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"It's all up here": adaptation and improvisation within the modern project

"It's All up Here":
Adaptation and Improvisation within the Modern Project

Stephen A. Leybourne
BOSTON UNIVERSITY
808 Commonwealth Avenue
BOSTON, MA

+1 617 358 5626
sleyb@bu.edu

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Abstract

The recent emerging literature on improvised work within the project domain has both stimulated and troubled the PM community. It is however a fact that project-based work is moving further away from the 'plan – then execute' paradigm, towards a more flexible model that is better able to cope with ambiguity and uncertainty, caused by execution in problematic and turbulent organizational environments.

The academic literature on improvised work has led the way to working practices that make effective use of less structured project interventions while still taking advantage of controlled processes. It also offers a way to reduce and manage the risk of improvising by engaging with the 'adaptation' component of organizational improvisation. This application of interventions that have been successful previously, suitably adapted to meet current needs, means that the additional risk of completely novel activity is avoided.

This paper explores the circumstances surrounding adaptation within the project domain, and also unpicks the rhetoric from the reality of adaptation within projects, offering readily usable and applicable insights.

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Introduction

Project management is changing in a number of fundamental and significant ways. We have already seen a significant shift over the last decade or so from a reliance on the tools, frameworks, and techniques developed since the 1950s, to a more contemporary appreciation that the behavioral aspects of managing multi-skilled and diverse teams of globally dispersed project workers, and to a recognition that the management of trust, commitment, and motivation are vital to the success of the modern project.

Notably, the 'plan, then execute with the minimum of deviation' paradigm that has informed the project management domain is being replaced with the notion that the world of the project is uncertain, complex, and ambiguous, and that the 'old order' is being swept away by the need to deliver in ways that are often far removed from traditional project-based routines and procedures. This change is manifesting itself in a shift from PM as the epitome of planning in the prescriptive mode (Maylor, 2001), resulting in significant movement since the turn of the millennium towards a more behavioural (Jaafari, 2003; Snider & Nissen, 2003), and improvisational (Leybourne, 2007a) focus.

In addition to these potentially seismic shifts in our understanding of the principles, theories, and knowledge base that underpin project management, the outputs of project-based work are also being assessed differently. Notably, project success is being judged and measured differently (Shenhar & Dvir, 2007), with the traditional 'iron triangle (Atkinson, 1999) of cost, scope, and time, being replaced with success criteria based around the delivery of value and quality, which are perceived in different terms by different project stakeholders. Contemporary managers are also becoming more aware of the relative shortcomings of traditional project-based structures to deal with the need to effect change or alter strategic direction to take advantage of new or emerging opportunities (Williams, 2005; Cicmil & Hodgson, 2006).

This is causing a tension between the relative comfort afforded by planned activity, where shared responsibility within the planning process offers shared responsibility for success or failure, and the individual exposure to risk afforded by less prescriptive activity models. Project managers are therefore embracing new ways of working and delivering within the project domain, and new areas of expertise are being developed in the intense cauldron of practice, leading to a widening gap between those practitioners that could be described as project 'mechanics', and those that see themselves more as project 'artistes' (Kennedy & Leybourne, 2012).

It is however evident that the experienced project manager often deviates from planned activity in order to meet the emerging requirements of projects that are operating in turbulent environments, and also to resolve issues caused by planning and specifying of requirements that is less diligent than the ideal. For some practitioners, this deviation is uncomfortable, and potentially detrimental to the perceived ability to successfully complete the project. However, the experienced and adept project manager can draw on a significant personal library of actions that have been successful in past or previously completed projects. The utilization of these previously successful interventions, adapted to meet the requirements of a new situation, can assist in reducing the risk attached to deviating from planned activity.

