

COMPETENCE FOR PROSPERITY THROUGH PARTNERSHIP

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Introduction

As we enter the 21st century business is increasingly being conducted as projects, and projects are being conducted in partnerships that span both organisational and national boundaries. These trends have focused attention on project management competence and on the need for globally accepted standards for project management terminology and practices that provide a shared technical language and understanding to facilitate work being conducted by diverse globally and organisationally distributed teams.

This paper presents a review of progress in development of global standards for project management. It then discusses ways in which individuals and organisations are using results from internationally conducted research in assessing and developing their project management competence to ensure that they have in place the capability to prosper through partnership in projects.

Standards in project management

Projects have been undertaken and managed since the beginning of civilization. The pyramids are often cited (Stretton, 1994; Morris, 1994) as projects that were managed. However, it is only in the second half of the twentieth century that project management began to emerge as a distinct field of practice with its own tools, techniques and concepts (Stretton, 1994). Throughout the 1950s, project management developed primarily in the construction, engineering, defence and aerospace industries (Kerzner, 1979) and in the 1960s the first major project management professional associations were formed, one in Europe (INTERNET, now IPMA) and the other in North America (PMI). Throughout the 1980's interest in and application of project management spread beyond its traditional origins, to a wider range of industries, particularly information technology and more recently, business services. In the 1990's interest in project management grew progressively stronger, with a move towards managing organisations by projects (Dinsmore, 1996) and the application of project management by global corporations on globally distributed projects.

Corporations are demanding standards for project management terminology, practices and competence of practitioners to enable them to select, recruit, and develop competent project managers who are able to work in virtual global teams and on projects anywhere in the world.

Project personnel are actively seeking sound guidance for the identification of project management competencies and credentials that will enhance their careers.

This concern of organisations and individuals for understanding and recognition of what constitutes project management competence is evidenced by the growth of project management professional organisations, worldwide. As an example, the Project Management Institute (USA) has grown from a membership of 71 in 1969, to 12,000 in 1994, 30,000 in 1997 and 60,000 in 2000 (Goldman, 1999 and <http://www.pmi.org>). Twenty-nine countries

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were represented at a Global Project Management Forum in October 1995 (Pennypacker, 1996), and the primary topic of interest was the possibility of achieving globally recognised project management standards and certification. Global Forums have been held in association with the annual seminar/symposia of the Project Management Institute and bi-annual World Congress of the International Project Management Association since 1995.

The International Project Management Association (IPMA) initiated a series of Global Working Parties at a meeting in East Horsley, England in February 1999. The working parties addressed Standards, Education, Certification, Accreditation / Credentialing, Research and the continuation of the Global Forum process. The Global Working Group on Standards (Global Working Group: Standards, 1999) has continued to meet and has accepted a framework for their work that identifies those areas in which they consider project management standards to be relevant. This framework, based on work conducted by the Project Management Standards Committee in 1998 (Duncan, 1998), identifies that project management standards are relevant as a basis for:

- Projects: knowledge and practices for management of individual projects
- Organisations: organisational project management practices
- People: development, assessment and registration/ certification (credentialing) of people

The focus in this paper is on those standards for project management that relate directly to the project management competence of individuals or are used as a basis for some aspect of registration or certification of individuals.

Based on the findings of the Global Working Group: Standards (<http://www.aipm.com/globalstandards/>), the standards that are of most relevance to mainstream project management are:

Project Management Knowledge Standards

- PMBOK® Guide – Project Management Institute
- ICB: IPMA Competence Baseline – International Project Management Association
- APM BoK – Association for Project Management (UK)

Performance Based Competency Standards for Project Management

- Australian National Competency Standards for Project Management
- OSCEng Levels 4 and 5: NVQ/SVQ in (generic) project management

Of these, the PMBOK® Guide is considered a de facto global standard for what project managers are expected to know, and the Australian National Competency Standards for Project Management, which share the same structure as the PMBOK® Guide, are considered de facto global standards for what project managers are expected to be able to do. However, there are currently no standards for project management that have been formally developed through a globally representative process, accepted as global standards and recognised as a basis for professional project management registration and/or certification processes throughout the world.

Local and global corporations and project personnel are faced with the dilemma of which standards and certification process to support. There is strong market demand for globally

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consistent standards as a basis for certification of project management competence that is globally transferable and facilitates mobility of individuals and partnerships between organisations.

