MEASUREMENT METHODOLOGY FOR QUANTITY SURVEYING MATURITY

PM Oosthuizen, JJP Verster

University of the Free State, Bloemfontein, South Africa
OosthuizenPM.sci@ufs.ac.za; VersterJ.sci@ufs.ac.za

ABSTRACT

The level of professional maturity of the quantity surveying practices in the competitive business environment is an essential element that determines success. Resulting from globalisation, technological developments and increasing demand for accurate financial- and risk management in the construction and investment industries, the maturity of quantity surveyors will increasingly determine their ability to remain in demand and competitive.

The main objective of this study is to identify elements important to develop a measurement methodology that may assist professional quantity surveyors in the determination of their benchmarked professional maturity and to highlight areas that need improvement in order to remain competitive as quantity surveying practices. The different benchmarking areas (measurement methodology) proposed in this paper where identified after consulting with top academics in quantity surveying in South Africa as well as a number of professional quantity surveyors in private practices. The proposed benchmarking areas are supported by results from a comprehensive narrative study done by the University of the Free State in 2007 to determine maturity of the quantity surveying profession.

The measurement methodology for quantity surveying maturity was found to be a complex interrelationship of different activities. The twelve benchmarking areas identified in this paper will give the managers and clear indication which areas in their practices needs more attention than others. This paper proposes a measurement model based on these identified different areas and discusses why it is so significant for a quantity surveying practice to do benchmarking of these areas.

Key words: **Quantity Surveying Maturity, Quantity Surveying Practices, Measurement Methodology, Benchmarking**

INTRODUCTION

Nations, regions, industries and companies are becoming more project-oriented. By using project management techniques, organising projects and programmes, this create a competitive edge for these project-oriented systems. There is a correlation between the results a project-oriented system achieves in projects and programmes and its project management maturity (Gasse, 2006: Online).

One key challenge for organisations, companies and firms is to keep focused on strategic objectives with an ability to translate these into results while adapting to external forces in order to stay competitive and outperform competitors (Kerzner, 1998: 54).

Benchmarking is the search for the best practice among competitors and non-competitors that lead to an organisation's superior performance. Many managers compare their current results with previous results. A major problem of this popular approach is that managers may compare their current performance to a very poor previous performance. However if the latest performance are compared to an industry maturity standard, the result might have a different outcome (Smith, 2002: 121).

The project management maturities of project-oriented organisations, companies and firms can be measured and benchmarked by applying maturity models (Gareis, 2005: 584).

Any maturity model is an "auxiliary tool" to develop and refine an organisation's processes. A maturity model is a structured collection of elements that describe characteristics of effective processes.

A maturity model provides:

- A place to start.
- The benefit of a community's prior experiences.
- A common language and a shared vision.
- A framework for prioritising actions.
- A way to define what improvements mean for your organisation

  (Wikipedia, 2007: Online).

A maturity model may be used as a benchmark for assessing different organisations for equivalent comparison. A maturity model describes the maturity of the company based upon the project the company is dealing with and the clients (Wikipedia, 2007: Online).

Gruber (2004) states that maturity implies growth over time as well as understanding why success occurs and ways to correct to prevent problems.

The main objective of this study is to identify elements that may assist professional quantity surveyors in the determination of their benchmarked professional maturity and to highlight areas that need improvement in order to remain competitive as quantity surveying practices.

MATURITY MODELS

“A maturity model is a framework describing a process whereby something desirable can be developed or achieved” (Gruber, 2004)

It is proposed that the maturity model used to analyse the project management maturity of firms, companies and nations may assist to understand the maturity of the quantity surveying practice, particularly related to education, training and mentorship.

