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ADVANCING PROJECT MANAGEMENT IN LEARNING ORGANIZATIONS

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This paper expands and substantially elaborates upon ideas discussed in a paper presented in Moscow in 2003.
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Tapping into the power lines – a 3rd dimension of project management beyond leading and managing,
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Introduction

Traditional project management skills were developed from the requirements of construction and defence industries to plan, control and manage large, complex "tangible" projects (Morris, 1994). From these industries arose the so-called "hard" concepts of project success criteria in the form of controlling and managing schedule, cost and scope. Project management can also be seen as being about managing change (Cleland, 1995), and therefore project managers should consider themselves as change agents adding to the PM role an additional focus on the so-called "soft" aspects of relationship management. The relationship management role is particularly relevant when considering non-traditional, non-construction projects delivering "intangible" results, such as those in the sphere of ICT or business process change.

In most organizations, project managers are accountable for the successful delivery of complete projects. Increasingly, this success depends on project managers' possessing and utilising skills and competencies that may initially appear contradictory. One of the central themes of this paper is that a successful project manager must demonstrate flexibility and competency in many areas – "hard" and "soft" skills, introverted and reflective, extroverted and social behaviours. Until recently, many of the initiatives for improving the practice and profession of project management have been focussed upon enhancing techniques and methods associated with skills that included effective management of time, cost, and scope. The Project Management Institute's (PMI) Guide to the PM Body of Knowledge (PMBOK) tends to be primarily concerned with management competencies (craft) and the "hard" skills expected of practicing project management professionals with knowledge areas such as project human resource management and project communication management (the essential relationship-focussed areas) relegated to secondary (and less important) roles (PMI, 2000).

Relationship management skills are vital for achieving project outcomes that fully address stakeholder expectations throughout the project lifecycle. Relationship skills are required to aid the effective application of hard skills – it is people, using knowledge, creativity (and often technology) that realise projects not techniques or hardware.

"Tapping into the power lines" – the concept of a set of skills and experience additional to those discussed above – is explored in this paper. We argue that these special skills and competencies focus upon both understanding the nature of the power source that drives large, complex organizations, and knowing how to harness this energy effectively for project success. "Tapping into the power lines" requires "wisdom" and "know-how" to make sense out of complex, fragmented and often confusing alliances of power, influence and resource availability, coupled with the willingness to engage with those powerful and influential stakeholders who have been identified by the project manager as being essential to his/her project's success.

Project management does not occur in a vacuum. It requires an infusion of enthusiasm and commitment supported by the full range of project stakeholder energy sources, "tapped" much like connecting to an energy grid. The key for project success is to know how and when to connect to this organizational grid and to identify who the key connectors (stakeholders) are. Without attention to the needs and expectations of a diverse range of project stakeholders, a project will probably not be regarded as successful even if the project manager was able to deliver within the original (or agreed) time, budget and scope.

Acquiring the necessary wisdom and know-how for operating within this organizational grid usually comes with experience: from years of an individual learning from mistakes (and successes) throughout a long career of managing projects. It is in the organization's interest to attempt to reduce this learning curve.

This paper is structured as follows. We start with a brief review of the three dimensions of skills required of a project manager. We then present and substantiate our argument that these skills are essential for project success. We conclude the paper with some observations of our own about advancing project management and the successful delivery of projects in large organizations through programs and initiatives designed to assist both the project manager and the learning organization. This paper is essentially theoretical in nature as we are proposing a way in which project managers can facilitate improving project management performance and learning organizations can support them. It is part of a continuing study that forms the basis for a doctoral thesis of one of the authors[1]. Areas of further research are explored in a later section of this paper. We believe that this paper contributes to the project management body of knowledge by initiating and facilitating discussion on an important aspect of the project manager's inventory of skills and competencies and the part the learning organization can play in this endeavour.

A three dimensional model of project management

Briner et al. (1996) defined a framework of six directions of which a "project leader" must be aware, to control the project's deliverables and manage a project's stakeholders successfully. Weaver and Bourne (2002) describe a seven-element framework as the network or "sphere of influence and support" on which a project depends for its very existence. This concept was further developed by Bourne and Walker (2003) as a framework of project management focus and influence to be addressed for project success.

Figure 1 represents this framework. The project manager must manage the processes to develop plans, schedules, reports, lessons learnt and forecasts that will serve as communication devices to everyone who has an interest. This is dimension 1, looking forwards and backwards: it is predominately a skill-set relying upon techniques that value certainty and abhor ambiguity in monitoring and controlling projects.