Developing Global Project Management Standards

A Global Body of Project Management Knowledge

As outlined above, there are at least three key project management body of knowledge guides currently in existence: the PMBOK® Guide (Duncan, 1996), the ICB (IPMA, 1999) and the APM BoK (Fourth Edition) (Dixon, 2000). There is strong interest in agreement on a global body of project management knowledge.

There are two key initiatives in this area. One is the work of the Global Working Group: Standards (<http://www.aipm.com/globalstandards/>) which is recommending that the Project Management Institute undertake a globally inclusive review of the PMBOK® Guide with official participation and subsequent distribution by other project management professional associations of a Global PMBoK.

The other is an initiative, independent of the project management professional associations involving globally representative and recognised opinion leaders in project management (<http://www.aipm.com/OLC/>). This group, has met on two occasions. In 1999, at a meeting hosted by NASA, they identified the range of content of a global body of project management knowledge. In 2000, at a meeting in Norway, hosted by Telenor, they considered ways of structuring a global body of project management knowledge. Their conclusion was that a global body of project management knowledge should be able to be structured, viewed or accessed in many different ways in order to address the needs of a wide range of stakeholders. The group is currently developing a proposal for a web based project management knowledge repository that would be in the public domain.

Meanwhile, the PMBOK® Guide remains the most widely distributed and accepted of the project management body of knowledge guides.

Global Project Management Competency Standards

Performance based competency standards describe what people can be expected to do in their working roles, as well as the knowledge and understanding of their occupation that is needed to underpin these roles at a specific level of competence. A valuable aspect of such standards is that they are specifically designed for assessment purposes, and are developmental in their approach, with assessment being undertaken by registered Workplace Assessors, within a well defined quality assurance process.

The first performance based competency standards for project management were the Australian National Competency Standards for Project Management which were developed through the efforts of the Australian Institute of Project Management and endorsed by the Australian Government on 1st July 1996.

In the United Kingdom, the Occupational Standards Council for Engineering produced standards for Project Controls (OSCEng, 1996) which were endorsed in December, 1996 and for Project Management (OSCEng, 1997) which were endorsed in early 1997. The Construction Industry Standing Conference (CISC), the Management Charter Initiative (MCI)

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and what was then called the Engineering Services Standing Conference (ESSC), now the Occupational Standards for Engineering (OSCEng), together developed Level 5 NVQ/SVQ competency standards for Construction Project Management. A section of the Management Charter Initiative Management Standards, titled Manage Projects (MCI, 1997) provides a further set of competency standards for project management but in this case, within the general management framework.

Of these standards, the Australian National Competency Standards for Project Management and the OSCEng standards for both Project Management and Project Controls have attracted the most interest. It is understood that there has been little interest shown in the UK Construction Project Management competency standards (CISC, 1997) and the MCI Manage Projects standards (1997) are not intended for those for whom project management is a primary role.

By following the structure of the PMBOK® Guide, which is by far the most widely distributed and recognised of the project management body of knowledge guides, the developers of the Australian National Competency Standards for Project Management ensured that they would attract interest, worldwide.

The Global Working Group: Standards, has recommended the development of Global Project Management Competency Standards and has established a project for this purpose. The Australian and United Kingdom PM competency standards are currently due for review and standards are currently being developed in South Africa under the auspices of the South African Qualifications Authority. There is also strong interest in development of European PM competency standards.

At a meeting held in London on 25th May 2000, a Steering Committee was established for a Global PM Competency Standards Project. This Steering Committee includes representatives of Government based competency standards organisations in the United Kingdom, Australia and South Africa; project management and cost engineering professional associations (IPMA, APM, AIPM, PMISA, JPMF, ACostE, ICEC) and industry (including NASA, CISCO, World Bank, Rolls Royce).

Since the meeting in May, discussions have been held with representatives of the New Zealand Qualifications Authority and PMI New Zealand who have indicated strong interest in developing project management competency standards.

The aim of the Global PM Competency Standards project is to develop a framework of project management competency standards, as a basis for aligning

- government endorsed standards in those countries that have established performance based or occupational competency standards frameworks (Australia, United Kingdom, South Africa and New Zealand)
- standards used by Project Management and other professional associations as a basis for certification programmes
- standards used by corporations for internal certification and accreditation programmes.

