

Assessing and Developing Project Management Competence

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Introduction

The importance of project management as a strategy for achieving business objectives is evidenced by its wide use and increasing application in new and emerging industry sectors, and is fueling strong demand for effective project managers. This demand has encouraged efforts by industry, professional associations and expert practitioners to describe the practices and underpinning knowledge that are associated with effective performance and encapsulate these in standards. Such standards have an important role in the development and definition of project management as a profession and as a basis for assessing and guiding the development of aspects of project management competence.

This paper identifies issues that should be considered when assessing and developing project management competence and identifies the role that project management standards can play in this process. The paper presents implications for assessment and development of project management competence arising from research conducted at the University of Technology, Sydney and involving over 390 experienced project management personnel.

Beneficiaries and benefits of assessment

Three stakeholder groups are direct beneficiaries of the assessment and development of project management competence. These groups are:

- (1) employing organizations;
- (2) individual project managers and project team members; and
- (3) project management professional associations and through them, the project management profession

Benefits for employers include the value of having qualified staff more able to meet business and organizational goals through the successful management and delivery of projects. Equally, in the global market place, identification, recruitment, development and selection of the best qualified and performing project managers builds on strategies for business effectiveness and competitiveness using an organization's greatest asset, its staff.

Benefit to individual project managers and team members is realized through the opportunities presented as new career pathways that flow from the recognition of qualifications. Additionally, self assessment highlights learning and professional development opportunities that lead to advancement, and increased job satisfaction.

Benefits for the project management professional associations ensure that perception of the value of project management is enhanced through the performance of members. Accountability and public scrutiny make visible the level of expertise held by project personnel. New opportunities and partnerships within and across industry sectors will lead to a wider acceptance of qualifications and provide a place for the on-going revision of qualifications to meet emerging and as yet unidentified applications of project management.

The role and purpose of assessment

Assessment is a process that links learning outcomes, such as effective performance, and learning objectives such as those established in performance standards, in a meaningful way. The term assessment often conveys a measurement or quantification of the outcomes of learning or process of

change. While assessment at times can have that note of finality to mark a completion or 'summing up' of knowledge there are other forms of assessment available. Assessment does sometimes require capturing individual knowledge and skills at a point in time, for example testing knowledge after a training course or undertaking the Project Management Professional (PMP) Exam in order to qualify for professional certification with the Project Management Institute (PMI). It can be more than that. The form of assessment known as summative assessment is often applied at points of entry for employment through testing in job selection, in professional certification, or at the point of exit such as completion of a course of study.

Assessment can also be formative, which means it provides the individual and assessor with on-going information about performance; provides corrective action or revises learning goals in a way that aids the overall development of the learner. This form of assessment occurs formally in the workplace as performance appraisal and informally as peer and supervisor feedback or interaction. Formative assessment is directed toward enhancing the quality of a learning experience, recognition of learner needs and maximizing of outcomes of learning. Examples of formative assessment would include discussion of project team processes or accomplishments; and evaluating and giving specific feedback to an individual who has carried out a task or applied a methodology based on new learning. The assessment will usually be ongoing throughout the period of time during which the learner is engaged in learning and applying the knowledge. In a professional setting it may include working with an assessor over a period of time to gather evidence of practice, produce samples of work and negotiate current and future learning activities needed for professional registration (eg. Australian National Competency Standards for Project Management).

Self assessment is a key element in the repertoire of learning skills and professional development strategies of project managers and team members. As individuals become more aware of their own practice and need for improvement, the ability to seek out new learning opportunities, formal and informal, and to guide and evaluate self learning, is essential.

Each form of assessment contributes to the development and recognition of the project manager's competence. However, self assessment and formative assessment provide the type of on-going support necessary to foster lifelong learning.

Lifelong learning is becoming increasingly important for project management practitioners, operating at the leading edge of technology, who must be able to actively engage in critical thinking and reflection in order to transform existing knowledge, through creative responses and enhanced decision making, to meet new problem situations (Brookfield 1987). This implies that approaches to assessment and development of project management competence should foster lifelong learning in a manner such as that proposed by UNESCO (Candy, Crebert, and O'Leary 1994) so that learning will:

- last the whole life of each individual;
- lead to systematic acquisition, renewal, upgrading and completion of knowledge, skills, and attitudes made necessary by the constantly changing conditions in which people now live;
- have as its ultimate goal promotion of the self-fulfillment of each individual;
- be dependent for its successful implementation on people's increasing ability and motivation to engage in self-directed learning activities; and
- acknowledge the contribution of all available educational influences, including formal, nonformal and informal

The role of standards

If project management competence is to be assessed there must be some measure or standard against which the assessment can be made. These standards or measures also provide guidance for development (Gonczi, Hager, and Athanasou 1993).