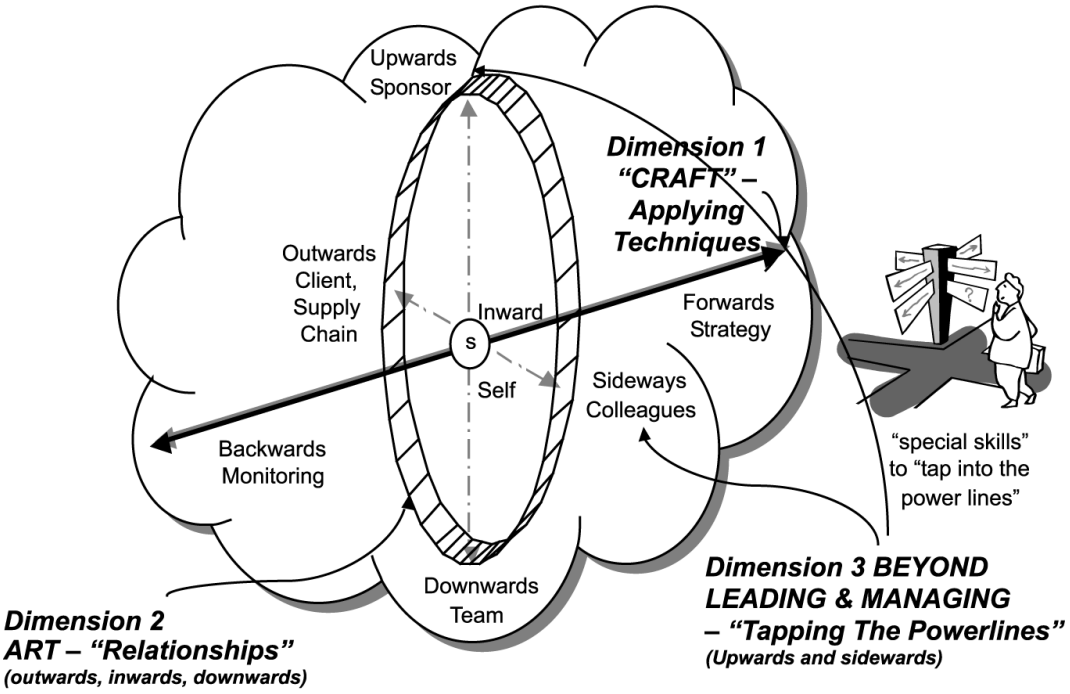


Figure 1, dimensions of project influence

[1] Published thesis see: ***Project Relationship Management and the Stakeholder Circle®***: http://www.mosaicprojects.com.au/Resources_Papers_021.html

Looking outwards, managing the needs of clients, suppliers and clients, requires a mix of management and leadership skills. Looking downwards, requires considerable leadership skills to motivate followers and ensure all team members have their needs and wants satisfied. The project manager must also manage him/herself, from the point of view of personal discipline, but also from the point of view of having needs and wants that must also be met through successful completion of the project. Looking inwards, outwards and downwards (and some limited examples of upwards) are dimension 2 skills. Managing upwards to the obvious set of senior management stakeholders is generally considered to be part of dimension 2.

Project relationships can be best defined by the relationships between the project manager and the project stakeholders. These relationships focus on how different stakeholders – including senior management, project team members, users – have different expectations of the project and different definitions of success and also require different methods of management.

Recent management leadership literature abounds with examples of the changing attitude to relationship management skills. One example is the fourth blueprint model described by Limerick et al. (1998, p. 41) in which they describe a more inclusive, reflexive, and collaborative focus towards empowering and motivating people to perform. The essential features of this blueprint for working include:

- high levels of social, economic and technological discontinuity;
- loosely coupled systems that are chunked together;
- synergies and alliances through virtual organizations of people often linked together through ICT groupware applications;
- collaborative individualism where people work on their own initiative;
- social responsibility and sustainability;
- holism to contribute to the whole in achieving a project's vision.

This blueprint model describes the context in which the third dimension properties of project management reside.

Dimension 3 in Figure 1 focuses on satisfying the needs and wants of a project's most influential stakeholders, including the project manager's senior management stakeholders and his/her peers. "Third dimension" skills – looking sidewards and upwards – are the focus of this paper. Examples of three case studies illustrated in Bourne and Walker (2003), one a large-scale civil engineering project and two IT related projects, indicate that without attention to the (often conflicting) needs and expectations of all project stakeholders, projects will probably not be regarded as successful even if that project manager was able to deliver within the original time, budget and scope.

Projects are affected by both the "hidden agendas" and the overt actions of people or groups referred to earlier in this paper as being third dimension project stakeholders. This group extends well beyond the more readily recognised traditional stakeholder groups. In large complex organizations, understanding the power structures and using them to influence project outcomes is often understood as "politics". Awareness of the need, and the ability to manage different types of stakeholders and their "how, why and when" issues so that these needs might be best addressed is an essential part of a successful project manager's toolkit. To illustrate our ideas, we have chosen three case studies to support relevance of assertions resulting from our review of the literature and our observations as project managers over many years.

Three case studies and supporting research

The data that forms the basis for ideas explored in this paper have been derived from three case studies developed from the experiences of candidates of the RMIT, Australia, Doctor of Project Management (DPM) program. This data was collected through extensive formal and informal discussions conducted over two semesters (eight months) of the DPM program and were drawn from these project managers, all of whom have several decades of experience as project managers to reflect upon. Thus, qualitative data was gathered based upon a process of deep reflection of likely cause and effect loops of actions taken by these project managers and actions that perhaps should have been taken. The data is further supported by research findings from Crawford and Da Ros (2002), who conducted quantitative and qualitative research into the impacts of organizational politics on the outcomes of projects, and the importance of the development of political skills for project personnel, particularly the project manager. The starting point of this research was that project success depends on the positive perceptions of project outcomes of key people as well as on positive schedule and budget performance. This then leads to the conclusion that "the concept of project success . . . appears to be, of itself, inherently political" (Crawford and Da Ros, 2002, p. 20).

