New director in the chair

Dirk Pons[1]

Congratulations: you just got the job of Director! The only problem is the previous director walked off the set, leaving a film that is nearly, but not quite, complete. And did anyone mention that the financial backers have reservations about the relevance of the whole theme? But no doubt you have this all in hand, and know all about project closure under difficult conditions. So everyone is looking to you to close-out this movie and ensure the best possible outcomes.

1   Introduction

Closure has a unique set of challenges and is one of the stages that is too often done badly (Ceran & Dorman, 1995). The preferred outcome is a project that provides the deliverables and is shut down in a controlled and progressive manner (PMI, 2004), leaving everyone content (Meredith & Mantel, 1995). In other words, the project should satisfy all the stakeholders: the client, project organisation, sub-contractors, and the team members. The problem is that the project can either grind on interminably consuming a steady trickle of resources, or terminate abruptly by providing only the basic deliverables and leaving loose ends all over.

This paper describes the process of closure and presents various findings from the research literature.

2   Definition of the problem

Project managers are at risk of underestimating what is involved for successful close-out, and failing to prepare adequately (De, 2001). This paper explores the causes of the problem, elaborates on the findings of others, and suggests ways of reducing the risk. This is worth doing since quality deliverables require successful project closure.

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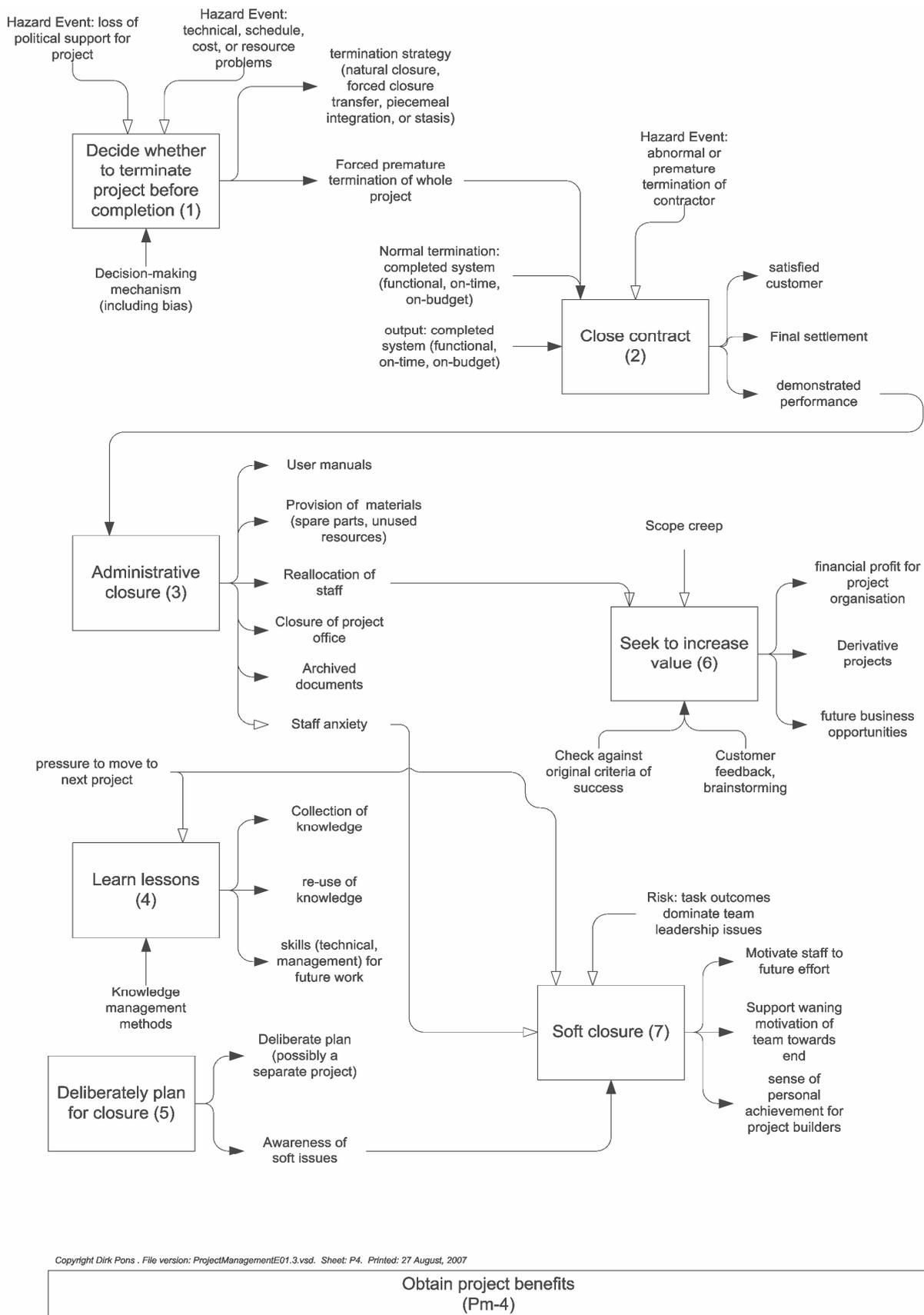## 3   What is the formal statement about closure?