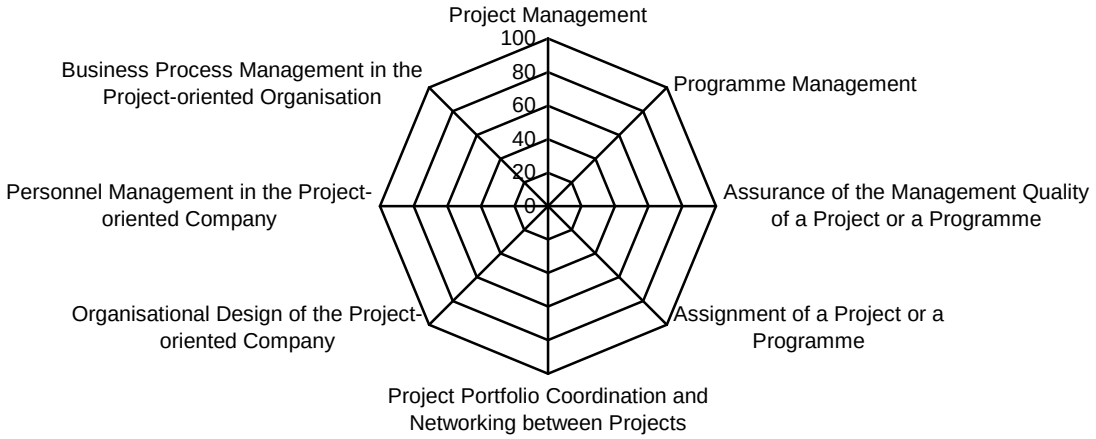
Project-oriented organisations, companies, firms, enterprises or nations have specific strategies, specific organisational structures and specific cultures for managing projects, programmes and project portfolios. The organisational competence can be analysed with a project-orientation maturity mode (Garies, 2005: 32).

There is an increased need for standardisation of project management processes and a standard industry project management maturity model. Maturity is critical to the long-term improvement of the project delivery outcomes; however, it is important to ensure that while working to streamline project management processes that the company do not overlook the importance of developing the foundational skills needed by the project manager (Hoard, 2003: online).

The project management maturity model below (figure 1) is being used as a guide to propose a maturity measurement method for the quantity surveying profession.

The axes of the spider web in figure 1 represent the dimensions of the project-oriented company maturity model. Each dimension is discussed below.

Figure 1: Project oriented company maturity model



Source: (Gareis, 2005: 516)

In the contexts of a project oriented company the following concepts mean:

Project management: A project should be seen as a temporary organisation for the performance of a relatively unique, short to medium term, strategically important business process. These processes will be of medium or large scope.

Programme management: A programme is defined as a temporary organisation for the fulfilment of a unique business process with a large scope.

Assurance of the management quality of a project or programme: Management-consulting and -auditing are performed to assure management quality of a project or a programme.

Assignment of a project or programme: In the process of assigning, the decision of whether or not a project or programme is to be performed is taken.

Project portfolio management: In the project portfolio co-ordination the decision is made whether projects will be started or abandoned, priorities between projects are set, and a co-ordination of the internal and external resources is made.

Personnel management: This dimension includes the recruiting, disposition and (continuous) development of project personnel. Depending on the structure of the company

which will include personnel like project or programme owner, project or programme manager, project team member, and project contributor.

Organisational design: This dimension includes the establishment of a project management office, a project portfolio group and expert pools, the development of project and programme procedures and standard project plans.

Process management: Process management can clearly be defined as a sequence of tasks in which several roles of one or more organisations are involved. Primary processes, secondary processes and tertiary processes can be differentiated (Gasse, 2006: Online).

Implementing project management practices involves the methodologies, procedures and standards that determine the project organisation and the roles and responsibilities of the project team (Knipe, 2002: 51).

If the quantity surveying practice is seen as a practice that manage the practice itself and act as a financial project manager, then the project oriented maturity model can also apply to the quantity surveying practice. Due to the unique nature of the quantity surveying practice it is understandable that some of the maturity dimensions mentioned above will be more relevant than other. The profile of a matured quantity surveying practice should also include dimensions relevant to the professional practice.

BENCHMARKING AREAS AS A MATURITY MEASUREMENT METHOD FOR THE QUANTITY SURVEYING PRACTICE

An organisation operates in a bigger system defined as a nation or society / association. The University of the Free State (Department of Quantity Surveying and Construction Management conducted various research projects, aimed at providing an understanding of the maturity of a project-oriented nation.

