management -need to invest - achieve success.

Reluctance tends to be with the client.

Respondents working with state clients - full safety compliance is met
Private clients - will not benefit from the additional costs.

Seek short cuts resulting in non-compliance.



Respondents - environment matters are important - implementation is lacking.

The attitude of respondents - environment - reserved – agreed important consideration - *“it is not what the client wanted”*.

Savings were sometimes calculated - entire life cycle costing - not addressed.

Architectural perspective, the services of an environmentalist - additional costs.

Direct cost savings may be identified by:



- The use of local materials;
- Implosion methods and recycling;
- Project management - transport and
- Development - natural environment .

Factors - market value should be used as - motivators

- carbon footprint tax - effective means of prioritising environmental management.

Implementation of Financial Management - 70%(direct construction costs) - processes and tools relating to sustainable development are seldom addressed as *“clients do not really ask for that.”*

The whole life cycle is seldom presented to the client”.

The qualitative data analysis - effective dispute resolution will minimize costs.

DISCUSSION



The South African construction industry - adopted a culture - basic statutory requirements - *“keeps them out of trouble”*

- reluctance to invest anything more – required – necessary.

Implementation of the four management areas - direct rather than whole project life-cycle costs.

Environment management - greatest potential of contributing to sustainable development - rated the lowest of the four management areas - implementation.

DISCUSSION



Professionals -“listen” to and accept the client’s point of view – inform potential benefits relating to cost savings.

Should clients be better informed - appreciate the benefits

Findings suggest - increase trend - professionals may need to accept responsibility - by encouraging - comparative life cycle cost analysis - cost savings through effective project management.

Concentrating on conciliation skills → resolution of disputes on site - indirect cost savings on the project.

PRACTICAL IMPLICATIONS



The results - motivate professionals in the industry – practice sustainable development.

Clients - encouraged to invest in sustainable development → contributing
- effective facilities management and a sustainable environment.

The state - identify the current situation in the industry - make decisions

CONCLUSION



The current situation in the South African construction industry calls for professionals → responsibility of motivating clients to develop sustainable buildings – increase trend toward an environmentally friendly built environment.

It is concluded that the onus for an environmentally friendly construction industry

Professionals - required - gain insight into the presentation of comparative life cycle analyses and the identification of cost saving alternatives - support



RECOMMENDATIONS

Based on the research results, it is recommended that the construction extension to the PMBOK be used as a guideline to address specific practices required by construction projects and that the application is supported with additional cost saving measures to enhance sustainability.

It is further recommended that institutions address the need for whole project life-cycle costing, including facilities management in the form of continuous professional development for professionals to update their knowledge and realise the importance of initiating sustainable practice in the built environment.

Thank You
Dankie

T: 051 401 9111 info@ufs.ac.za www.ufs.ac.za

© Copyright reserved
Kopiereg voorbehou

UNIVERSITY OF THE
FREE STATE
UNIVERSITEIT VAN DIE
VRYSTAAT
YUNIVESITHI YA
FREISTATA



UFS·UV
NATURAL AND
AGRICULTURAL SCIENCES
NATUUR- EN
LANDBOUWETENSAPPE