The Crawford and Da Ros (2002) research was designed to investigate the relationship between organizational politics and the perceived outcomes of projects. The study focussed on projects conducted within and between large organizations. Using quantitative (questionnaire) data and case studies (interviews), their findings supported the following:

- There is strong correlation between organizational politics and acquisition of project resources.
- The ability of the project manager to make effective use of organization politics contributed significantly to project success.

The qualitative survey did reveal difficulties in assessing how political influences affect the perceived outcomes of projects, due to inconsistencies of definition of clear measures of project success.

Pinto (2000) makes a useful supporting contribution through his research focus on behaviours and competencies that project managers can use to make organizational politics work for project success. He maintains, "political behaviour, sometimes defined as any process by which individual and groups seek, acquire and maintain power, is pervasive in modern corporations" (Pinto, 2000, p. 86). This behaviour is important for a project manager to acquire because:

- Project managers do not always have a "stable base of power" but must "cultivate other methods of influence" to secure the resources necessary for their project to succeed.
- These projects often exist outside the "traditional line (functional) structure". Access to resources (financial, human, material and informational) must be negotiated.
- Project managers are not typically assigned the authority or status to manage their team members, who will still be organizationally attached to functional groups elsewhere in the organization. At best these members will be "loaned" to the project and may have roles on multiple projects. Ensuring the best performance from these team members is therefore based on leadership qualities and the ability to manage conflict and the competing claims on their project resources.

Pinto (2000) quotes research that demonstrates that, while managers recognise the necessity to work within the organization's political framework, many of them find it distasteful. He characterises political behaviour into three categories:

(1) "Shark" – manipulative, self-serving and predatory – the "used car salesman".

(2) "Naive" – politics is unpleasant and to be avoided at all costs – the "beginner".

(3) "Sensible" – politics is necessary; negotiation and networking are essential tools for project success (Pinto, 2000, p. 88).

Each of the contributors to the DPM case studies discussed in this paper has several decades of relevant project management experience to draw upon, and we argue that their reflection on theory and practice as a result of this experience contributes significantly to the project management body of knowledge. Two of the project case studies reflected on information technology (IT) projects in large Australian organizations, one a medium-budget infrastructure development project and the other a much higher-budget project aimed at increasing the organization's revenue through innovative technological support for the sales force. The third project case was based on one of the joint ventures formed for the construction of a major component of the Hong Kong airport project, with a very high budget. Despite the apparent diversity of the three case studies, there were many similarities. These similarities are best defined by the lessons learned from the projects. The lessons include the need to focus on relationship building skills as well as the skills required for risk minimisation through measurement and control. Other lessons include:

- the importance of defining and maintaining the project vision;
- the effect that stakeholders had on the project outcomes; and
- the part that a project manager's knowledge, experience, personal style and management preferences played in project success.

Case study 1 was established within the Internet service provider section of a large Australian utility company to automate aspects of registration and renewal of domain names and to provide IT support for the capture of issues and tracking of resolution activities. Although this project was initiated to reduce the likelihood of legal issues for the company and promote the concept of social performance, it was viewed as an "easy" project and a novice (inexperienced, junior) project manager was assigned. Many of the assumptions at project start-up were false, there was conflict of interest within the stakeholder group and a second project manager with more experience, but not enough to unravel the stakeholder issues replaced the first project manager. The project was completed, but it went over time, over budget, and did not meet stakeholder expectations. Both project managers described their experiences as "extremely stressful".

Case study 2 formed part of the Hong Kong airport construction project. It was to be delivered by a set of joint ventures and strategic alliances comprising partners representing many countries and cultures. This project was to be completed in six months and appeared to be a straightforward construction project. However the Australian project manager had never worked on a project in Asia before. He was competent in managing the "hard" criteria of time, cost, quality and scope, but had never needed to develop skills and experience in managing relationships in a multicultural environment (Hofstede, 1991; Trompenaars, 1993). The project did deliver the required scope, on time and within budget. However, even after eight years had passed, the project manager still described that assignment as his "worst ever".

In case study 3, the project manager was assigned to the complex, multi-vendor, highly visibility project that was exhibiting lack of cohesion, lack of leadership and schedule and budget overruns. Once again, this was a stressful experience for the project manager, who had a reputation for successfully bringing projects such as these to order. Progress on the project had been stalled, with conflicts arising from cultural misunderstandings between the major delivery groups – one group of "staff" business analysts, one group of technical contractors and one group from a high-tech company with clear visions and methods (Cusumano and Selby, 1995). One source of conflict was that the clear visions and methods of this third group did not match the vision and methods of the other two groups or the vision and methods of the project. There was no clear leadership, with four project managers attempting to implement what each believed was the best outcome through the best means. This situation was finally resolved when senior stakeholders decided to support the methods and vision of the group who had been most successful at managing the expectations and needs of the influential stakeholders. Eventually the project did deliver to the satisfaction of the users, but in a much longer timeframe, higher cost and with a significantly reduced scope.