PMBOK perspective
The codified project management body of knowledge (PMBOK) includes project closure as the last stage, termed ›close project‹, in *project integration management* (section 4) (PMI, 2004). It is described as having two component procedures. The first being *administrative closure*, in which records are collated and archived, and lessons learned. The second is *contract closure*, involving verification of the project outcomes and settling the contract (see also Ceran & Dorman, 1995). This can also include early termination of the contract if the project is unable to deliver the specified outcomes. Contract closure is also part of procurement (section 12).

What are the mechanisms for achieving closure? The PMBOK states that these are the PM methodology itself (a somewhat circular reference), the PM information system (vaguely defined as a manual or automated system for gathering and disseminating project outputs, p369),   and ›expert judgement‹ (a statement which is of little help to the novice) (PMI, 2000, p101). Consequently, it is probably fair to state that the PMBOK lacks specificity about how a project manager would go about closure. Furthermore, as will be shown below, there are several aspects of closure, particularly the human aspects, which the PMBOK omits entirely.

4   A model for closure

In this work we develop a model for the closure process. The model is formed by synthesising the various perspectives in the literature, together with new insights suggested by experience and from other domains of knowledge. The resulting model should therefore be considered a theory, rather than an established fact.

Figure Pm-4 shows the model graphically. The numbering, and the following descriptions, are simply for convenience and do not designate precedence.

Hazard Event: loss of political support for project

Hazard Event: technical, schedule, cost, or resource problems

termination strategy (natural closure, forced closure transfer, piecemeal integration, or stasis)

Decide whether to terminate project before completion (1)

Forced premature termination of whole project

Hazard Event: abnormal or premature termination of contractor

Decision-making mechanism (including bias)

Normal termination: completed system (functional, on-time, on-budget)

output: completed system (functional, on-time, on-budget)

Close contract (2)

satisfied customer

Final settlement

demonstrated performance

Administrative closure (3)

User manuals

Provision of materials (spare parts, unused resources)

Reallocation of staff

Closure of project office

Archived documents

Staff anxiety

Scope creep

Seek to increase value (6)

financial profit for project organisation

Derivative projects

future business opportunities

Check against original criteria of success

Customer feedback, brainstorming

pressure to move to next project

Collection of knowledge

re-use of knowledge

skills (technical, management) for future work

Learn lessons (4)

Knowledge management methods

Risk: task outcomes dominate team leadership issues

Soft closure (7)

Motivate staff to future effort

Support waning motivation of team towards end

sense of personal achievement for project builders

Deliberate plan (possibly a separate project)

Deliberately plan for closure (5)

Awareness of soft issues

Obtain project benefits (Pm-4)

4.1   Decide whether to terminate project before completion (1)

Projects occasionally get into trouble, and a decision must be made whether to terminate them prematurely or persist tenaciously to completion. The factors that bring about this situation cannot readily be predicted beforehand. Some projects, particularly in research and development, are designed from the outset with milestones at which feasibility decisions are made. Further continuation of the project is conditional on satisfactory achievement of previous objectives. This is sometimes called a stage-gate approach.

However, for many if not most projects the commitment is either fully there (or not) from the outset, and these projects   understandably do not anticipate that such a decision will even arise. Therefore conditional decision-making is not provided in the WBS from the outset, so it requires a conscious realisation that such a decision is necessary when problems arise. This belated decision-making is difficult because (a) it is a new task and therefore a change to the project as originally conceived, (b) the decision-making is potentially intrusive to the project team who may have a lot of personally commitment and emotional well-being tied up in the project, and (c) there are political implications for sponsors, champions, clients, etc.

Predictors of project success
There are two sides to decision-making regarding termination. One is to predict whether the project is likely to be successful, and this activity happens at the outset and at various decision-stags within the project life.   The second is to respond to initiating hazard events.

