

Project Manager Competence: Putting the PMBOK to Work

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Introduction

Work in organizations at the end of the 20th Century is increasingly about managing change. Project Management is the management of change and as such, will be the primary management paradigm of the 21st Century. In the transition to project based management each industry, organization, professional discipline and individual must cast off the shackles of a lifetime of accepted functional barriers, traditional roles and processes. As each project is unique, so is the experience of each organization as it embraces the project management approach. Organizations and individuals need all the help they can get to meet these challenges. The PMI's PMBOK provides a readily accessible and widely accepted guide map for explorers in this new territory.

This paper describes the forces which are driving the transition to project based management and the ways in which two quite different organizations are using the PMBOK to guide them on their journey.

Background

Industrial Revolution - Industrial Management

The principles and practice of General or Industrial Management have developed since the late 19th Century, initially in response to the changing nature of business, organizations and volume of production made possible by the Industrial Revolution.

Encouraged by management theorists who proposed principles (Kast et al, 1985) such as

- Division of work - the principle of specialization of labor to increase efficiency
- Authority and responsibility - the authority to give orders and the right to exact obedience
- Unity of command - an employee should receive orders from one superior only

Organizations were departmentalized by purpose, process, and place. The functionally specialized organization had arrived.

Big organizations were regarded as beautiful and were generally based on a single clearly delineated technology such as organic chemistry or telecommunications. Delineation by technology applied also to education and the development of professional disciplines such as civil engineering, accounting, medicine, and management. The result was a segmentation of industries, technologies, disciplines and organizations. Presiding over this segmentation was an army of managers, middle managers and centralized bureaucracies. Functionalism was cherished even in organizations where power was held in the hands of one or a few top managers. As Moss Kanter (1983) describes, chief executives craving stability could divide and rule.

Communication Technology Revolution— Project Management

As the Industrial Revolution changed the nature of business and the form of organizations a hundred years ago, the Communication Technology Revolution is changing it again. The predominant 20th Century management paradigms no longer work. As Drucker says:

“technologies are no longer discrete. They overlap and criss-cross each other. No industry or company can be fed out of one technological stream. However brilliant its work even AT&T's magnificent Bell Labs can no longer supply everything the telecommunications industry needs” (Drucker, 1992).

Communications Technology is making different, more flexible ways of doing business both possible and necessary for survival. Organizations and individuals are being forced to deal with uncertainty and ambiguity. The walls built up between industries, organizations and professional disciplines are being pulled down and broken up and replaced by strategic alliances and joint ventures, diversification, multi-skilled professionals, multi-disciplinary teams ... and project based management.

For the better part of this century, management of organizations developed with stability as an assumption and continuity as a primary goal. Project management assumes a dynamic environment and has discontinuity as a basic premise. Randolph and Posner (1988) place project management at the heart of competitive advantage:

“Projects are the lifeblood of innovation, and today’s managers must create innovation in order to compete in a changing world.”

As organizations break down their operations and identify them as ‘projects’, many of the disappearing middle managers are being replaced by project managers, often with technical rather than general management backgrounds, who are being asked to coordinate multi-disciplinary teams over whom they may have no formal authority. As Hastings (1993) writes:

“It is a relative luxury for an individual to be assigned full time to a project team. Most people are members of several project groups or clusters. In addition, they may have line, operational or process responsibilities of a routine nature.”

Recognizing or creating the Role of the Project Manager

Modern project management is generally considered to have emerged in the 1950’s. Bechtel (1989) claims to have first used the term Project Manager for an individual assigned considerable responsibility when working with a self-contained autonomous team in remote locations. The organization first functioned as project manager on the 1951-53 Transmountain Oil Pipeline in Canada in 1951-53. During the 1950’s and 60’s project management developed primarily in construction, defense and aerospace industries developing a distinctive terminology, approach, tools and techniques.

As early as the 1960’s, Lawrence and Lorsch (1967) found that the most effective functionally differentiated organizations devoted more effort than their competitors to integrating the various functions. Wherever processes crossed functional boundaries, integrators (human, structural, paper-based and rule-based) were needed to keep the parts moving in harmony for the greater good. Although not recognized formally as project management, successful organizations were recognizing the role of an integrator, a project manager by role, if not at that time by title, in the functional organization.

In the 1970’s project management became a discipline in its own right with its own professional associations. By the start of the 1980’s project management was recognized as having a role outside the traditional project based industries and was being applied in *“virtually all industries including defense, construction, pharmaceuticals, chemicals, banking, accounting, advertising, law, state and government agencies, and the United Nations”* (Kerzner, 1979). The major change of the 1990’s for project management is the move by whole organizations from managing some of their initiatives as projects to managing whole organizations by projects.