Analysis and discussion of the case studies

Table I incorporates the third dimension awareness as well as the appropriate skills and knowledge that a project manager must have in managing the project environment. We use the term third dimension of project management to describe the "ability to read the power structures of the organization". We have used this term rather than "politics" because it moves beyond any negative connotations applied to this activity in an organizational context to recognise and absorb important tacit "how to influence and shape events" knowledge. Along with the ability to read the power structures must come the knowledge, experience and art (wisdom and know-how) necessary to act effectively for project success (Cleland, 1995; Pinto, 1998; Peled, 2000).

The third dimension	Hard criteria: "the what"	Soft criteria: "the how"	PM skills and knowledge
In the open Declared, visible, openly discussed by stakeholder	Performance specs, time and cost, contractual terms and conditions, delivery terms, quality	How to control project, review meetings procedures to use if it goes wrong, how communication is to take place	PMBOK tools and techniques, clearly defined as part of PM craft
Under the table Withheld deliberately, undeclared by oversight, or not usually discussed, but very influential	"Real" budget constraints that are arising or foreseeable, e.g. delivery dates, resources available	Political concerns, "don't rock the boat" or "if anything goes wrong you are on your own", "hidden agenda"	A combination of craft (tools and techniques) and art (experience, knowledge and leadership skills)
May emerge Unknown by both parties, but should be dealt with positively when they emerge	New options arise from practical events and experience, the unexpected enforces different constraints, "acts of God" crisis	Risks too large for the client personally, outcomes from joint participant days of problem-solving	Art of negotiation, problem-solving, combined with PM adaptability which can only result from experience

Table I. Defining success criteria adapted from Briner et al. (1996)

Every project manager is expected to be competent in (Table I) row 1 – "in the open". This competency relates to dimension 1 skills and is the knowledge and experience domain of the novice project manager. Skill in managing the "in the open" issues, means that "standalone" projects can be delivered on schedule and within budget using dimension 1 skills.

Row 2 – "under the table" requires much more knowledge and experience for identification and satisfactory resolution of issues. Project managers will continually battle with "under the table" issues throughout most projects. Success is achieved through managing relationships and successes in managing relationships (dimension 2). The PM will develop increasing competency with experience.

The true test of the project manager is how he/she anticipates and identifies row 3 – "may emerge" issues and negotiates the best resolution for the project. In some cases the best resolution may be to close the project. The "may emerge" category requires knowing how to read the power structures of organizations and these competencies and skills will also develop with experience. We argue that knowledge of whom is instrumental in making an organization work and how it works (the third dimension) is the element that can make a significant difference in the success of many projects. We will discuss aspects of working within these power structures later in this paper.

Our analysis of all three case studies identified that the PM's knowledge of how the organizational structure supporting (and encircling) the project worked was either missing or not effective. Even from the relatively small sample of (unsuccessful) projects represented by the case studies, it can be deduced that there is a range of skills and competencies, leadership and management ability and

personal style that a project manager has, acquires or develops to enable him/her to manage projects of increasing complexity or importance to an organization. This analysis is supported by the research of Crawford and Da Ros (2002) and Pinto (2000). We argue that the third dimension – understanding and using the power lines – is the additional essential ingredient for success for most projects in a large complex organization.

Tapping into the powerlines

In large organizations, project managers have responsibility and authority for managing schedules and costs but rarely have a sufficient level of authority to manage all aspects of the project. The power base of the individual project manager depends on the perceived importance of the project as well as his/her reputation and influencing skills. "Knowing which styles of persuasion to use and when depends to large extent to the political skills and courage of the particular project manager"(Lovell, 1993).

None of the project managers described in the case studies was able to operate effectively within the power structures of the organization surrounding the project. Even those who recognised such engagement was necessary could not achieve their objectives. One thing is clear from the comments of each project manager: they now know (each at his/her own level) more than they did before.

The key to surviving (and thriving) within an organization's power structure is building and maintaining robust relationships. As has already been shown through the case studies, it is dangerous to ignore the effect of "politics" on the outcomes of a project. It is important to understand how the patterns of political activity operate in any particular organization. This is the external aspect of the third dimension. It is also important for a project manager to understand how he/she reacts to these situations and if necessary adapt personal behaviours to ensure success. This is the internal aspect of the third dimension. The emphasis must be on striking a balance between left-brain and right-brain activities, that is, development of deliberate rational thoughtful strategies as well as developing an empathetic relationship with influential project stakeholders. It is significant that these qualities are ones that Thompson (1998) emphasises as those of a successful negotiator.