The process is intended to be globally representative, involving project related professional associations and industry, so that the resulting framework is globally applicable and accepted. Alignment of national competency frameworks for project management will pave the way for

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globally recognised qualifications. Project related professional associations, governments and organisations, world wide, will be encouraged to adopt or adapt the standards.

The project is currently developing detailed plans as a basis for securing resources from Governments and industry. Australian and United Kingdom governments are keen to complete the review of the standards by mid 2001 and there is pressure to develop South African standards as soon as possible.

Developing and Assessing Project Management Competence

Commencing in 1997, the University of Technology, Sydney has been leading a research project that has developed profiles or benchmarks of project management knowledge and use of practices, providing a framework for competency assessment and development, job design and selection of project personnel for improved project performance.

In the absence of globally developed and accepted standards, the research used the:

- PMBOK® Guide as the basis for assessment of levels of PM knowledge
- Australian National Competency Standards for Project Management as the basis for assessment of levels of use of PM practices

Funding for the project has been provided by the Australian Research Council (ARC) and industry partners (Australian Institute of Project Management, Caliper International, NSW Department of Public Works and Services, NSW Department of Housing). International partners in the research are IPMA, APM, PMI, PMISA and Human Systems Limited.

The initial research funding covered the conduct of the research project in Australia. International data collection has been funded by participating organisations in the United Kingdom, the United States, South Africa and Brazil. Participating organisations have received internationally benchmarked organisational competency profiles which they have used in assessment and development of the project management competence of their organisation and their people. Participating project personnel have received individual competency profiles that provide feedback and guidance for professional development.

Assessment and provision of feedback reports, including benchmarks against the organisational profiles (minimum of 5 people per organisation required), global sample and industry sectors (IS/IT and Telecommunications, Engineering and Construction, or Building Services) based on the research, is now available on the web (<http://www.pmcompetence.net>). A number of organisations both in Australia and overseas are now using this Project Management Competency Assessment process as an input to recruitment, assessment and development of competence of project personnel. Fees paid for this service will be used to maintain the currency of the benchmarks and update the process to address revisions and developments to the underlying standards.

Project Management Knowledge and Practices Assessment Instruments

The two main instruments used in the Project Management Knowledge and Practices Assessment process were developed and tested with a sample of over 350 project personnel, primarily from Australia, USA and the United Kingdom,

Project Management Knowledge Instrument

This is a test, which uses the PMBOK® Guide as the knowledge standard. It is intended to identify the extent of a person's knowledge of formal project management processes and

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terminology as common understanding of meaning and use of terms, tools and techniques is vital to effective working within and between organisations, on projects.

The test includes five multiple choice questions in each of the nine knowledge domains of the PMBOK® Guide – Integration, Scope, Time, Cost, Quality, Human Resources, Communications, Risk and Procurement. Questions were selected to address key terms, tools and techniques in each of the nine areas. There are no questions requiring calculations. It is not intended that participants should study before completing this test. It is a diagnostic tool not a pass or fail examination.

Self Assessment of use of PM Practices Instrument

Self assessment against the Australian National Competency Standards for Project Management (ANCSPM) provides a picture of the extent to which respondents use formal project management practices. The Competency Standards are written at three levels that essentially address three levels or contexts for use of project management practices:

- Level 4: Team member or specialist
- Level 5: Project Manager of well defined projects
- Level 6: Manager of multiple or complex projects; strategic role

The self assessment instrument uses the Australian National Competency Standards for Project Management at Level 5, asking for responses to each of the 94 Performance Criteria, against the following scale:

- 1 I have **never done** or **participated** I doing this
- 2 I have **done** or **do this under supervision or as a member of a team**
- 3 I have **done** or **occasionally do** this myself
- 4 I have **often done** or **do** this myself
- 5 I have **done or managed** this across multiple projects or sub projects

Formal assessment against performance based competency standards such as the Australian National Competency Standards for Project Management requires provision of evidence of competence at the appropriate Level (4,5,6) against each of the Performance Criteria to the satisfaction of a registered workplace assessor. In order to provide evidence, it is necessary to have used the practices identified in the Performance Criteria. The Self Assessment instrument does not ask the respondent to subjectively judge how competent they are. It asks them to identify whether they have used the practices and at what level.