Organizational improvisation is often applied within the project domain (Leybourne, 2006; 2007a; 2010; Leybourne & Sadler-Smith, 2006), and indeed, is becoming accepted as a meaningful addition to the expanding toolbox of managerial skills in all areas, not just the domain of project-based management. The academic literature on organizational improvisation identifies adaptation as a component of organizational improvisation that assists with the reduction of risk in improvisational interventions (Moorman & Miner, 1998a; 1998b; Cunha, Cunha, & Kamoche, 1999). Miner , Bassoff and Moorman (2001) identify adaptation as one of the elements that contribute to successful improvisation, and this concept fits well within the project manager's lexicon of useful practices.

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Improvisation, Adaptation, and Project Management

The literature relating to organizational improvisation emerged during the 1990s, drawing on the work of Karl Weick relating to organizational sense-making (Weick, 1979). A significant body of literature emerged around the turn of the millennium, and consideration of how this addition to the lexicon of working practices has expanded in the last ten years or so. The literature has evolved through a stage where jazz musicianship (Hatch, 1999) and improvisational theater (Vera & Crossan, 2004) were used as metaphors to assist with understanding the effects of improvised activity within management and work generally, through a period where improvisation was considered within many domains, including project management (Leybourne, 2006; 2007b; 2010; Leybourne & Sadler-Smith; 2006). More recently, empirical research has strengthened our understanding of the effectiveness of improvised work in a number of domains.

Essentially, this evolution of our understanding of the impact and effectiveness of such emerging knowledge on project management practice has developed hand in hand with the recognition of the shift from a 'tools and techniques' based model of project-based management, towards an appreciation of the importance of managing behaviors, and engaging with the project team. This has resulted in a number of attempts to re-focus the project management domain, and the emergence of a potential new – and at this point, provisional and not widely accepted - model of project-based management (Leybourne & Sainter, 2012)

The original definition of improvisation as: *"the degree to which conception and execution converge in time"* (Moorman & Miner, 1998b: 698), highlights the temporal aspects of improvisational activity, although later definitions also link with the concept of bricolage, in that they emphasise the need to achieve with available resources. This is an important caveat within the literature, as the project manager rarely has time to marshall additional resources prior to an improvisational intervention.

Dreyfus and Dreyfus (1986), in a study into the phenomenology of expertise, suggested that experts in any subject achieve a level of proficiency whereby they improvise constantly. As Montiori (2003, p. 249) stated: "*they know the rules, but do not have to think about them. They have developed the ability to act spontaneously and intuitively without needing to refer to rulebooks*." Some observers (Ericsson, 2006: 699) have however suggested that a degree of 'preconception' may be involved.

More recently, recognition has been given to the use of improvisation within project-based work (Gallo & Gardiner, 2007; Kanter, 2002; Leybourne, 2002; 2006a; 2006b; 2007a; Leybourne & Sadler-Smith, 2006). Generally speaking, this body of work considers improvisation in terms of an association with urgency, where there is a need for action and little or no time to plan, or to generate and examine alternative courses of action.

The initial constructs that contribute to effective improvisational work are creativity, intuition, and bricolage (Moorman & Miner, 1998a), together with compression, adaptation, innovation, and learning (Miner *et al.*, 2001).

Of the constructs or components of improvised work developed in Moorman & Miner (1998a), the one that forms the impetus for this paper is adaptation (Miner *et al*,. 2001). At the organizational level, adaptation has been considered in terms of adapting to changing environments and conditions that may affect the success or failure of an organization (Zammuto, 1988). Miner *et al*. (2001: 314) define adaptation in terms of *"the adjustment of a system to external conditions"*, referencing Campbell, (1969) and Stein (1989) as original sources. Lindkvist (2008) looks specifically at adaptation in a project context, defining it as a feature of project management, and suggesting that it is the ability of an organization to be flexible and adjust to changes in the environment. However, within the emerging literature relating to improvised work in the project domain, adaptation is also linked to 're-use'.

Adaptation in this context refers to the 'adapting' of something from that personal store of improvised routines to assist in resolving emerging requirements (Miner *et al.*, 2001). One of the resources available from the effective use of improvisational working practices is the library of previously successful improvisational interventions that project managers store tacitly, and refine based on experience. This adaptation of previously successful interventions meets

the preconception ideal mentioned above, and also draws on the considerable experience that project managers and project team members build up over time.