The following dimensions are being analysed to propose a quantity surveying maturity methodology.

Education

Understanding the knowledge, science and skill needed for the profession using known technical, administrative and mentorship instruments.

Education is perhaps the most important dimension to determine the level of maturity of a specific profession within the investigated social system per nation.

This is evident in the registration policies of statutory council, membership acceptance by institutions or associations and the level of education expected of entrants for membership or registration (RICS, 2005; 2007: online; ASAQS, 2007: online; SACQSP, 2007: online; 2007a; 2007c; CIOB, 2007: online).

In South Africa, as in many other countries, standards to be achieved by entrants are generated for each profession and for providers of education.

It is important to evaluate the notion of a profession regarding education elements such as entry level qualifications accreditation of providers, level and number of higher qualifications within the profession, and the provision of technical expertise within the system. For this reason these elements were indicated in the questionnaire

Education	Entrants are required to demonstrate knowledge, skills and attitude above that of honours level graduates;
	The number of M and PhD students relative to the total number of practitioners and academics must compare with world class levels;
	Providers of education to entrants of professional level must achieve national, but preferably also international accreditation states; and
	A strong group of providers should focus on education of technologist and technicians (Verster, Kotze & Hauptfleisch, 2007).

Research

Research relates to the development of the profession as a learned society.

Research	The highest possible level of research outputs by academics and members of the profession is a strong indicator of maturity of a profession and a determinant of the level of the specific profession as learned society (Verster, Kotze & Hauptfleisch, 2007).

The research output of a specific society and its members is an important benchmark to establish the level of maturity of scholarship within a specific social system.

The importance of research is underscored by noteworthy professional institutions. An education provider for instance can not join the RICS partnership if they do not achieve the required research output (RICS, 2007a: online).

The latest requirements for accreditation of providers of quantity surveying education in South Africa also include the same level of research output as the RICS (SACQSP, 2007b).

The level of importance given to research by respondents assisted with establishing the perceived importance of research as a dimension and also the maturity of the society in understanding the role of research and the profile of quantity surveying in South Africa.

Marketing

The development of an association of professionals with effective communication systems and instruments towards continuing professional development (CPD).

Referring to marketing as a maturity dimension within the profession of project management, Fuessinger (2006: 3-4) defines marketing as a national project management association.

For the purpose of the research project, marketing is extended to involve an established identity and status of a profession, members standing in a society, and a marketing strategy by the profession.

During 2006 the ASAQS engaged a re-vitalization exercise; a national co-ordinated strategic plan to replace the 1990 model and strengthen the professions image in the market. This exercise is currently ongoing (ASAQS, 2006).

This dimension was also tested to establish the level of importance of marketing in a mature profession.

The Quantity Surveying Standards Generating Body (SGB) has over the past four years developed standards for the profession on both a full qualification basis and a comprehensive set of unit-standards for all the relative quantity surveying qualification levels and outcomes. The unit-standards are soon to be gazetted. Education providers that

require accreditation from the South African Council for the Quantity Surveying Profession (SACQSP) will have to adhere to these standards within the next few years (SAQA, 2005-2007).

The main strategy is therefore to establish a firm research focus for the development of the profession, and the mission is to achieve the strategy through a research journal, an interactive seminar, or mini-congress series, and by commissioning research projects. Eventually this will establish a strong development focus in the profession (SACQSP, 2006).

Training

Training	A formal post candidate-entrance training programme must be a requirement to full registration or full membership (Verster, Kotze & Hauptfleisch, 2007).

Most professions require an in employment training period after qualification to ensure that candidates within adjust to practice and are trained to practice as an independent functionary profession.

The South African Council for the Quantity Surveying Profession (SACQSP) requires an in-house candidateship of three years after obtaining a recognised tertiary qualification with some allowances for recognition of pre-qualification employment (SACQSP, 2007a; 2007b). Respondents' perception in respect of the principle and duration of training were obtained to establish the importance of training and the training time period.

Mentorship

Mentorship	A structured support and leadership based training and mentorship programme under a qualified senior mentor should be a requirement.