Understanding the power environment of the organization and the position of the actors within it, for each particular issue is also crucial (Lovell, 1993). With experience, this understanding becomes a combination of conscious and intuitive, almost instinctive, thought processes leading to actions. It occurs through changing situations and adapting other people's attitudes to be more in line with the project's goals (Block, 1983). This sounds deceptively simple, but requires knowledge of the environment and all the "players" in the process and what their drivers (needs and wants) are. Even when the project manager lacks formal power, he/she needs to be able to influence people and outcomes; through building and nurturing what power they have in optimising "coalitions of support" (Boddy and Buchanan, 1999). Failure to understand and control the political process has been the downfall of many good projects (Senge, 1990; Lovell, 1993). To manage successfully within an organization's power structures it is necessary to understand the organization's formal structure (an organization chart should illustrate this), its informal structure (friendships, alliances, maintaining acquaintance with former work colleagues and its environment (each player's motivation, priorities and values) (Block, 1983).

Communication is a vital tool for project managers to develop and maintain robust and effective relationships with stakeholders within all three organizational structures. The power structures surrounding a project (the power grid) are complex and constantly changing and require a high level of maintenance. Maintenance in the form of active communication systems will also provide the necessary "early warning systems" (Briner et al., 1996). Active communication, including sharing access to the "grapevine", is more easily accomplished sidewards with the project manager's peers,

mostly in the informal organizational structures through meetings, telephone calls and perhaps regular (even if infrequent) coffees. Maintaining communication, tapping into the power lines in an upwards direction is a great deal more difficult, but not impossible and is generally in the domain of the formal organizational structure with elements from the organizational environment described above. Regular project updates and formal project communications and presentations to influential senior stakeholders and effectively managed governance meetings are formal means. Other effective upwards communication techniques require knowledge of the organization and product offerings and exploiting the "grapevine".

Inevitably, "rogue" stakeholders (supporting one of the conflicting parties, or seeking to establish ascendancy over other stakeholders, or with other hidden agendas) will incite conflict or cause trouble for the project manager. This trouble can come in the form of seeking to cancel the project or change the scope or technical direction of the project, reduce the funding, or perhaps requiring additional or different reporting. If the project manager has established credibility, disaster can be averted. To establish credibility, the project manager must build the appropriate power and influence foundations by involving all relevant stakeholders throughout the project and maintaining them with active communication systems.

A project manager must be able to recognise the danger signals; the warning of possible trouble with senior stakeholders. Boddy and Buchanan (1999) list these danger signals as:

- interfering without consultation;
- not providing support when needed;
- poor communication links – too many reporting levels between the project manager and the senior stakeholder; and
- unfounded promises or commitments (Boddy and Buchanan, 1999).

Only a project manager who has built credibility, and knows how to tap into the power structures of his/her organization can recognise these signs, and defuse potential crises before disaster strikes. We argue that the qualities and actions that make a good leader coupled with the third dimension wisdom and know-how, will support a project manager working successfully within the power structure of an organization to maintain the objectives defined by the project vision and mission.

Creating a third dimension learning environment

Sorcher and Brant (2002) identify leadership traits that should be valued in an organization:

- effective communication;
- development and managing project vision; and
- leading and influencing all stakeholders to successful project outcomes.

Leaders today are required to be equally proficient in technology, administration and "politics" (Peled, 2000). Organizations focus on developing the technological and administration skills of their managers, but neglect the political skills. Peled (2000) also supports the argument that leaders with extensive backgrounds in organizational politics complete more projects more successfully because they manage the appropriate aspects of their stakeholders (upwards and outwards, sidewards) while at the same time being able to tailor their technological vision to the day-to-day reality of their organizations. Technological managers with less political experience tend to manage inwards and downwards and build "generic" solutions that fit any organization.

It may be possible for individual project managers and the organizations they serve to learn how to operate in the third dimension and to significantly reduce the learning period and the instances of

error. Organizations currently initiate leadership programs incorporating coaching and mentoring, specific seminars and training programs, action learning methods, as well as planned job rotation to ensure balanced work experiences (Dessler et al., 1999).

Organizations can, however, fall into the trap of overvaluing certain project leadership attributes – in many cases traits that are best suited to "hard" project criteria. Instead, we suggest, emphasis should be placed on the project manager's ability to operate in less well-defined areas, to adapt, to have a balanced set of skills.

Leonard-Barton advocates the use of "people with t-shaped skills" (Leonard-Barton, 1995). These individuals can see the world from two or more different perspectives – knowing one or more discipline in great depth as well as having a broader view of the bigger picture. To date, the career path of many project managers has been through technical, rules-oriented roles. Learning from peers and mentors who have also followed this technical route reinforces the stereotype. Without clear guidance they will continue to fight the wrong battles, provoke senior stakeholders with politically naive remarks, and fail to build vital power partnerships.

How do people learn?

There is no more effective teacher than a spectacular mistake (Morris and Hough, 1993; Nonaka and Takeuchi, 1995; Kleiner and Roth, 1997; Davenport et al., 1998; Peansupap et al., 2003). If the organization tolerates mistakes and offers a supportive, blame-free environment, a mistake can be turned into an effective learning experience for the individual and the organization (Pedler et al., 1996). The way that experience is gained is illustrated in Figure 2.