For reporting purposes the responses are re-coded as follows:

Code	Description	Recoded as:
1	I have never done or participated I doing this	0
2	I have done or do this under supervision or as a member of a team	4
3	I have done or occasionally do this myself	5
4	I have often done or do this myself	5
5	I have done or managed this across multiple projects or sub projects	6

Figure 1: Self Assessment Scale: Use of Project Management Practices

Responses of 2 or 3 on the 5 point scale are both recoded as 5 (representing use of the practices at Level 5 of the Standards) as it should be possible to provide evidence if practices are used occasionally or often.

Individual and Corporate PM Knowledge and Practices Profiles

Where organisations arrange for five or more of their project personnel to complete the PM Knowledge and Practices assessment instruments, they receive a corporate PM profile that compares their corporate averages for PM Knowledge and Use of PM Practices, with global benchmarks for one selected industry sector and the overall global sample. Individuals receive reports that compare their own results with the average for their organisation (where available), one selected industry sector (Engineering & Construction, IS/IT and Telecommunications or Business Services) and the overall global sample.

Examples of the profiles from Individual Reports for PM Knowledge and Use of PM Practices are shown below (Figures 2 and 3). The Corporate Report profile is the same, except that it does not include individual results.

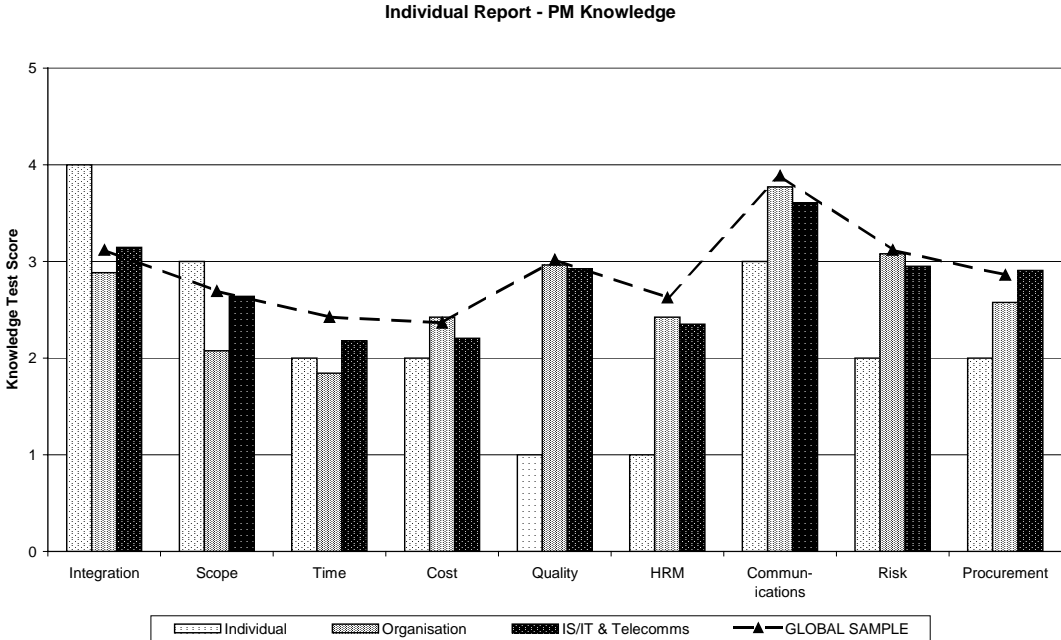


Figure 2: Individual Report - PM Knowledge

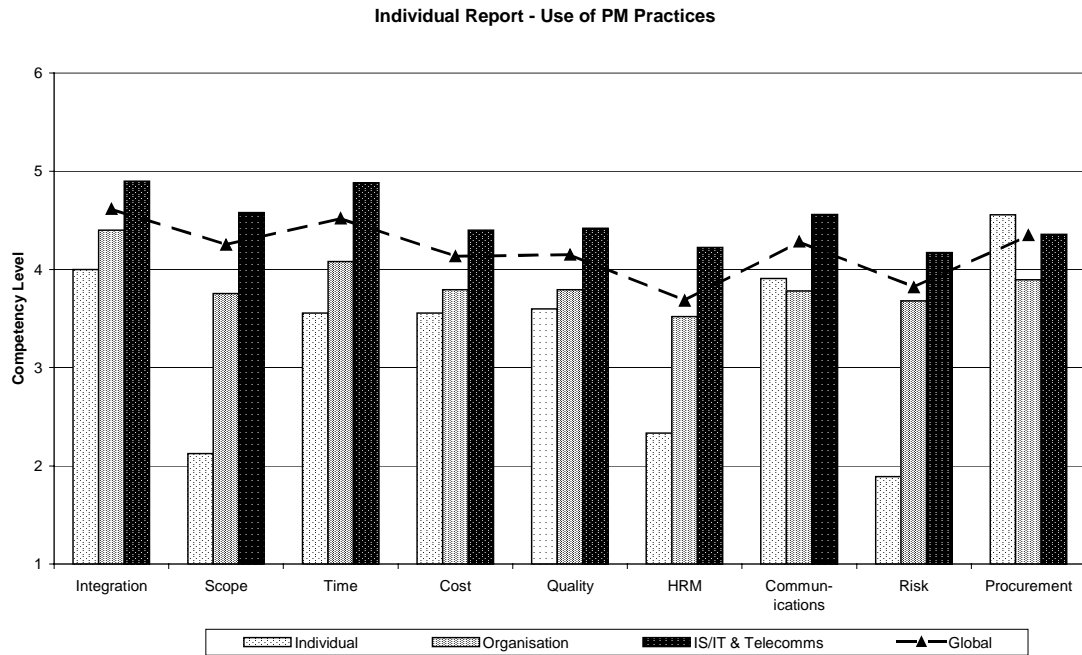


Figure 3: Individual Report - Use of PM Practices

The organisational averages provide feedback to organisations on the level of understanding of formal project management terminology, tools and techniques and the extent to which accepted project management practices are used in their organisation. They may decide that some practices are not necessary in their corporate environment, or the feedback may provide input to assessment of the corporate project management methodology or lack thereof. Essentially, however, if an organisation wishes to have their project personnel achieve recognition of competence against the Australian National Competency Standards for Project Management, those people will be unable to gain the necessary experience and therefore evidence required for recognition of competence if the practices are not used in the organisation.