The research aims at various interventions to uphold and promote improvement in standards regarding the development of a profession and of professionals. It is thus noteworthy that experiential training, supported by active mentoring, may not emphasised adequately. As is the case for professions such as medicine, accounting, engineering, law, etc. it is imperative that the scientific use of mentoring in developing a learned quantity surveying profession should be mandatory (Verster and Hauptfleisch, 2007).

The general accepted meaning of mentorship is that it is utilised to support a process of transferring knowledge and skill. Typically this entails that an older knowledgeable person imparts knowledge and skills to a younger protégé (Verster and Hauptfleisch, 2007).

Mentorship is seen as an important dimension of a mature profession in a learned society. The research project endeavoured to establish the importance rating of mentorship as seen by the selected respondents.

Continuing Professional Development (CPD)

CPD	(Continuing Professional Development) An obligatory continuing professional development programme throughout a career should be a firm requirement for continuous registration and / or membership.

Continuing Professional Development (CPD) is seen as one of the most important dimensions in ensuring that a profession or function within a specific society or association and the members thereof are continuously developed to keep up with the latest tendencies, skills and knowledge relevant to a specific profession. This must be done throughout professional life (Cruywagen, 2007).

Many professional bodies, councils and associations have policies in place to ensure that registered persons or members achieve the CPD requirements. Some examples are the RICS, ICEC, CIOB and the SACQSP (SACQSP, 2007: online; CIOB, 2007a: online; ICEC, 2007: online; RICS, 2007: online).

Previous research indicated that 77% of the quantity surveying respondents of that specific research project conceded that some CPD was necessary for a profession (Cruywagen, 2007: 98).
The perceptions of respondents were tested to establish the level of importance of CPD, and their opinions in respect of the current number of hours per year required by the SACQSP.

Infrastructure

The creation and availability of infrastructure to support members of a profession is seen as an important element of maturity for a specific profession.

The ASAQS realised this in 1996 and the Edu Tech Centre was established in Port Elizabeth and later moved to Midrand (near Johannesburg) the primary aim to support membership in respect of education, training, CPD, technical support and the development of standard and model documentation (ASAQS, 2005: online).

Response in respect of the role of infrastructure on the maturity profile of the quantity surveying profession was needed to establish relevant importance of dimensions or determinants.

Law and Legislation

Not all professions within a specific country are governed by Law and legislation. The status of many professions as learned societies rely on the need of the services required by the market. Discipline and control in respect of ethics and standards are upheld by an established professional body like the RICS, ICEC and CIOB. By law, in South Africa, the ASAQS is a voluntary organisation of members elected to join the association if they possess the required entry level (South Africa, 2000)

The quantity surveying profession is however governed by an Act. The act aims at ensuring standards and discipline in respect of the profession in South Africa (South Africa, 2000). This dimension was tested to establish it's relevant importance.

Standardisation

The ASAQS and other professions in South Africa have, separately and jointly, over many years, developed standards and model documentation to assist the members to perform their duties and to enable the market to standardise in respect of systems, contract documentation, reporting and communication (JBCC, 2000: 9).

Standardisation as a dimension was included in the questionnaire to establish its role and influence on the profile of the profession as a mature profession and a learned society.

Management Practices

The evidence of management practices within a profession may also be seen as an important determinant of a mature profession. This was true in respect of the maturity research done previously. Business process management was identified as a dimension of reasonable importance for maturity measurement of a project orientated company. A weighting of 10% was allocated to this dimension (Garies, 2005: 32 and Gasse, 2006: Online).

It was therefore necessary to include management practices as a dimension in the questionnaire to establish it's relative importance in respect of role and influence on the quantity surveying profile.

Total Quality Management

The evidence of total quality management systems present within a profession to ensure the delivery of quality services to clients is seen as a dimension and determinant of the level of maturity of a profession.

Gareis identified assurance of quality as an important dimension of a project management–oriented maturity model, with a 10% weighting (Gareis 2005: 32; Gasse, 2006: Online).

It may therefore be suggested that quality management of services within a social system is important in establishing the maturity of a specific social system.