Arguably therefore, this adaptation of prior and at least partially tested activity assists with the control of risk, and with understanding the effects of adapted activity on the project. Often this need for adaptation arises as a result of a requirement to embrace ambiguity and uncertainty. Because of our increasing understanding of the need for changing requirements, the skill-set of the project manager is evolving (Leybourne, 2010). Project managers are therefore transitioning from a reliance on the execution of fixed plans to operating in a landscape where decisions are made based on incomplete data, and where creative and adaptive action is valued. However, project domains are not homogeneous, and different projects in different industrial sectors have markedly different characteristics (Cicmil & Hodgson, 2006).

Adaptation within the Project

It is accepted that in most project domains the 'plan, then execute' paradigm is rarely applied without emerging or changing requirements or environments producing a need to adjust activity over the course of the project. Indeed, the more recent literature dealing with the effective delivery of project outcomes is very appreciative of changing requirements and emerging issues within the project landscape.

The improvisation literature has recognized that the stability of strategic planning and the implementation or execution of that planning activity is compromised by the turbulence of organizational environments (Cunha, Cunha & Kamoche, 1999; Chelariu, Johnson & Young, 2002). This lack of stability is also carried through to project activity (Gallo & Gardiner, 2007; Leybourne, 2010; Leybourne & Sadler-Smith, 2006) , especially given that project-based working is inevitably the chosen framework for the delivery of change triggered by environmental turbulence (Cicmil & Hodgson, 2006).

There is also a significant linkage between the concepts of complexity, uncertainty, and ambiguity as far as projects are concerned. Complexity is generated by the need to address projects with changing deliverables in turbulent environments where often organizations are attempting to deliver with limited or stretched resources. Definitions of complexity revolve around the number of possible linkages or options between elements, and with the expansion of the project domain to include programs and portfolios of projects, these potential linkages will increase. Indeed, complex adaptive systems theory (Stacey, 1993; 2001) is now being applied within the project domain (Cooke-Davies, Cicmil, Crawford & Richardson, 2007), although a detailed exploration of this area falls outside the scope of this paper.

Additionally, as the requirements of a project in fast-moving and changing circumstances are likely to be less well defined by necessity, then a level of ambiguity gets built into the requirements (Pich, Loch & Meyer, 2002), and it is often up to the project manager to resolve these issues for and on behalf of the project team.

It is important at this point to make the distinction between ambiguity, and uncertainty. They are quite different. Ambiguity is related to a word, expression, or message that can be understood in more than one way. The essence here is therefore that there can be multiple interpretations of a given aspect of the project, and that different people or groups of people within the project community may or will attach different actions or meanings to an instruction or requirement. With our more refined understanding of the management of multiple stakeholders, this is becoming an increasingly important issue.

Uncertainty refers to having an understanding of the issue or requirement, but not knowing what to do to resolve it. It also has to be borne in mind that we are now entering the realms of what qualitative researchers call the Social Construction of Reality, which suggests that we all see issues and requirements from a slightly different perspective, bringing to bear differing skill sets, knowledge bases, and experience. It therefore follows that something that is uncertain to one stakeholder or member of the project community may have a significant degree of certainty to another involved party.

This brings us full circle to improvisation in the project domain, in that often issues relating to complexity and ambiguity can be resolved using creative thought, an intuitive 'gut feel' for what will work in a particular circumstance, and the adaptation of previously utilized routines (Kanter, 2002; Leybourne, 2010; Leybourne & Sainter, 2012). These are all identified as essential components of organizational improvisation. Additionally, bricolage, which relates to resolving issues effectively with only the resources to hand, is a meaningful skill in such circumstances. However, the real interest within this paper is in the adaptation of previously successful or useful project interventions to resolve emerging issues or requirements.