Research data, relating total scores of project personnel for use of project management practices with the level of project management maturity of the organisation in which they operate, supports the view that formal project management practices will be more widely used in more project management mature environments.

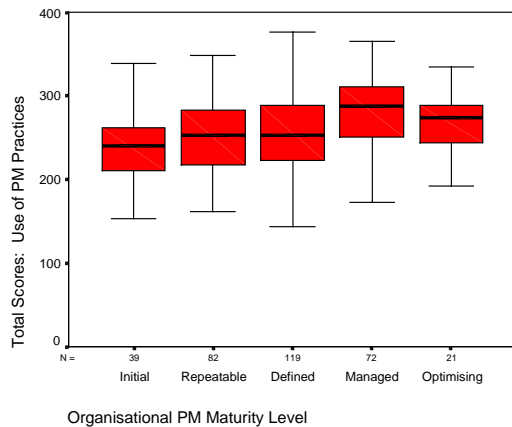


Figure 4: Total scores for Use of PM Practices by Organisational PM Maturity Level

Using PM Knowledge and Practices Profiles to Guide Development

The PM Knowledge and Practices and feedback is being used by individuals and organisations as a baseline for individual and corporate project management development plans.

Using the feedback given in Figures 2 and 3 above, the organisation concerned might reasonably conclude that there is a corporate need to improve organisation wide knowledge of formal project management terms, tools and techniques in all areas except Quality, Human Resources, and Communication. They would also need to review their use of practices, or project methodology and its application in all areas if they are to achieve averages that at least match those for their industry sector.

The particular individual represented in Figures 2 and 3 has good knowledge in Integration and Scope, but would benefit from development in all other project management domains. This person is clearly strong in use of Procurement Practices but use of Scope practices lags behind their level of Scope knowledge, suggesting that they may not be given the opportunity to use Scope practices within this organisation. On the other hand, they clearly need further knowledge as well as opportunity to use practices in both Human Resource Management and Risk.

These profiles are being used by organisations to identify areas of project management knowledge and practice in which there is:

- **Need for training and development**
 - By large groups of individuals – leading to in-company courses
 - By small groups or individuals – leading to investigation of courses offered externally
- **Need for development of corporate project management practices or methodologies to encourage and support use of practices**

The profiles also assist in identifying those individuals who are able to act as mentors and coaches.

