

A GLOBAL APPROACH TO PROJECT MANAGEMENT COMPETENCE

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INTRODUCTION

Project management is an emerging profession operating in an increasing range of industries. As projects become more complex, and as more organisations move to management by projects, there is an increasing demand for competent project managers. Employers need guidance to help them select, develop and support competent project personnel. Project managers and team members need goals for achievement of competence as well as recognition which will assist them in their careers.

These needs underpin the growing international interest in project management competence. This interest includes development of project management standards, the recognition of project management competence through certification of project managers and the accreditation of project management education and training.

Globally, there are many developments occurring in the area of project management standards. Two de facto international standards are now available - the Project Management Institute (USA)'s Guide to the Project Management Body of Knowledge, which maps the territory a project manager should KNOW, and the Australian National Competency Standards for Project Management which provide the first generic (as opposed to industry or organisation specific) description of what a project manager should be able to DO.

This paper describes the Australian Institute of Project Management's leading role as a Foundation Partner in the most significant research on project management being undertaken in the world today.

The project has the support of project management professional associations and industry worldwide and is being conducted internationally, with the aims of

- identifying competency profiles of effective project personnel for a range of project types and project environments
- designing and validating an integrated global model for assessment and development of project management competence

THE PROJECT

In May 1996 the University of Technology, Sydney (UTS) in partnership with the Australian Institute of Project Management (AIPM) and other industry partners, lodged a grant application with the Australian Research Council, Australia's peak research funding body, under the Council's Collaborative Grant Scheme. The application was successful and the project commenced in February 1997.

The title of the research project is *Developmental Assessment of Project Management Competence*.

The purpose of the project is:

to develop profiles of underlying knowledge, attitudes and behaviours which lead to high performance in a range of project management roles and to provide a framework for both attribute and performance based competency assessment and development, job design and selection of project personnel for improved project performance.

The success of the grant application can be seen as a recognition, by a national government, of the importance of project management, and as such, is a significant achievement for the project management profession, internationally.

The initial research funding covered the conduct of the research project in Australia. The researchers and industry partners recognised the contribution the project could make in establishing a sound research base for development of international project management standards. This would require the project to be conducted internationally. To facilitate this, project management professional organisations and corporations, worldwide, were invited to participate in the project. Response was extremely positive and arrangements have now been made to collect data on project personnel in Australia, the United States, the European Union, and South Africa.

PROJECT MANAGEMENT COMPETENCE

Interest in project management competence stems from the very reasonable and widely held assumption that if people who manage and work on projects are competent, they will perform effectively and that this will lead to successful projects and successful organisations ((Karpin 1995); (Beer, Eisenstat et al. 1990); (Smith, Carson et al. 1984)).

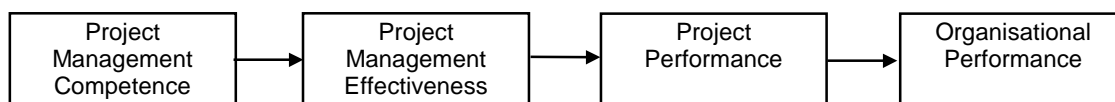


Figure 1. Relationship between Project Management Competence and Organisational Performance

Professional organisations ((AIPM (Sponsor) 1996), (PMI (USA) 1996), (APM 1995)) and various commercial organisations (eg Digital, Texas Instruments, Natwest) have attempted to identify the skills, knowledge and behaviours that they believe a competent project manager should possess. Writers and researchers ((Thamhain and Wilemon 1977); (Posner 1987); (Gadeken and Cullen 1990); (Gadeken 1991); (Price 1994); (Pettersen 1991); (McVeigh 1995)) have endeavoured to identify aspects of competence which are characteristic of effective or high performing project managers.

One of the first challenges of this project is the development of a shared global understanding of what constitutes competence.

Competence is a term which is widely used but which has come to mean different things to different people. It is generally accepted, however, as encompassing knowledge, skills, Crawford, L.H. (1997) A global approach to project management competence. In:

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attitudes and behaviours that are causally related to superior job performance (Boyatzis 1982). This understanding of competence has been described as attribute based inference of competence (Heywood, Gonczi et al. 1992). To this can be added what is referred to as the performance based approach to competence which assumes that competence can be inferred from demonstrated performance at pre-defined acceptable standards, in the workplace (Gonczi, Hager et al. 1993). The performance based approach is the basis for what has become known as the Competency Standards Movement that underpins the National Vocational Qualifications in the United Kingdom, the Australian Competency Standards Framework (now the Australian Qualifications Framework) and the National Qualifications Framework of the New Zealand Qualifications Authority (NZQA).

Australia's Competency Standards for Project Management, were developed over a three year period, from 1993 to 1996, in association with industry, under the sponsorship of the Australian Institute of Project Management and with funds provided by both Government and industry. The standards were endorsed, as cross industry standards, by the Australian Government in 1996. As the first government endorsed performance based competency standards for project management, the Australian National Competency Standards for Project Management (1996) may be considered as a de facto international standard for what project managers are expected to be able to **do**.