Traditionally, when an unplanned action is required within a project, either to resolve an unforeseen or unplanned emerging requirement, or to correct a deviation from the project plan, we are undertaking a four stage process that is pictorially described in the bottom half of the graphic in Exhibit 1. Essentially, when an *issue* arises, a suitable *intervention* is chosen, then it is executed to produce a specific *action*, and the end result is hopefully a successful *resolution* to the issue.

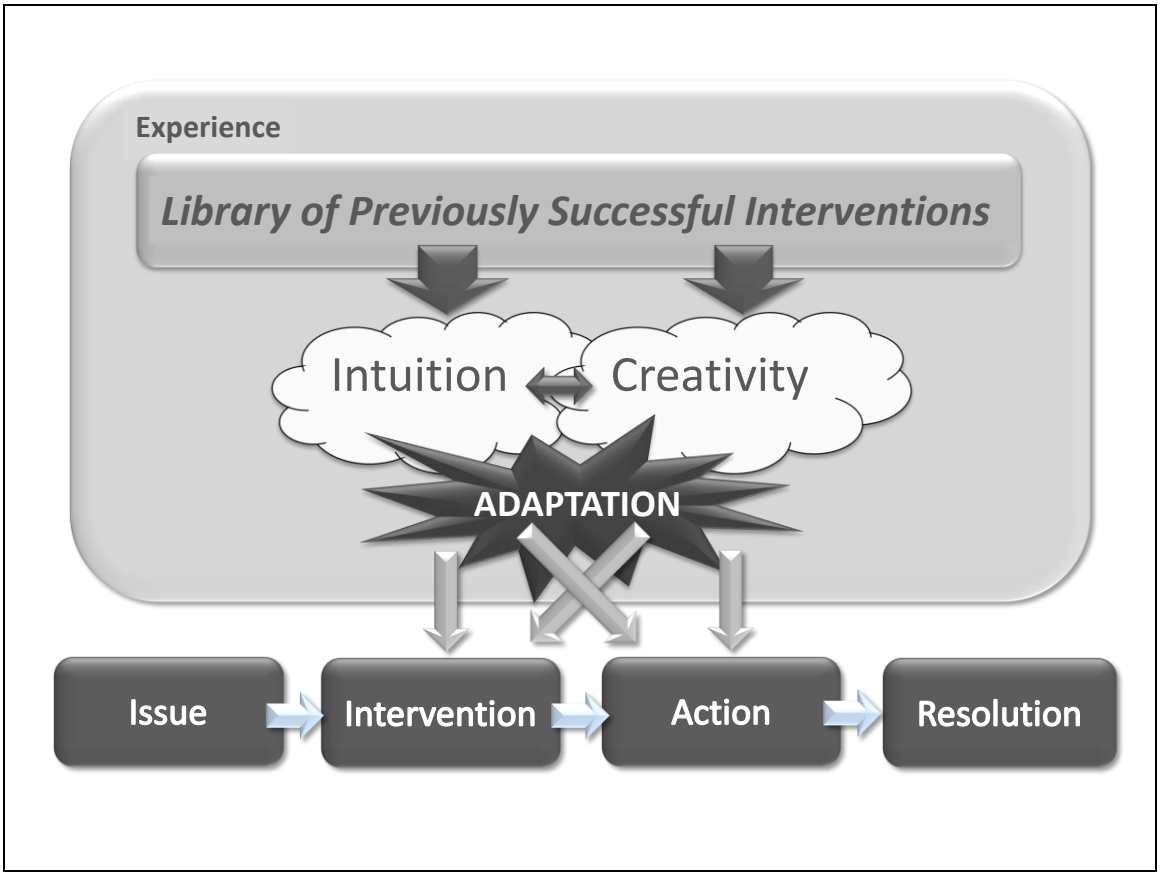

Exhibit 1: A Developing Model of Adaptation to address Project Issues

However, there are ways to assist in the effectiveness of these actions or interventions. One issue with the project environment is that traditionally, project management techniques and working styles are intended for use within 'one off' activities, as some of the elements in the definition of the project according to the Project Management Institute (PMI) are understood to be *"designed to produce a unique product, service or result… temporary in that it has a defined beginning and end in time… and unique in that it is not a routine operation, but a specific set of operations designed to accomplish a singular goal."*(http://www.pmi.org/About-Us/About-Us-What-is-Project-Management.aspx). This partial definition (and there are many others that define the project in similar ways) reinforces the nature of the project as a means to achieve 'new' work, rather than repeat understood and previously executed routines.