It needs to be pointed out that education, training, CPD, mentorship, research and discipline within an association are related to the governing of a profession and are therefore also quality indicators.

The first objective of the research project was to identify the most important dimensions. It was expected that some of the dimensions and sub-dimensions would have been identified as less important. The respondents did not respond in this manner. It is important to note that the research group achieved reasonable success in identifying 11 very important dimensions of a mature learned society.

It is also proposed that some dimensions may be combined to establish a viable maturity model based on the proposed eight most important dimensions.

The University of the Free State researched the five pillars in respect of their role and influence on the profile of a profession as learned society (Verster, Kotze & Hauptfleisch, 2007). Any society compile the jurisdictional aspects of the profession, professional practices and the educational institutes within the society. The five pillars researched by the University of the Free State may assist the search for the profile of a matured quantity surveying practice.

It is proposed that to be seen as learned society a profession must ensure that the five pillars of a learned society are developed to its highest levels and on par with world class professions. The following are suggested to ensure that a profession develop to required levels:

PROPOSED PROFILE OF A MATURED PROFESSIONAL QUANTITY SURVEYING PRACTICE

Benchmarking is the continuing process of measuring products, services and methods and procedures in which results are confronted with those of the toughest competitors, or of companies acknowledged as sector leaders. This process of measuring and comparing has to be continuous and systematic in order to be able to identify “best practice” and methods in the sector or line of business and to be able to discover how these performance levels can be realised (Keuning, 1998: 511)

The following benchmarking areas may be interpreted for maturity of a professional quantity surveying practice:

Practice Management

From the research done by the project management group of the Wirtschafts University of Economics and Business Administration, Vienna, Austria it is perceived that quantity surveying companies ought to manage their practices similar to how project managers would manage theirs. The term “project management” might be misleading with regard to the measurement of the maturity of quantity surveying practices. Quantity surveyors are compelled to manage their practises. This dimension will measure the quantity surveyor’s practice management competency.

Practice management or business management involves managing cash flow, handle taxes and insurance, hire & organize employees, advertise and promote services, plan for growth, and much more.

The project management group of the Wirtschafts University of Economics and Business Administration, Vienna, Austria also identified three other dimensions which could be applied as dimensions to the maturity model for the ideal quantity surveying practice, namely;

- Quality management
- Practice design
- Personnel management

Quality Management

Quality management is a universal business term. Any quantity surveying practice must certify that quality management are being implemented.

Quality management is a method for ensuring that all the activities necessary to design, develop and implement a service are effective and efficient with respect to the profession, the practice and its performance.

Personnel Management

Personnel management may include specific responsibilities such as, recruitment & hiring, training and development, human resource administration, salary and benefits, and employee relations.

Practice Design

Practice design reverse to the internal structures of the business, how flexible it is to adapt to the changing environment.

Education

According to research done by the University of the Free State, education is one of the most important dimensions to determine the level of maturity of a specific profession within the investigated social system per nation (Verster, et al, 2007). This was confirmed by Professor Verster in his research about the pillars of a learned society. Participants in this research rated the importance of education as a pillar of a learned society, ninety percent (Verster, et al, 2007).

Keeping in mind that a society consists of private practices amongst others and education may therefore be just import for private practices as for societies.

Research and marketing

Verster concluded that research and marketing is two important pillars of a learned society (Verster, et al, 2007). Research in private practices will be performed in an effort to get an advantage over competitors. Small businesses may often find themselves in a challenging situation. Research is essential to overcome business challenges and predict future trends.

Marketing in the South African quantity surveying practice refers to comply with the South African Council for the Quantity Surveying Profession (SACQSP) regulations (Verster, et al, 2007). Marketing within the boundaries set by the Association of South African Quantity Surveyors (ASAQS) are accepted.

Research conducted by the University of the Free State with regard to the dimensions of quantity surveying maturity and the development of the profession towards a learned society showed that the importance of research are rated higher than eighty percent.