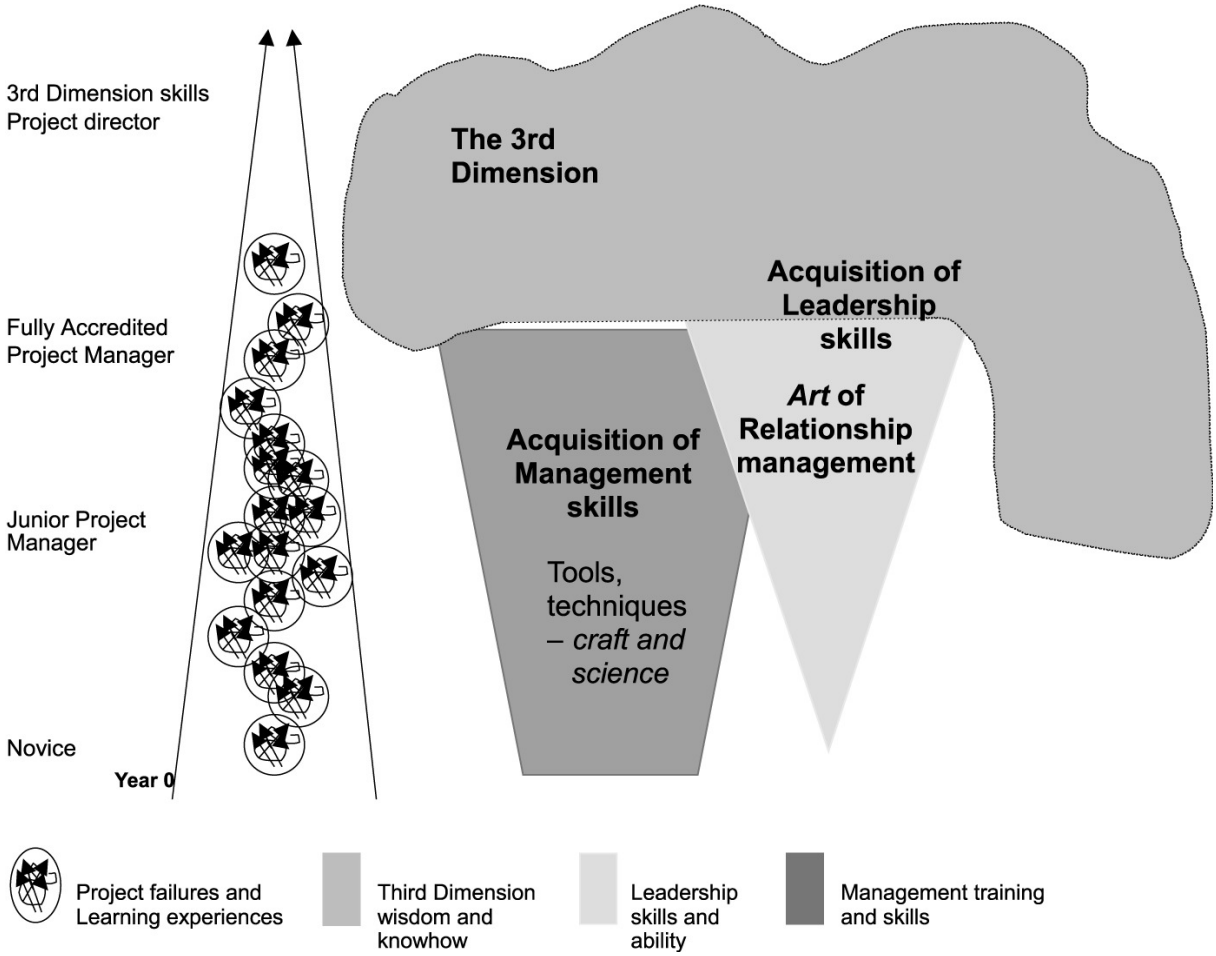


Figure 2. PM experience model

In our experience of several decades of project management a novice project manager is expected to have some knowledge of the craft (tools and techniques of project management, but little or no art) project-focused relationship management knowledge. Knowledge of tools and techniques can be taught through courses, and can be documented for reference. This knowledge is clearly explicit. Relationship management can be taught or documented to a limited extent (but rarely is in most organizations); instinct and experience are the primary means of acquiring this knowledge/expertise. Through time, as the individual progresses through levels of project management, he/she becomes more adept in both art and craft. However, it is the skills of the third dimension (wisdom and knowhow) that are acquired in mid-career. These skills, understanding the politics and culture of the organization and having the ability and willingness to work within that context are hard won. They cannot easily be taught, articulated, documented or codified; it is tacit knowledge.