As regards the first, the practitioner and research literatures assert that certain factors are critical (De, 2001; Meredith & Mantel, 1995; PMI, 2006), though the evidence base for these assumptions is not always clear. For example a study of research and development projects identified various factors as being related to project success:
*   technical route: smoothness and probability of success
*   project champion
and others associated with failure:
*   deviations in cost schedule
*   chance events
although many other factors had an ambiguous contribution (Balachandra & Brockhoff, 1995). Other results, also for R&D, are somewhat contradictory and suggest that technical feasibility and economic analysis are not strong components of decision-making, thus: ›basic research projects are much less likely to be subjected to a formal economic analysis and are generally thought of as being "strategic" investments= (Cook & Rizzuto, 1989, p291).

Initiating hazard events

This model mainly examines those projects where continuation decision points (e.g. stage gates) are NOT built in from the outset. For these projects it is some hazard event that forces the organisation to a decision: whether to terminate or continue a project.   These hazard events are anticipated to include:

(a)   impending failure of project scope (either schedule, cost, function, or quality),

(b)   lack of support from senior management (they have changed objectives, disinterest, or the external environment has changed),

(c)   loss of motivation of project staff (they are stressed, pathological team relationships, despondent),

(d)   loss of key capability (key technical skills lost, technology has been usurped by another project, intended technology solution is non-feasible, funding is drying up), or

(e)   loss of political support for project, e.g. loss of sponsor, project champion.

(Adapted from Melymuka, 2004; Meredith & Mantel, 1995)

If one or more of these factors is present then it may cause catastrophic project failure unless actively managed.

So we conclude that it is not easy to predict beforehand whether a project is likely to succeed or fail, neither at the outset nor part way through.

These lists of purported critical success (failure) factors may be useful as a guide to practical action, but are of unknown reliability and should be used with care. They are speculative rather than definitive, despite the confident way they are often presented. The lists are indeed plausible, and generally informed by experience, but they are nonetheless only conjectures unless evidence is provided to support the factors. This is not usually done, so the lists are best thought of as only practitioner theories, albeit practical ones as opposed to the academic and more obviously abstract ones elsewhere in the literature.

Finding empirical evidence for the importance of one or a few select factors is not too difficult, especially if the factors are broadly defined. The more important problem to solve is to identify which of a large set of factors are actually important, and which are irrelevant. There has been some research to determine just what these critical project factors might be. This type of research typically takes a large list of candidate factors, offers them to people to rate, and uses the statistical process of factor analysis to determine clusters of factors that best accommodate the variability encountered in the survey.

For example, this has been done for critical factors in project failure, and the results show that two of the most important factors (at least for public service projects)are:

*   Change in the political commitment (e.g. external/internal politics, funding source, champion, regulation).

*   Change in the need for (or importance of)   the project, i.e. a departure from

the initial expectations.

Who makes the termination decision?
Making a decision to terminate a non-performing project is not easy. There are sunk costs which will be lost if the project is abandoned, but which might just be recovered if a little more is spent on the project. Termination is a particularly difficult decision when the salvage value is low but the termination costs are high.

The project manager is perhaps not always the best person to make that decision, because most are biassed towards overcoming problems by persistence, which is a useful characteristic during the rest of the project, but may hinder at this time! The question to ask is whether the organisation would still initiate the project if it were being proposed today for the first time.

There is some research to suggest that someone not directly involved with the project often makes the decision to terminate the project   (Balachandra, Brockhoff, & Pearson, 1996).

On what information is a termination decision made?
Much of the literature states that termination *should* be made on rational economic criteria (Cook & Rizzuto, 1989; Dobson & Dorsey, 1993; Melymuka, 2004; Messica & Mehrez, 2002; Rad & Levin, 2005; Statman & Caldwell, 1987).   However the research is not entirely clear on what the termination decision is *actually* made on. Economic criteria do not feature in reality as much as might be expected. It seems that time, especially calendar time, is important (at least in some cases)   (Dilts & Pence, 2006).

There is also evidence that different criteria exist for different types of projects, for example research has found that ›post-audits of Applied and Development projects are based on economic measures, whereas Basic research projects focus on physical or operational goals= (Cook & Rizzuto, 1989, p291), from which an approximate inference is that the same measures would be used in termination decisions.

The issue of technical feasibility arises in some projects more than others. Consequently one would expect technical feasibility problems to be the cause of many termination decisions in research and development. However there is research that shows this is not so: ›most R&D projects are terminated because R&D priorities have changed rather than because they are not technically feasible= (Cook & Rizzuto, 1989, p291). Other research suggests that technical infeasibility is indeed an important influence on termination decisions (Guan, Liu, & Peng, 2002).