Standards have been developed for project management for various purposes. The following standards have been developed to describe the practice of project management, to provide guidelines for those involved in managing projects, to provide commonly accepted definitions of terms and processes; and as a basis for assessment of aspects of project management competence for professional certification or registration:

- A Guide to the Project Management Body of Knowledge (PMBOK™ Guide)(PMI 1996)
- ICB: International Project Management Association (IPMA) Competence Baseline (IPMA 1999)
- Australian National Competency Standards for Project Management (AIPM (Sponsor) 1996)

All three standards are intentionally generic, for use across application areas.

The form of assessment used for these standards is shown in Exhibit 1.

| Standard | Level | Description | Form(s) of assessment |
|---|--------------|--------------------------------------|--|
| PMBOK™ Guide | PMP | Project Management Professional | <ul style="list-style-type: none"> • Multiple choice exam • Record of experience • Record of education |
| ICB: IPMA Competence Baseline | Level A | Programme or Projects Director | <ul style="list-style-type: none"> • Application, self-assessment, project proposal • Project report • Interview |
| | Level B | Project Manager | <ul style="list-style-type: none"> • Application, self-assessment, project proposal • Project report • Interview |
| | Level C | Project Management Professional | <ul style="list-style-type: none"> • Application, project experience, self-assessment • Formal examination with direct questions and intellectual tasks • Interview |
| | Level D | Project Management Practitioner | <ul style="list-style-type: none"> • Application • Formal examination, direct questions and open essays |
| Australian National Competency Standards for Project Management | Level 6 | MPD - Master Project Director | <ul style="list-style-type: none"> • Assessment of portfolio of evidence of competence against Level 6 of the standards by a registered workplace assessor |
| | Level 5 | RegRM – Registered Project Manager | <ul style="list-style-type: none"> • Assessment of portfolio of evidence of competence against Level 6 of the standards by a registered workplace assessor |
| | Level 4 | QPP – Qualified Project Professional | <ul style="list-style-type: none"> • Assessment of portfolio of evidence of competence against Level 6 of the standards by a registered workplace assessor |

Exhibit 1

The International Project Management Association, in describing its professional certification program, specifically states it 'shall be an incentive for the project managers and the members of the project management teams (ie the project management personnel)' (IPMA 1999) to

- Expand and improve their knowledge, experience and personal attitude
- Continue their education
- Improve the quality of project management
- Last but not least – better achieve project objectives

The IPMA program also purports to assess knowledge, experience and personal attitude. The IPMA Competence Baseline, as a basis for assessment, includes a guide to what constitutes the required knowledge and experience for an effective project manager, a taxonomy for identifying the extent of knowledge and experience required at each level of competence and a profile of the personality characteristics and attitudes that are expected in a project manager.

Competency standards, such as the Australian National Competency Standards are specifically designed for recognition of current competence, independent of how that competence has been achieved. They also encourage self assessment, reflection and personal development in order to provide evidence of competence against the performance criteria presented in the standards.

Standards do not, however provide the total solution for assessment and development of project management competence. Firstly, they tend to be based on a static interpretation of past experience. Future directed action, as a basis for continuing professional development of experienced project managers and specialists, presents a challenge for the existing pool of expertise within industry and the professional associations and suggests a need for new partnerships and collaborations with education and training providers.

Secondly, the standards described above are intentionally generic standards and do not capture the complexities and variations of specific project environments. Research (Thamhain 1991; Pettersen 1991; (Einsiedel 1987) has shown that apart from generic project management skills and knowledge, project managers, to be effective, need knowledge and understanding of

- The technology of the project or project application area
- The organisation or organisations in which the project is located
- The market in which the organisation or organisations are operating

Thirdly, with the exception of the IPMA Competence Baseline, the standards do not directly address the personality characteristics of project managers, although research (Thamhain 1991; Pettersen 1991; Einsiedel 1987; Posner 1987; Gadenken and Cullen 1990; (Gadenken 1991) repeatedly highlights the importance of interpersonal skills, communication and other personality driven characteristics as factors in effective project management performance.

Project management standards, and associated certification programs, developed primarily by the project management professional associations, provide an important component in the assessment and development of project management competence, but their application must be contextualised if the potential benefits of assessment and ongoing development are to be realised.

Implications from project management competence research

Research conducted at the University of Technology, Sydney, in collaboration with industry and professional associations, since 1997, provides insights that can assist organizations, individuals and professional associations as they work with project management standards and the complexities of different project environments in assessing and developing project management competence.

This research includes data relating to the educational background, project management knowledge, practices, personal competences and project environment characteristics of 390 project personnel, from four countries.

Importance of background

Based on this research sample, over 73% (n=291) of project personnel have a first degree, and of these, nearly 20% have a Masters degree. Less than 3% of project personnel in the sample report no tertiary education. Just under 50% (n=269) have degrees in engineering, with the next most popular base disciplines being design and construction (17.5%) and business (14.9%). Formal degree qualifications in project management are rare and the numbers in the sample reporting the holding of such qualifications is insignificant. Only 12.4% (n=340) of the sample report holding any form of Project Management certification or registration.