Matching Project Manager Competence to the Project Manager Role

While organizations are moving towards management by projects they do not necessarily understand the principles of project management. This is understandable in an emerging profession where few people have educational qualifications in project management. Where courses are available they are generally commercial or in-house short courses or post graduate qualifications at Universities.

A majority of people given the title of ‘project manager’ today do not have the role of the project manager envisaged by Bechtel in the early 1950’s - single point responsibility and full authority commensurate with responsibility to deliver the project objectives. Neither do the majority of these ‘project manager’s have any training in project management and therefore access to the wealth of knowledge and experience which has been developed by the growing Project Management profession over the last 40 years. This is where the PMI’s Project Management Body of Knowledge (PMBOK) comes into play. Along with the work of other Project Management Professional organizations such as the Australian Institute of Project Management which has developed Competency Standards for Project Management which directly complement the PMBOK, and the International Project Management Association which is developing a European BOK, the PMBOK makes a tested and widely accepted project management approach accessible to all organizations and individuals worldwide.

A key advantage of using the PMBOK as framework is that it is a benchmark for external trainers, courses and consultants to ascertain whether they are mainstream Project Management in their approach. Ono (1995) at AT&T used the PMBOK as a basis for Project Management training and education. *“While several courses developed basic skills applicable to project management, the courses were either too general ... or too mired in the details of existing policies and procedures.”* AT&T wanted a professional certification external to AT&T but not an academic qualification (which it saw as too expensive and time consuming).

The balance of this paper will describe the real life experiences of organizations embracing a project management approach and using the PMBOK as a guide to assist them in developing the project management competence of their organization, its teams and individuals.

Case Studies

Private Sector Retail Organisation

Although organized along traditional functional lines, the private sector retail organization is increasingly recognizing and managing activities as projects. This includes the opening of new stores and warehouses, new marketing ventures such as overseas expansion and the installation of new systems. The projects involve various Departments and project teams comprise representatives of these Departments. Members of project teams are expected to continue with their 'normal' work while participating as a project team member. Approximately one third of all management staff are currently working on one or more projects, in some cases more than four projects, simultaneously. They are serving as members of Steering Committees, Sponsors, Project Managers and members of project teams.

Audits of projects identified that despite apparent success of the "well, we did it, damn it" variety, there was need for improvement in project performance. A survey of staff involved in projects, following the 9 PMBOK units, indicated that there was a low level of understanding of the principles of project management. Significantly such awareness was higher amongst the traditionally more project based Property Division and the Information Systems division, where Project Management methodologies have become an important aspect of information technology projects. Areas identified in the survey as requiring most improvement were:

- Project Cost Management
- Project Risk Management
- Project Human Resource Management
- Project Communications Management

A major concern of respondents was that people assigned to a project do not have sufficient time to carry out project tasks instead of or in addition to their operational tasks. Priorities for projects were not set. There was no 'project slate' giving an overview of all the major initiatives and with an increasing pace of innovation the risk grew greater that projects would impact adversely on each other.

The difficulties for individuals in managing dual project and functional or operational responsibilities in organizations of this nature moving towards project based management is supported by experience of the authors in working with similar organizations. The issue of priorities, particularly on internal projects is also a problem encountered elsewhere. One financial institution (Lee, 1996) has a developed an organization wide, top management

driven, project priority allocation system in an attempt to deal with competing project priorities.

It is interesting that survey results indicated that projects within the organization are formally recognized as such through authorization and top management commitment. However, a major audit finding is that there is a power vacuum left in the project structure by the lack of one single point of accountability and authority to deliver: an independent project manager. An excellent example of this are some comments from project team members reported in a Post Implementation Review:

'Jim Bennett was the project manager and he managed the project well.'

'Jim Bennett was not the project manager. There was no real project manager. Everyone saw the project from his/her own divisional perspective.'

'Either Jim Bennett was the project manager or he was the Project Sponsor.'

'The other project managers were John Baker and Bill Brady. Don Bryant was co-sponsor and consultant.'

'Jim Bennett was not the project manager but the sponsor. If there was a project manager at all it was John Baker.'

'John Baker was the project manager. Jim Bennett was the project sponsor.'

'Project integration was achieved through the big meeting which all had to attend.'

Since this survey, the organization has started to recognize the need for the project manager as a full time and clearly designated role. Jim Bennett is now sponsor of a major warehouse construction and transfer of operations and he has, with relief, appointed a full time fully trained project manager to integrate his internal and external suppliers.