The PMI's *A Guide to the Project Management Body of Knowledge* (1996) can be considered as a de facto international standard for what project personnel can be expected to **know**.

METHODOLOGY

The concern of this research project is the relationship between project management competence and project management effectiveness as a basis for developing competency profiles of effective project personnel in a range of project environments. To investigate this relationship it is necessary to establish measures of both project management competence and project management effectiveness.

For the purposes of the research project being described here, instruments have been developed to provide measures of project management competence which encompass both attribute and performance based approaches. This has been further broken down into a framework of input, process and output competencies (Finn 1993), where competence is considered as a combination of:

Knowledge (qualifications) + Skills (ability to do a task)	Input Competencies:	the knowledge and understanding, skills and abilities that a person brings to a job
+	+	
Core Personality Characteristics (Motives + Traits + Self-Concept)	Process Competencies:	the core personality characteristics underlying a persons capability to do a job
+	+	
Demonstrable performance	Output	the ability to perform the activities

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in accordance with occupational / professional / organisational Competency Standards.

Competencies: within an occupational area to the levels of performance expected in employment

Figure 2. Dimensions of competence

This understanding of the dimensions of competence has been translated into the following integrated model of project management competence:

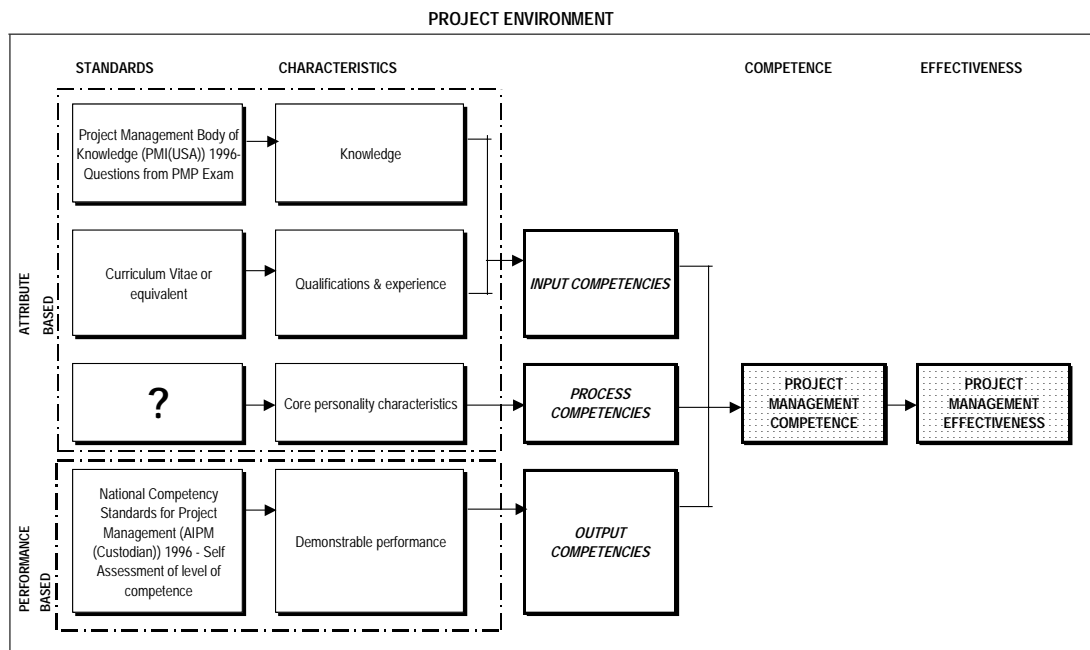


Figure 3. An integrated model of project management competence

Based on this model, the following instruments have been developed:

1. Project Management Competence

- 1.1 **Project Management Knowledge:** a test, using the PMI's *A Guide to the Project Management Body of Knowledge* as the knowledge standard. The test is based on the PMI's Project Management Professional (PMP) exam and is intended to identify the extent of a person's knowledge of formal project management processes and terminology.
- 1.2 **Qualifications and Experience:** a questionnaire, based on the Qualifications and Experience questionnaire used by PMI as part of qualification for the PMP award. Sections on non-project management experience and service have been added.
- 1.3 **Personality Tests:** two personality tests will be used to identify core personality characteristics which can be causally related to effective project management performance. The two tests to be used are:
 - 16 PF: a personality questionnaire that measures 16 primary aspects of adult personality (Cattell, Eber et al. 1970)

- Caliper Profile: initially known as the Multiple Personal Inventory (MPI), is an instrument which has been specifically developed to predict successful performance in a number of job roles (Greenberg and Greenberg 1980)

1.4 **Performance based competence:** self assessment against Australian National Competency Standards for Project Management

2. **Project Environment:** a questionnaire which establishes the nature of the project environment in which the person normally operates, including such factors as:

- Job title
- Project size and duration
- Number of projects
- Project complexity
- Application area and industry