How an organization can support transfer of wisdom

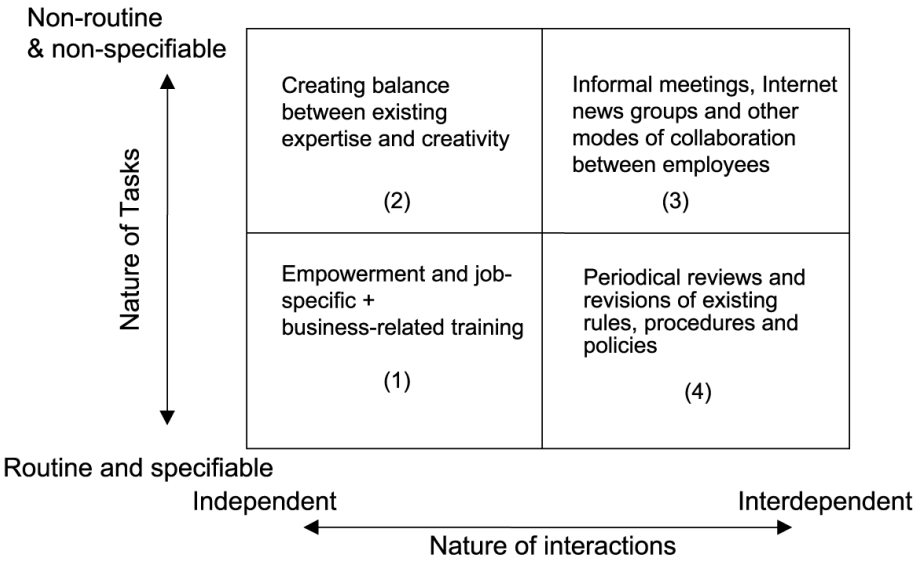
In most organizations today, where competitive advantage is tied to swift, effective development of products or services, projects are generally the mechanisms of this delivery. Organizations can no longer afford the luxury of allowing a PM's knowledge and experience to just evolve naturally. They must always be aware of the need to act to ensure that an individual's knowledge becomes part of an organization's knowledge and that the organization's knowledge is accessible to each individual.

Bhatt (2002, p. 33) argues that although an organization has access to an individual's skill and knowledge, it can never own that individual's knowledge, he states:

> On the contrary, the organization itself becomes vulnerable to the mobility and idiosyncrasies of experts . . . What kind of knowledge is shared is determined by the professionals, not the management . . . Knowledge sharing is an informal and social process.

The social process is facilitated by "interactions", and the organization must do everything possible to ensure these interactions take place.

Figure 3 shows how organizations can harness individual knowledge through an understanding of the nature of interactions.



Source: Adapted from Bhatt (2002)

Figure 3. Harnessing individual's knowledge, adapted from Bhatt (2002)

Each cell represents a mode of learning that is important. Cell 1 focuses on individuals performing routine, low interaction tasks. The challenge is to empower employees by providing guidelines for limited discretion in daily routine tasks. These employees can be trained to understand the hidden realities of "doing business in the present dynamic and competitive environment" (Bhatt, 2002, p. 35). In the context of the development of PM wisdom, this applies to the project manager in the novice to junior project manager classification.

Cell 2 defines the approach for managing individual expertise. These individuals must be motivated through "stretch" assignments, accompanied by appropriate strategies for support and reward. The challenge is to "balance the needs of the organization (for greater productivity and effectiveness) with the desires of experts for exploration of new ideas" (Bhatt, 2002, p. 36). This approach applies to project managers at any level, but primarily to those who are more experienced, from fully accredited upwards.

Cell 3 describes mechanisms for knowledge sharing through social interactions. These mechanisms include self-managed teams brought together for a specific purpose, and Communities of practice – usually voluntary, informal guilds. However, irrespective of how the groups come together, the essential elements of success are trust, commitment, collaboration and a shared vision. Communities of practice as a mechanism for project manager learning will be discussed later in this paper.

Cell 4 describes the challenge of storage and codification of rules and procedures.

Cohen and Levinthal (1990) describe an organizational characteristic they refer to as "absorptive capacity" – the capacity of an organization (or individual) to absorb new knowledge. The most important factors of absorptive capacity are cultural – such as openness, tolerance of mistakes, cultural diversity of participants in terms of their world-view, and freedom to experiment with new ideas. However, most project managers must learn about the vital third dimension relationships the hard way: by trial and error (Block, 1983, p. 46). The "scars" thus gained help to enrich the project manager's perception of project and organization "reality". With each new experience expanding this perception of reality, the project manager builds a significant portfolio of "learnings" as well as healthy cynicism to hone those instinctive alarms (Hampden-Turner and Trompenaars, 2000). Only a very small number of managers are good at anticipating, identifying and knowing how to dilute disasters caused through unequal power relationships. Block (1983, p. 21) argues that:

> Managers who have survived over the years have the skills . . . project managers who have delivered successful major systems have by necessity become politically skilled.

He also defined project politics as:

> Actions and interactions between project team members and people outside the team that have impact on the success of the project, its system, the project team, and the project manager.

The model presented in Figure 2, supported by the discussion based on Figure 3, indicates that transfer of wisdom and PM knowledge is assisted by:

- developing people through empowerment, job-specific and business-related training;
- creating balance between existing expertise and creativity through apprenticeships, stretch assignments, coaching and mentoring;
- developing modes of collaboration such as communities of practice between project team members, their colleagues and sometimes even like-minded individuals from other organizations (this element of KM relationships is described in detail in a later section of this paper); and
- reviewing and revising of existing rules, procedures and policies.