Training and Mentorship

The South African Council for the Quantity Surveying Profession (SACQSP) requires an in-house candidateship of three years after obtaining a recognised tertiary qualification with some allowances for recognition of pre-qualification employment (SACQSP, 2007a; 2007b).

Private practices should have a training strategy where candidate quantity surveyors and new employees work under the guidance and supervision of a registered quantity surveyor.

Continuing Professional Development (CPD)

Continuing Professional Development (CPD) is an instrument for professionals to revitalize their academic and practice knowledge and acquaint themselves with the latest tendencies within the profession. This is a requirement for continuous registration at the South African Council for the Quantity Surveying Profession (SACQSP).

Many professional bodies, councils and associations have policies in place to ensure that registered persons or members achieve the CPD requirements. Some examples are the RICS, ICEC, CIOB and the SACQSP (SACQSP, 2007: online; CIOB, 2007a: online; ICEC, 2007: online; RICS, 2007: online).

Figure 3 shows the eight proposed dimensions that may determine the level of a matured quantity surveying practice plotted on a spider web graph.

Figure 2: Proposed profile of a matured professional quantity surveying practice

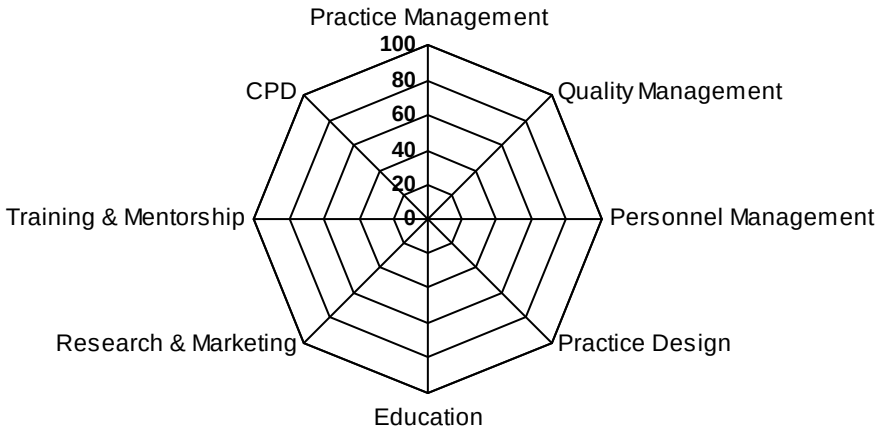


Figure 2: Proposed Quantity Surveying Practice Maturity Model
Source: (Own chart)

From the above it becomes clear that the allocation of weights to the various dimensions may be very difficult if not impossible. However, it may perhaps not be as important as originally thought since it may be deduced that the dimensions should be in balance, and therefore, for a quantity surveying practice to be seen as mature, all identified dimensions should be present and strong.

CONCLUSION

This research attempted to propose an auxiliary benchmarking model (figure 2) for quantity surveying companies, firms or practices to enable them to measure themselves in terms of evolution as mature professional and contribute to a matured learned society.

The advantages, for practices, to be part of such an analysis are, according to Gruber (2004) that they establish where they stand and can identify certain strengths and weaknesses in processes, implement certain methods for effective improvement and set up improvement programmes. Enterprises may also be lead, through maturity identification, to total product, marketing and service delivery improvement, using project management maturity model principles.

The next step in the development of a maturity model for quantity surveying practices is to test the proposed maturity model in the market. A comprehensive questionnaire which is carefully compiled would indicate the relevancy of the proposed model and dimensions as well as the weight each dimension would carry.

The importance of a maturity model for any quantity surveying practice may not be ignored.

It is recommended that quantity surveying practices benchmark themselves and their maturity against the proposed model (figure 2). This model may enable practices to identify development areas and improve on their current profile towards maturity in a learned and competitive environment.

REFERENCES

ASAQS (Association of South African Quantity Surveyors). 2005. Edu Tech Centre. Professional and technical support in quantity surveying. Available from: <http://www.asaqs.co.za/edutech/> [accessed 4 December 2007].

ASAQS (Association of South African Quantity Surveyors), 2006. Board meeting, October.