PM Role Profiles

To make best use of the profiles of PM Knowledge and Use of Practices, organisations should develop profiles for Use of Practices for the range of project management roles within the

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organisation. Clearly, a person working at Team Member level would not be expected to Use Practices at the same level as a person working at Project Manager or Programme Manager level. It is reasonable to expect, however, that PM Knowledge should be at the highest possible level for all project management roles, as this assessment instrument deals with basic knowledge and understanding of project management terminology, tools and techniques which should be shared across the organisation and between organisations to enable effective project working and partnerships.

By going through each of the 94 Performance Criteria and identifying the level at which the practices would be expected to be performed in each project management role, using the scale indicated in Figure 1, corporate PM role profiles can be developed as indicated in Figure 5 below. In this example case, it has been assumed that the organisation has strong support services in Human Resources and Procurement, so there is reduced need for project personnel in this organisation to use practices in these areas and this is reflected in the profile.

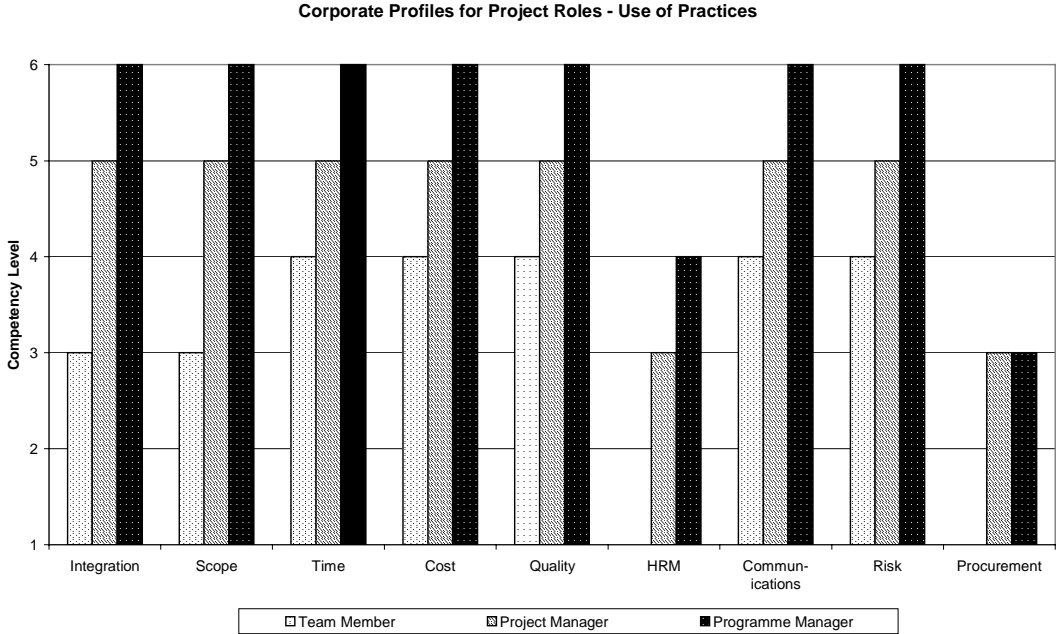


Figure 5: Corporate Profiles for Project Roles - Use of Practices

Gap Analysis and Individual Development Plans

If we now examine the results for the individual represented in Figures 2 and 3, and assume that their project role is that of a Team Member, the gaps in their use of practices can be identified. They appear to be using, or have used, Integration, Human Resource Management, Communication and Procurement practices at appropriate or higher levels than are required for the Team Member role in this organisation. Closer investigation of the results for Scope, Time, Cost and Quality would be required to identify where the shortfalls were occurring in these areas. Raising the level of use of practices in these areas may only require raising of awareness, coaching or changes in work environment. The considerably lower score for risk suggests that specific training may be required in this area.

In terms of career development, this profile and the rich underlying data, provide clear guidelines to the individual and the organisation in terms of the coaching, training, support

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and work experiences that this person requires if they aspire to the Project Manager role. The data suggests, however, that this person may be a procurement or contract management specialist. They may wish to concentrate in development of this aspect of the role.