Given the risk involved in generating satisfactory or successful outcomes in 'new' work, it is sensible to seek ways to mitigate that risk, and to remove some of the uncertainty from untried and arguably adventurous activity. If this can be achieved by 'adapting' tasks or activities that have been successful in different but to some extent comparable circumstances, then it follows that the level of novelty, and therefore the level of risk, is or may be reduced. This is something that the experienced project manager, with a significant tacitly held store of previously successful project interventions, can take advantage of to diminish or moderate the amount of genuinely new and untried activity within a particular element of the project.

Exhibit 1 above is a graphical illustration of how such adaption can work. The experienced project manager, over time, accumulates a knowledge base, some of which will take the form of a library of previously successful interventions, or actions that have been used in the past to resolve or partly resolve emerging project issues (Koskinen, Pihlanto & Vanharanta, 2003). By leveraging accumulated knowledge and experience, and applying an element of creative thinking, together with an intuitive 'gut feel' for what will work in a particular circumstance or set of circumstances, previously successful project interventions can be 'adapted' to meet new or emerging issues or requirements.

It should be noted at this point that intuition, which could be partially defined as *"a basis for overcoming the limits of rationality in unstable environments"* (Leybourne & Sadler-Smith, 2006: 484), is a powerful and effective component within the Adaptation process. Significant research has been carried out within the academic landscape, considering the contribution and effect of intuitive thought in many areas, including managerial action (Pondy, 1983), executive action (Sadler-Smith & Shefy, 2004), nursing (Benner & Tanner, 1987), and project management (Leybourne & Sadler-Smith, 2006). The results of this activity support the use of intuitive feelings to reinforce or partially replace more rational intellectual processes, offering tangible evidence of the accuracy and 'power' of such activity.

We also need to consider creativity at this point. Described by Amabile (1983) as intentional deviation from standard practice, creativity comprises three major components or constructs; expertise (technical, procedural and intellectual knowledge), creative thinking skills (how flexibly and imaginatively people approach problems), and the motivation to approach things differently (Amabile, 1998). Within the project domain, creativity is supposedly harnessed to develop new and better ways of executing project-based work, and Leybourne and Warburton (2012) offers a comprehensive analysis of creative activity within the project, together with a framework to judge when it can be effectively utilised. Creative thinking skills are usually divided into two types, conceptual fluency, which is about producing many ideas quickly, and cognitive flexibility, which recognizes the ability to come up with original and unusual solutions to issues and problems (we often call this 'lateral' thinking, or 'thinking outside the box').

This results in a situation where the combination of creativity and intuition, applied to a consideration of how to 'adapt' to meet a particular set of circumstances, and drawing on an existing library of tacitly acquired previously successful interventions, can be a powerful way to resolve current emerging or occurring issues.

As an example of this, a project could have an issue with resistance to change at the user level. This is not an uncommon situation, and mechanisms or actions that have assisted in reducing such resistance can be re-used. At some point in the past, a project manager may have used members of a software 'test' team to act as local or departmental champions for new or improved systems. Resistance in this situation is common, as existing 'experts' in the redundant system see their expertise being diluted, and naturally resist any situation that may weaken their 'expert' status.

The appointed local or departmental champions – who may be from any appropriate part of the project team - can act as advocates for change, extolling the benefits of new functionality. This type of intervention can be 'adapted' to meet the requirements of a new situation, and re-used in different situations or different domains, by applying some creative thought about what is required, and an intuitive feel for what will work in a particular circumstance. This is an example of the adaptation of a previously successful intervention to meet the demands of a new scenario.