3. **Project Management Effectiveness:** Supervisor and self rating on a number of dimensions including:

- Value to the client
- Value to the organisation
- Effectiveness of relationship with peers in achieving project goals
- Ability to inspire and encourage the performance of others
- Frequency with which the person completes projects on time, within budget and achieving project goals
- Use of recognised project management methodologies
- A number of behavioural characteristics which have been validated as causally related to superior performance

Instruments which have been developed for this project (Items 1.1, 1.2, 1.4, 2, 3) have been tested in pilot studies conducted in Australia, the United States, the United Kingdom and South Africa and modifications made in response to this feedback. The full process, which takes 8 hours, including the two personality tests, has also been piloted, in both the United States and Australia. The data collection process is conducted as 3 hours of pre-work, followed by a half day workshop conducted in a location to suit the participating organisations.

SAMPLE

Organisations are asked to nominate a minimum of 5 and maximum of 20 project personnel according to the industry / application area indicated in Figure 4. The minimum of 5 is intended to allow smaller organisations or project management functions in larger organisations to contribute to the project. The upper limit of 20 is to ensure that one organisation does not dominate the sample in a particular project industry / application area category. Multi-functional organisations will be offered the opportunity for participation of separate sample groups from distinctly different parts of their organisations which would fall into different project industry / application areas.

As mentioned earlier in this paper, arrangements have been made to collect data from project personnel in Australia, the United States, the European Union, and South Africa. Possible extension to include Canada, Latin America and Asia is envisaged. The intended minimum sample, per country, is as follows:

Industry Sector / Application Area	No of organisations	No of personnel
Aerospace & Defence	2 to 4	30
Construction, mining, petroleum	2 to 4	30
Financial services, banking, insurance (incl. management consulting)	2 to 4	30
Government (n.e.c.)	2 to 4	30
Information Systems and Management (incl IT and telecommunications)	2 to 4	30
Manufacturing (incl. automotive, pharmaceutical, & new product development)	2 to 4	30
Utilities (inc. transportation and environmental management)	2 to 4	30
TOTAL	14 to 28	210

Figure 4. Proposed sample composition per country

FEEDBACK AND BENEFITS FOR PARTICIPANTS

Project personnel

All project personnel who participate in the project will receive a copy of their own project management competency profile, against each of the nine units of the PMBOK and the Australian National Competency Standards for Project Management. This will be shown in relation to the average competency profile for their organisational group. The individual competency profiles will be entirely confidential and will NOT be provided to the employing organisation.

This feedback will be of value to individual participants by indicating those areas of project management in which they need to develop their competence. This may require them to negotiate with their employing organisations for opportunities for experience as well as training in particular aspects of project management. For those considering applying for certification or registration under the PMP program, the Australian National Competency Standards for Project Management, or other national schemes, the feedback will give them an indication of how successful they are likely to be and indicate whether they may need more experience or training before applying.

Participating organisations

Participating organisations will receive the average competency profile for their set of project personnel. As the project data builds, they will receive bulletins which indicate their organisational average competency profile in relation to the

- Average competency profile for the whole sample
- Average competency profile for each country sample
- Average competency profile for their industry sector / application area

The average competency profile for each organisation will be confidential to that organisation and will not be released to other organisations other than as part of the averages for the whole sample, each country, and each industry sector / application area.

This information will be particularly useful to organisations in

- Benchmarking the competence of their project personnel
- Benchmarking their organisational project management competence by identifying any project management practices which are not generally followed within the organisation
- Providing guidance for project management training and development of project management systems

DATA ANALYSIS AND DISSEMINATION OF RESULTS

Multivariate data analysis will be used to test a number of hypotheses, the key being that statistically significant profiles of input, process and output competencies can be developed which differentiate the most effective from the least effective project personnel across application areas and project environments.

Results will be disseminated to the research partners and participating organisations in bulletins issued at three to six month intervals commencing in late 1997. These will continue to be issued for the duration of the project which is funded until the end of 1999. Results will be made available to participating project management professional organisations (AIPM, PMI, IPMA, APM) and through these organisations to their members.

A GLOBAL BASIS FOR ASSESSING PROJECT MANAGEMENT COMPETENCE

Project management professional associations, worldwide, are concerned with the development of:

- standards
- certification processes
- accreditation of education and training

There has been considerable discussion and a general recognition through the Global Project Management Forums which have been held over the last few years that standards and certification processes should be internationally consistent. Cultural and language differences, different regulatory systems and national interests have made progress towards internationally accepted standards difficult.

Organisations and individuals, however, see the need for a system of project management standards and certification which make it possible for them to operate effectively and with full recognition of their professional standing, across national boundaries.

This research project is being conducted internationally, with the support of major project management professional associations and industry. It has the potential to provide an internationally accepted basis from which project management professional associations can develop certification processes which are tailored to national needs within a globally accepted approach to project management competence. This will allow diversity to be valued, while meeting the needs of organisations and individuals for a globally consistent framework.

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