ASAQS (Association of South African Quantity Surveyors), 2007. Association of South African Quantity Surveyors ' web site. [online]. Available from: <http://www.asaqs.co.za/> [accessed 4 December 2007].

CIOB (The Chartered Institute of Building) 2007. Membership. [online]. Available from: <http://www.ciob.org.uk/membership> [accessed 4 December 2007].

CIOB (The Chartered Institute of Building) 2007a. CPD. [online]. Available from: <http://www.ciob.org.uk/membership/continuingprofessionaldevelopment> [accessed 4 December 2007].

Gruber, C. 2004. Maturity Models of Project-orientated Organisations. 2004. pm days '04 – *education & research conference,* Vienna, Austria 24 – 27 November, Slideshow presentation. Wien: Wirtschafts Universitat.

Gareis, R. 2005. *Happy Projects!*. 1st ed. Vienna. Manz.

Gasse, F. 2006. *Maturity Model of the Project-Oriented Company*. [Online]. Vienna. Project Orientation International. Available from: http://poi.pmgroup.at/index> [Accessed 6 February 2007]

Hoard, CA. 2003. *Hierarchy of skills: laying a foundation for PM maturity.* [online]. Available from : <http://www.gantthead.com/content/articles/176281.cfm> [Accessed 5 February, 2007]

ICEC (International Cost Engineering Council) 2007. ICEC Accredited Certification and Continuing Professional Development Programs. Available from: <http://www.icoste.org/accred.htm> [accessed 4 December 2007].

JBCC (Joint Building Contracts Committee). 2000. Standardization. Standard System ed. 6, JBCC 2000 series.

Kerzner, H. 1998. *Project Management : A Systems Approach to Planning, Scheduling and Controlling*. 6th ed. Canada. John Wiley & Sons, Inc.

Keuning, D. 1998. *Management: A contemporary approach*. 1st ed. Great Brittan. Pitman Publishing.

Knipe, A., Van der Waldt, G., Van Niekerk, D., Burger, D., Nell, K. 2002. *Project Management for Success*. 1st ed. Cape Town. Heinemann Publishers (Pty) Ltd.

RICS (Royal Institute of Chartered Surveyors). 2007. Join RICS. [online]. Available from: <http://www.rics.org/JoinRICS/> [Accessed 4 December 2007].

RICS (Royal Institute of Chartered Surveyors). 2007a. Research and reports. [online]. Available from: <http://www.rics.org/Newsroom/Researchandreports/> [Accessed 4 December 2007].

SACQSP (South African Council of the Quantity Surveying Profession). 2007. South African Council of the Quantity Surveying Profession Website. [online]. Available from: <http://www.sacqsp.org.za/> [Accessed 4 December 2007].

SACQSP (South African Council of the Quantity Surveying Profession). 2007a. Identification of work provisional document. Agenda items.

SACQSP (South African Council of the Quantity Surveying Profession). 2007b. Minutes of the Council Meeting, 23 March, Midrand.

Smith, P.J., & Cronje, G.J. de J. 2002. *Management Principles*. 3rd ed. Cape Town: Juta & Co. Ltd.

South Africa. 2000. *Quantity Surveying Profession act, Act 49 of 2000*. Pretoria: Government Printer.

South African Qualifications Authority (SAQA). 2005-2007.*Quantity Surveying Standards Generating Body (SGB), Qualification and unit standards documentation*. (Standards to be gazetted in the near future).

Verster & Haputfleisch, 2007. Project management maturity in the South African construction industry. *2nd Built Environment Conference. Association for Schools of Construction of Southern Africa (ASOCSA) and the Council for the Built Environment (CBE)*. 17-19 June. Port Elizabeth.

Verster, Haputfleisch and Kotze 2008. Dimensions of quantity surveying maturity and the development of the profession towards a learned society. *PAQS 2008*.

Verster, Kotze and Haputfleisch 2007. The pillars of quantity surveying as learned society. *ICEC/AACE 2008*.

Wikipedia. *Capability Maturity Model*. In: Wikipedia [online]. Available from: <http://en.wikipedia.org/wiki> [Accessed 6 February 2007]