A strategy of job rotation is another way in which a project manager is exposed to different types of projects, and works with a diverse group of people, thus experiencing different management styles and

different methods of project success or failure (Dessler et al., 1999). The wider the work experience of novice and junior PMs, the more quickly the individual will be able to operate in the third dimension, gaining the necessary wisdom. Job rotation also extends the PM's network – thus ensuring a wider community of practitioners to draw on for advice.

Balancing the needs of the organization with the needs of the individual can be achieved through:

- matching project management skills to appropriate projects; and
- apprenticeships, coaching and mentoring.

Thus an organization should not put a project at risk by assigning someone who does not have the capabilities necessary to ensure success. If these skill sets are not available, then project managers whose skill sets are almost at the necessary level should be offered a "stretch assignment", supported by additional training, coaching and mentoring.

It may be possible for individuals to learn how to operate in the third dimension and acquire project wisdom less painfully and more quickly through apprenticeship programs. Such a program was tried successfully on a large project led by one of the authors of this paper. Novice PMs, with some training in project tools and techniques can be allocated to work with a senior PM on a complex project in the role of project assistant. In some cases, individuals with technical skills and potential will serve an "apprenticeship", on the understanding that after successfully completing an agreed probation period they will be acknowledged (and paid) as project managers. It may also be accompanied by a requirement to do additional vocational study or take on small "stretch" assignments within the project. Regular coaching and feedback sessions between the apprentice PM and the "master" must accompany a scheme such as this. Mentoring schemes, whether informal or supported by the organization are other potentially successful ways to pass on PM wisdom and know-how. Ragins (1995) suggests that mentoring relationships are reciprocal – the mentor may also gain from the relationship with a prote´ge´'s performance being directly relative of the mentor's competency. The relationship between mentoring and power is reciprocal and complex – influencing both parties' power in organizations.

Making this sort of collaboration happen depends on personal behaviour changes by knowledge workers to not only work collaboratively but also to share knowledge. Mitchell (2002, p. 59) maintains that "working collaboratively requires a great amount of team effort." Communities of practice are one often-successful example of how knowledge workers collaborate to help each other solve problems and to share technical and organizational knowledge". Communities of practice (CoPs) are groups of people who share a concern, a set of problems or a passion about a topic, and who deepen their knowledge in this area by interacting on an ongoing basis" (Wenger et al., 2002). The archetypal example is of the Xerox service technicians who made a point of spending time with each other as well as with their customers to the benefit of the company (Orr, 1990). Nahapiet and Ghoshal (1998) defined these modes of collaboration as "social capital" – "the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit." Social capital has three aspects:

(1) structural;
(2) cognitive – shared codes and language and shared narratives; and
(3) relational – trust, norms, obligations and identification (Nahapiet and Ghoshal, 1998).

Conclusions

This paper provides us with a means to understand and respond to the need to provide support to project managers in gaining wisdom and in developing third dimension skills and competencies. We explained how influential project stakeholders and colleagues are often not managed effectively, and how this may affect project outcomes. We then argued that project managers require knowledge and

skills that not only include management of "hard" factors such as cost, time and functionality but also relationship management skills to manage people and teams. Moreover, we identified the third dimension consisting of both wisdom and know-how to identify who can influence project success (or failure) and how to manage those relationships and we used three case studies to illustrate our arguments. Finally, we described ways to advance the third dimension in learning organizations.

We recognise that the effective management of a project requires a range of analytical and planning techniques, especially when the project is large (and is operating in a large, complex organization). These approaches feature strongly in project manager training and in the professions from which project managers are traditionally drawn. "A new emphasis is needed – acquisition and use of a wider range of interpersonal skills. These enable the project manager to work more effectively in the uncertain and political environments and to take the lead in managing the different interests around it . . ." (Boddy and Buchanan, 1999).

With data from three case studies, some personal experience, and anecdotal evidence from other project managers working in large complex organizations, it is not possible to draw definitive conclusions, even when supported by the recent research of (Crawford and Da Ros, 2002). Nevertheless evidence presented in our chosen case studies combined with substantial personal project management experience supports our proposition that:

> Project managers in large complex organizations have responsibility and authority for managing the schedule and costs, but do not always have a sufficient level of authority to manage all aspects of the project. Those project managers who have delivered successful projects – within budget and schedule and to agreed scope and to the expectation of all stakeholders, have invoked additional powers based on their knowledge of the power structures of the organization and the skills to "tap into the power lines" of that organization.

By providing more project managers with the skills and tools to succeed in this environment, and by reducing the learning time and the number of individual failures in a PM's career, a larger percentage of projects in complex organizations could deliver more effective and efficient solutions. This would not only benefit the organizations themselves but could also improve the profile of project management as a profession and increase the capability as well as the self-esteem of individual project managers.

This area of relationship management in projects and in particular developing procedures and supporting tools to more effectively, identify relevant and powerful stakeholders and develop approaches to ensure their continuing support of the project outcomes and vision, is the subject of doctoral research of one of the authors.

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