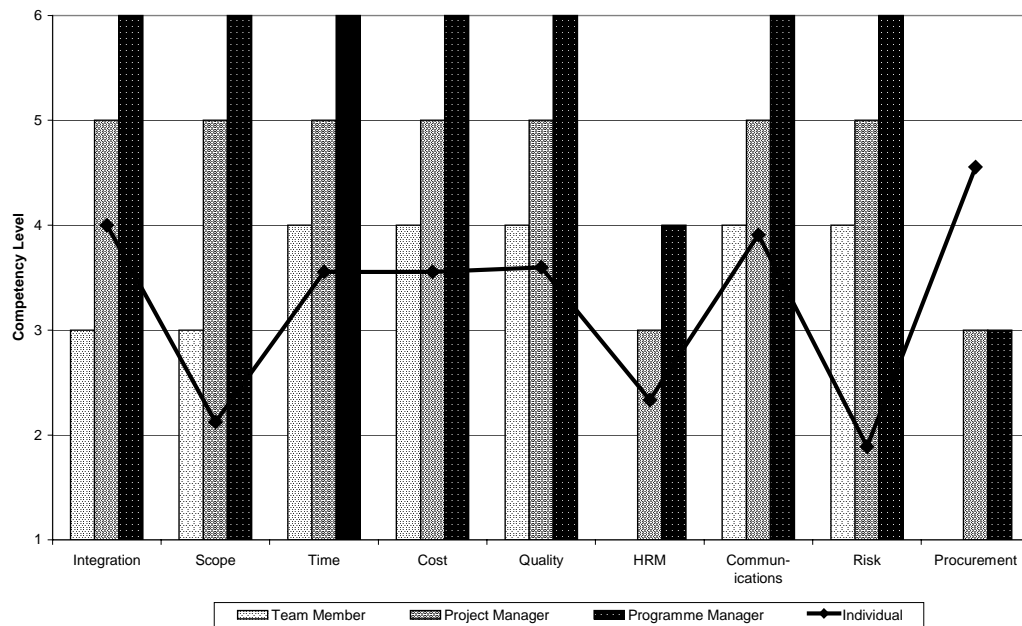


Figure 6: Individual Results against Corporate PM Role Profiles

Recruitment

Some organisations have begun using this PM Knowledge and Practices assessment process as one of a number of inputs to the recruitment and selection process.

Further development

A number of organisations both in Australia and overseas have begun successfully using the PM Knowledge and Practices assessment process in the ways indicated above. One of the interesting aspects of using these instruments in practice has been the strong correspondence between the self assessment of use of practices by individuals and the perceptions of senior management.

However, the reliance on self assessment is a potential weakness of the process. As part of the research project discussed here, an extension to the process is currently being developed that would include verification of the self assessment results by a registered workplace assessor. Individuals and organisations would then be able to choose between reliance on the self assessment and opportunities for feedback and verification by an independent third party. This process has already been effectively used by one organisation in assessment of over 100 project personnel.

A further dimension to the competency assessment process goes beyond knowledge and use of practices to include personal competence, attitudes and behaviours. The research project that underlies the processes outlined in this paper included the gathering of data on personality characteristics of project personnel, using an instrument developed by Mayer and Greenberg between 1957 and 1961, and now known as the Caliper Profile. It is specifically

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developed to predict successful performance in a number of job roles and has been used to evaluate over 1,000,000 individuals for more than 21,000 client companies in the USA, Canada and Western Europe (Greenberg and Greenberg 1980; Greenberg and Greenberg 1986; Greenberg and Greenberg 1990/91; Greenberg and Weinstein 1995; Dobrzynski 1996).

The Caliper Profile is a multifactor, personal characteristics measurement tool. It uses a variety of response formats including forced-choice, multiple-choice and Likert type items to measure job-related personality dynamics. It is a self-administered, un-timed paper and pencil instrument that takes approximately 2 hours to complete, providing a very rich level of information.

Using their considerable experience in development of personality profiles for specific job roles, plus the feedback obtained from this research project, Caliper is working with organisations to develop role specific personality profiles to complement those for PM Knowledge and Use of Practices.

Conclusions

This paper has reported on the demand for and progress to date in development of global standards for project management. It has also reported on research undertaken using de facto global standards for project management knowledge (PMBOK® Guide) and use of project management practices (Australian National Competency Standards for Project Management). The paper has described ways in which the results of this research are now being used by individuals and organisations for developmental assessment of project management competence. The research reported here and the assessment tools derived from it, will be updated to reflect global knowledge and competency standards for project management as soon as they are available.

Assessment and development of project management competence, using global standards and benchmarks, is an important foundation for effective partnering on projects across organisations and countries. Collaboration, cooperation and partnering are also essential for the ongoing development of globally accepted project management standards as a sound basis for assessment and development of project management competence.

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