Having considered the concept of adaptation, and how it meshes with the resolution of emerging issues within the project, it is now opportune to move to the subject of the learning that can be generated from the successful

adaptation of previous interventions, and how that knowledge can be codified and shared for the benefit of the organization.

Adaptation as a Learning Process

It can be argued that action is less effective if we fail to learn from it. Our understanding of learning is that knowledge is the application and productive use of information (Davis & Botkin, 1994). Data can be defined as the basic building blocks of knowledge, and information is data that has been arranged into meaningful patterns (Davis & Botkin, 1994). The challenge in learning from action is in the effective collection and organization of data, and its conversion into re-usable knowledge.

Traditional project-based management has something of an inbuilt advantage here, in that as well as its use in supporting organisational flexibility, the four phase project life-cycle incorporates a formalized 'learning loop' that is intended to consider 'lessons learned', and use those outputs to inform future project activity. This makes project management an increasingly popular platform for the learning that is required for continual change in a turbulent environment (Swan, Scarbrough & Newell, 2010), notwithstanding the fact that using retrospective perspectives to assess a completed project may be susceptible to partial and selective recall and defensive reasoning on the part of participants.

However, much learning within the project domain is tacit; that is, it is experiential, and 'tacitly' located within the subconscious knowledge base of the person who executes it. For this reason alone, tacit knowledge can be notoriously difficult to capture (not least because it is difficult to articulate), and it is perhaps for this reason that there is a documented tension within organisations between the desire to carry out the learning phase of an executed project, and the desire to move resources to the next initiative (Leybourne, 2002). This tension causes temporal pressure and ultimately it can negate the opportunity to capture data that might assist in future project-based initiatives (Sense, 2007).

The tendency for the 'formalised' learning process to break down means that much tacitly stored learning in projects is difficult to access and codify. Sense (2007) suggests that there is a significant tension between the rhetoric of the idealised intentions of the 'learning' phase of the project life-cycle, and the reality of intentions dashed by temporal pressure and resource-based constraints. One result of this is a cursory attention to learning from projects in many organizations, reinforcing the perception that much project-based knowledge remains in tacit form.

This type of tacit learning tends to lead to an understanding in organizations that the possession of such a knowledge base is based on 'experience', and that the organization looks on such individuals as *'experienced managers'*. However, such learning, which is essentially 'tacit' learning, is only held at the individual level, and is not readily or easily shareable. The goal of organizations, and particularly those that have pursued the ambition of becoming 'learning organizations' (Pedlar, Burgoyne & Burdell, 1997; Senge, 1990), is to convert or 'codify' this tacit knowledge, with a view to sharing it either formally or informally for the benefit of other organizational actors. Theoretically, this shared knowledge can then be used to revise and update organizational and project-based process, notwithstanding that empirical work in knowledge management reveals the notorious difficulty with the conversion and effective use of knowledge through codification and dissemination (Fahey & Prusak, 1998; Malhotra, 2002; Storey & Barnett, 2000).

There is however little doubt that adaptation can contribute to learning at both the individual and at the organizational level. Improvisational or unplanned interventions that are based around the adaptation of previously used successful interventions from other domains allow for rapid deployment of existing resources in a more effective manner, with the added benefit that adapting interventions that have been successful in other circumstances can reduce the risk attached to such rapid action. Learning from the redeployment of such adapted interventions adds to the library of tacit knowledge retained and utilized by the 'experienced' project manager.

Arguably, adaptation allows the project practitioner to 're-use' aspects of previous work, avoiding the potential risk and uncertainty of using entirely untested actions. This allows an increased level of comfort with execution, on the

basis that some issues linked to the intervention are understood (or at least 'partially' understood), and the fact that the actions are not entirely untested allows for a level of confidence.