Project scope management was also reported as relatively good in the survey but this result is contradicted by results of post implementation reviews which indicate a tendency to scope contraction (requirements being cut back) as projects race to meet deadlines.

Although survey results indicated that perhaps a third of projects have no formal **time management**, they also indicated a perceived strength in completion of projects on time. This can perhaps be explained by the culture of the organization which prides itself on meeting deadlines. In projects this is often achieved at the expense of scope, quality and cost. The last, particularly the cost of in house labor, is not measured except in Information Systems projects.

The general response on **quality management** was of satisfaction, but strength in managing quality is counter

intuitive since the organization does not have a system for setting standards for the products of its projects.

The organization has used this survey to set a baseline and has developed a 'Project Management Approach' directly tailored to the needs of the organization but based on the PMBOK. The approach will be provided to all staff and supported by training to develop a common project management 'language' throughout the organization, improve the PM competence of individuals and the PM performance of the organization. Another survey will be conducted in 18 months to check the effectiveness of this strategy.

In the meantime, as awareness of project management is raised, changes are beginning to take place:

Project Human Resource Management: the release of a resource to a project is being recognized as meaning either routine work will not be done or a replacement resource will be needed to cover the time diverted to the project.

Project Cost Management: new financial systems are being introduced which will for the first time allow easy compilation of project (not just capital OR revenue) budgets.

Project Communications Management: gradual acceptance of new reporting processes to streamline communication of project specifications and progress.

Project Risk Management: methods suggested in the PMBOK have been willingly accepted by managers who feared risks but previously had no idea of how to manage them.

Above all there has been a change from the previous perception of many in the organization that Project Management is solely Gantt Charts and MSPProject. There has been a recognition that most of the management population needs education and a smaller number needs training.

Government Transport Authority

With a high percentage of civil and railway engineers, it could be expected that this organization would have a more highly developed understanding of project management principles than the retail organization described above. Engineering is a traditionally project based discipline but it is interesting to observe that education and practice in such disciplines seems to concentrate more on design and general management and on management within a single discipline than on project management in a multi-disciplinary, multi-project environment.

This organization needed to improve the performance of its projects in order to survive corporatization. A project management training program, covering the 9 PMBOK units was organized for delivery and accreditation through the University of Technology, Sydney. Groups of

20 participants, all senior 'project' managers work in teams of 5 on real workplace projects over a 6 month period, reporting both to academic staff and their own management. They are simultaneously learning and applying project management principles, tools and techniques. (For a more detailed explanation of this academic / industry process refer Crawford, 1996.)

As this is a project based organization, the project managers are not expected, as their retail organization counterparts, to work on one to five projects part time while still carrying out an operational role. They are normally required to work on only one project at a time, possibly two projects where one is starting and another beginning. They do find difficulty adding the training program project to their agenda. The primary difficulties they encounter as practicing project managers are:

- lack of authority commensurate with responsibility;
- lack of clarity of objectives;
- lack of common project management terminology (few participants know what WBS stands for at the start of the program);
- lack of user friendly reporting and control tools, particularly cost, which roll up for management reporting purposes;
- lack of control over project initiation and resourcing
- probity issues which stifle initiative and innovation

All participants of the current and previous programs are being issued, by their organization, with copies of the PMI *A Guide to the Project Management Body of Knowledge*.

As part of a previous program, participants worked with a consultant to develop an organization specific Project Management Manual. The Authority has an audited Quality Management System and the Project Management Manual, which is consistent in terminology with the PMBOK, forms part of this System. As they developed the manual, participants worked, as teams, to review current practices against relevant project management practices and to draft or redraft the guidelines for project managers within their organization (Crawford and Price, 1996).

An interesting contrast with the retail organization is that while the retail organization has adopted a flexible 'Project Management Approach' which can be applied to a wide range of project types and sizes the transport authority's 'Project Management Manual' is highly project type, industry and technology specific, providing considerable detail on particular industry specific processes and standards.