So, project personnel are largely well educated and according to the results from the Caliper profile, used in our research project, they have higher levels of abstract reasoning than the general population. They have a primary discipline, which is not project management, and very few of them have any form of formal project management qualifications or professional certification. Despite this lack of formal recognition of project management competence, over 80% (n=292) of the project personnel in this sample have more than six years experience in project management. These demographics have clear implications for assessment and development of project management competence. There is considerable scope for assessment and recognition of current competence, gained through experience, and for development and formalisation of project management competence through ongoing professional development

This presents another interesting aspect of the profile of project personnel. Although the majority are well educated, and have been working in project management for six years or more, they do not, on the whole, seek formal opportunities for professional development. Only 12.4% (n=340) have sought and gained any form of professional accreditation in project management. Just over 50% (n=291) have participated in any form of project management continuing professional education in the last six years. 23% (n=388) report that they have some form of involvement in project management professional associations; 15.2% (n=388) have involvement in non-project management professional associations; and 24.7% (n=388) report spending a minimum of five hours at project management conferences in the last year.

These findings are consistent with those of Thamhain (1991), who reported that in a study of 220 project managers, 27% of project managers spent an average of 2.5 days each year at conferences, trade shows and professional society meetings and only 33% participated in seminars and workshops. Thamhain further identified that the two most popular modes of skill development were experiential learning (65%) and observations of management practice (20%). Evidence therefore suggests that if project personnel are engaging in professional development in project management, such engagement is primarily informal, and occurs in workplace settings.

Importance of Context

Against this background, the knowledge and practices of the project personnel in our study were assessed against the PMBOK™ Guide and the Australian National Competency Standards for Project Management. Results for the 390 project personnel showed no significant differences for core project management knowledge and practice areas of scope, time and cost, regardless of country or application area (Crawford 1998) suggesting that standards for these core areas can be used as a basis for assessment, independent of differences in project environment. Results for human resource management, communications, risk, procurement and to a lesser extent, quality were sufficiently different according to country and/ or application area to suggest that assessment of skills and knowledge in these areas may need to be modified to take account of differences in the project environment.

Just as the standards move from novice to proficient to expert, competence moves from established practices based on skills within a concrete environment to less well established notions of personal capacity working within a more abstract environment. Our research indicates that 27.6% (n=377) of project management personnel operate in an environment where projects are both similar to one another and well defined. In such environments, established standards provide an appropriate basis for assessment and the work environment is a suitable arena for learning. However, 34.2% of project managers operate in an environment where projects are both ill defined and dissimilar from one other. Standards do not adequately capture the personal competence required to deal with the complexity of such environments and other forms of assessment and development, beyond the workplace, will be required.

Frame (1995) suggests that projects are conducted in a complex environment but that the skills of project management can be learned systematically. He describes learning as falling into two areas. The first, learning to avoid failure by recognizing the pitfalls and obstacles, will be more readily achieved in environments where projects are similar and well defined. Standards have drawn on the experience of practitioners to provide principles, tools and techniques of project management to assist in these circumstances. Such standards and guideposts will be less useful in the second area of learning identified by Frame, which he describes as learning to manage for success.

While the existing project management bodies of knowledge establish methodologies to assist with the avoidance of obstacles, managing for success draws on the greater personal competence of project managers, in particular their ability to interpret the project environmental factors likely to impact on the delivery of a successful project.

Several frameworks for professional development are available to support ongoing professional development. One framework offering diversity in both approach and outcome was outlined by Cheetham and Chivers (1996, 1998). This approach draws heavily on Schon's (1991) notion of the reflective practitioner and in doing so highlights the importance of the individual project management practitioner's personal competences or abilities in making judgements about the application of theoretical knowledge and practices. This model identifies aspects of learning which often fall outside the competence framework, and rely more on the tacit knowledge developed as expertise and problem solving. Individual project managers have the opportunity to use critical reflection and peer evaluation as a technology of learning within everyday practice.

Conclusions

Project management standards provide a starting point and important signposts for the assessment and development of project management competence. Our research suggests that generic project management standards have greater application as a basis for assessment and development in core project management areas of scope, time and cost and in less complex project environments. Variations in organizational context, application area and culture will demand different levels and kinds of competence in domains of quality, human resources, communications, risk and procurement.

Employing organizations have a responsibility to identify the specific competences required to successfully deliver projects in the context of their corporate structure and culture, the technology and application area of the project, and the market or markets in which the business operates. It is in the best interests of employing organizations to supplement standards and certification programs offered by professional associations, with assessment and development programs relating to the specific competences required for success in their corporate environment.

Individuals have a responsibility to develop an awareness and capacity for self assessment of their own practice, to seek opportunities for development, and to engage in organizational and professional development activities that enhance their own competence, to contribute to successful project performance and to the ongoing development of the profession.

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