Unfortunately, this activity is taking place at the individual, and usually at the tacit level. It is unusual for the individual project manager to 'record' his or her learning in a format that facilitates or encourages transfer to colleagues, and there is also a political implication. The literature relating to knowledge management assumes that there will be no barrier to knowledge sharing, and that new and emerging knowledge will therefore flow freely. However, to some managers, including project-based managers, knowledge is seen as 'power', or at least as a reason for continued employment. Some creators of emerging expertise developed through experience and practice are therefore reluctant to share that tacitly created knowledge, feeling that it will negate their usefulness to the organization.

Taking such political implications into account, transferring information to and sharing new and emerging knowledge at the organizational level can be more problematical. In order to transmit or transfer knowledge, it has to be made explicit (Nonaka, 1991). This relies on a process whereby *'…it is extracted from the person who developed it, made independent of that person, and reused for various purposes'* (Hansen, Nohria, & Tierney, 1999: 108). There is however an assumption here that 'extraction' is not challenging or arduous.

Some organizations have formal or informal ways of achieving this transfer effectively, but unfortunately, many do not. Some formal mechanisms for codifying information involve project databases or 'wiki' spaces, accessible over organizational intranets. Unfortunately, recent research (Koskinen *et al.*, 2003) suggests that such information sharing is often ineffectual, either because data are not collected and input efficiently, or because project managers, either as a result of temporal pressures, or because they do not value the data available, do not include such sources in their pre-project planning.

Often, more informal sharing mechanisms are of more assistance. Peer sharing, either through scheduled or unscheduled arrangements, often result in knowledge transfer, although the codification of this information is more problematical. Many organizations run project steering committees or review groups, and program offices can also be used as a conduit to collect and share project knowledge. Anecdotally, one of the most effective transfer mechanisms I have participated in involved meeting other project managers for a beer (or two) on Fridays after work, and exchanging experiences from the weeks' project activity.

Summary and Conclusions

It is evident from both the literature and from emerging practice that project-based management is maturing, and that emerging practices are creating levels of expertise that differ with experience. An analogy has been drawn between project 'artistes', who have developed the capability and confidence through experience to step away from the more prosaic and functional methodologies, and project 'mechanics', who may feel more comfortable with traditional project tools and techniques, and a reliance on bodies of explicit knowledge such as the Project Management Institute's PMBOK® (Kennedy & Leybourne, 2012).

A proportion of activity around these contemporary and emerging practices is based around the recognized components of improvised work (Cunha *et al.*, 1999; Moorman & Miner, 1998a; Miner *et al.*, 2001) such as intuition, creativity, and adaptation. There is significant evidence that such techniques are being embraced by the project management domain, and that project managers use (Leybourne, 2002), recognize (Leybourne, 2006; Leybourne & Sadler-Smith, 2006) and learn from (Chelariu *et al.*, 2002; Kennedy & Leybourne, 2012; Koskinen *et al.*, 2003; Swan *et al.*, 2010) these components of improvisational work.

The concept of 'adaptation' (Moorman & Miner, 1998a) of previously successful improvisational project techniques and actions, drawn from a tacitly held library of experientially generated interventions, can assist in reducing the risk and uncertainty of such interventions. The effective use of creative thought, together with the proven capacity and ability to leverage intuition to inform and apply adaptive interventions, is assisting with moving some practitioners from the 'mechanistic' to the artistic' level within the project domain, and is also helping with the effective delivery of project tasks and activities in uncertain environments.

There are however challenges in capturing data and converting it into knowledge, and in making that knowledge explicit (Koskinen *et al.*, 2003). The shift in knowledge from tacit to explicit, and the issues surrounding the sharing of explicit knowledge within and across the organization, holds a number of challenges (Swan *et al.*, 2010). Some of these challenges are technical, some are social, and unfortunately, some have a political dimension. The resolution of these challenges will be dependent on organizational culture and climate, as well as in mastering the more technical issues of codification, and developing effective forums for sharing.

The evidence, supported by a significant empirical academic literature base, does however point to the fact that the effective adaptation of previously successful interventions can reduce risk, negate elements of the unknown, assist with delivery against emerging requirements, and benefit the progressive project manager.

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