Table A. Organizational Factors

| | Private Sector Retail Organization | Government Transport Authority |
|-------------------------------------|---|---|
| Organizational form | Functionally Based | Industry Specific Project Based |
| Internal organizational environment | Relatively stable | Volatile; currently being corporatized; 4 restructures in 2 years |
| Organizational objectives | Very clear; profit and share price driven | Not clear; subject to political whim |

Table B. The Project Manager

| | Private Sector Retail Organization | Government Transport Authority |
|--|--|--|
| Role of the project manager | Part time project role simultaneous with functional role: one to five projects at a time | Full time project role: one or two projects at a time |
| Educational background of project managers | Relatively few managers educated to degree standard; general management background | Majority of project managers degree qualified in technical disciplines, primarily engineering |
| Approaches to development of project management competence | Learning conducted through facilitators on the job | Conscious learning; issued contract to academic institutions to run accredited project management training |

Case Study Comparison

The two case studies given here provide a revealing comparison of:

- organizational form
- internal organizational environment
- organizational objectives
- role of the project manager
- educational background of project managers
- approaches to development of project management competence
- problems encountered in management of projects
- responses to problems encountered in management of projects
- use of the PMBOK

Conclusions

Project Management is the emerging management paradigm for the 21st Century. It provides a generic framework which copes with discontinuity in a dynamic environment across industries, technologies and disciplines. Its trained practitioners bring a mindset that is all embracing in contrast to myopic functionalism.

Organizations are recognizing the value and embracing the idea of project management but the majority of man-

agers and operatives being asked to adopt the project management approach are not familiar with what it really involves.

The PMBOK provides a common understanding, an accessible reference and a sound basis for development of project manager competence and a new breed of manager. Its very comprehensiveness and logical structure is a relief to general managers in organizations confused by the technical jargon of project management. In the words of Barnes (1990): “*perhaps when project management is fully recognized and all management training includes project management, general management will disappear and all managers will be project managers. Or perhaps all project managers will be general managers.*”

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Table C. Project Problems and Responses

| | Private Sector Retail Organization | Government Transport Authority |
|--|---|---|
| Problems encountered in management of projects | <ul style="list-style-type: none"> • Poor briefing for projects by sponsors • Lack of project management awareness, tools and techniques • No prioritization of projects • Projects under-resourced • Project involvement a “spare” time activity • People assigned to projects have insufficient time for project tasks as well as operational tasks • Project roles and responsibilities not clearly designated • Scope, cost and quality sacrificed to meet deadlines • Time control methods not used • No defined quality standards for products of projects • Procurement Policy only recently introduced • Internal human resource costs not recorded or managed • Majority of projects do not have budget against which actual costs are monitored • Majority of project team members stay with project to completion Lack of formal risk management | <ul style="list-style-type: none"> • <i>Poor briefing for projects by management, clients, sponsors</i> • <i>Lack of common understanding and use of project management terms, tools and techniques</i> • <i>Project priorities changed by management and political intervention</i> • <i>Project roles and responsibilities based on traditional position in hierarchy not an accurate reflection</i> • <i>MS Project and Primavera used for time planning but only used for control on few projects</i> • <i>Audited Quality Management System</i> • <i>Procurement procedures rigidly followed for reasons of probity - often stifling to innovation</i> • <i>Tradition of job costing based on person hours</i> • <i>All projects have approved budgets</i> • <i>No project cost management system in place</i> • <i>Project team members rarely stay with project to completion due to transfers, corporate restructuring, re-allocation, varying staffing needs throughout project life cycle etc.</i> • <i>Risk management essential on projects over \$5million</i> • <i>Regular corporate restructuring and political intervention has reduced morale</i> • <i>Project Managers feel prevented by system from taking full control of projects</i> • <i>Project personnel skilled technically but lacking in strategic, multi-disciplinary and interpersonal PM skills</i> |
| Response to problems encountered in management of projects <i>of</i> <i>Reporting</i> <i>these</i> | <ul style="list-style-type: none"> • Project management problems identified through project audits • Survey of staff to map current project management practice (November 1995) • “Project Management Approach” document developed • Systems for Project Budgeting being introduced • New reporting procedures to streamline communications • PMBOK risk management methods being embraced by managers | <ul style="list-style-type: none"> • <i>Development of Project Manager competence through tailored, University based education and training program providing credit towards recognized Project Management qualification</i> • <i>Interpersonal and team skills developed as part of this program as participants work in teams</i> • <i>Uniform System; Project Scheduling System; Cost Management System;</i> • <i>Uniform WBS Coding System and Project Management Manual developed as part of the Project Management education and training program.</i> • <i>None of systems yet available for use by Project Managers due to corporate restructurings and bureaucratic barriers. The Project Managers struggle on as best they can.</i> |
| Use of PMBOK | Developed “Project Management Approach” document reflecting PMBOK | <i>Developed detailed and technically specific “Project Management Manual” as part of audited Quality Management System consistent with PMBOK; issued copy of A Guide to the PMBOK to all participants in Project Management Training Program</i> |

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