What is the mechanisms for making the decision? (Sunk cost bias)
Given that meeting financial cost budgets is an important criterion of project success, one would expect that projects would be terminated/continued on the basis of the cost performance up to the date of review. Thus unprofitable projects would be expected to be promptly terminated. However it does not always happen like this (Dobson & Dorsey, 1993).

The ≫sunk cost= bias suggests that people=s decisions about ongoing investment in a project are influenced by how much they have invested in it. The theory says that the more money and time they have invested, the more they are likely to want to persist with the project to completion, i.e. an *escalation of commitment bias* (Dilts & Pence, 2006).

The rationale (Dilts & Pence, 2006) behind this theory is that people make decisions based on the ≫expectancy' of success: the compounding of expected intrinsic value of an outcome with the expected likelihood of success (Vroom, 1964). Avoidance of cognitive dissonance may also be involved: to first support the project on its perceived value, and then to later be confronted with evidence that the value will not be obtained or the decision was wrong, is cognitively uncomfortable and the source of that discomfort may be suppressed. Thus the evidence of possible failure may be cognitively suppressed, hence a bias.   A third effect that might underpin the sunk cost bias is repercussions. Research shows that project managers feel more personal career risk when cancelling projects than do executives (Dilts & Pence, 2006).
A fourth effect may be aversion to regret (Statman & Caldwell, 1987), i.e. being reluctant to make decisions that finally confirm losses because that creates regret. People postpone that pain by continuing the project, in the hope that while the future is ambiguous it *might* still result in success. As the proverb states,   it is better to be a live dog than a dead lion.

However, the research evidence for the sunk cost bias is ambiguous. Some research has found no support for the effect (Boehne & Paese, 2000), while other studies have confirmed the existence of the bias (see Dilts & Pence, 2006, for public-service projects; Garland, 1990). Other research suggests the opposite effect, namely *de-escalation* of commitment as sunk cost increased (Garland, Sandefur, & Rogers, 1990).

In some ways sunk *cost* might not be the best term, because it suggests financial cost, whereas there is evidence that it can be *time* that really matters. Thus some research suggests it may be more accurate to say that decisions are based on how *close* the project is to completion (Boehne & Paese, 2000; Conlon & Garland, 1993; Paese, 2000). Project completion can be more important in people=s decision-making than the economic concerns of sunk cost:
> ≫*projects are initially undertaken with the goal of economic profit in mind. As a*

> *project nears completion, however, the initial goal of economic profit is*
> *overtaken by the goal of project completion* (Paese, 2000, p192).

This effect has been evident in other research (Garland & Conlon, 1998). In other words, people are intrinsically motivated to complete a project, and towards the end the financial profitability may become secondary.

However this is complex topic and it may be that the biases varies according to the type of accountability required (e.g. decision outcome vs decision process) (Girandola & Gauthier, 2001), or stage of project (He & Mittal, 2007), or that cost and completion factors are complementary (Moon, 2001). It is also possible that in some circumstances the effect may be in the opposite direction, i.e. a de-escalation (Zikmund Fisher, 2004).

To sum up, the matter of escalation bias is a complex one. It seems likely that there is not just one universally applicable ⟩sunk-cost bias⟩. Further research is needed to determine the different types of bias, the influencing factors, and the strength (and direction) of the resulting bias. From a practitioner⟩s perspective, it is probably reasonable to assume that an escalation bias could be operating in any given project, driven by cost invested to date *and* closeness to completion.

Perceptions differ by role

Research shows that ⟩project managers are more likely to terminate a project that is running overtime than are executives⟩ (Dilts & Pence, 2006, p388). Thus project managers are more sensitive to total time spent on a project: perhaps overly so. Executives ⟩may be more understanding of schedule slippages than project managers give them credit for⟩ (Dilts & Pence, 2006, p394). However that same research also found that while executives were not as worried about labour hours as were the project managers, they were more sensitive to calendar time.

The research also suggests that the bias is different for project managers compared to executives (Dilts & Pence, 2006), and for projects involving risky research and development compared to deployment of existing technology, but further research is required to elaborate these effects.

Based on the evidence so far, it seems that a sunk cost bias does exist, especially is ⟩cost⟩ refers to finance or time. However the effect is variable and only partly understood, and it is still difficult to provide practising project managers with reliable advice in this area.

Termination strategy

A termination strategy will then need to be selected based on the decision made. The choices are   natural closure due to achievement of objectives, forced closure

due to unsuccessful outcomes or client disinterest, transfer (≫addition≒) of all project resources (equipment and staff) to a new organisation, piecemeal integration of project resources into a host organisation, or stasis (≫starvation≒) where the project budget is removed but it continues to exist, at least nominally, to meet political objectives of senior management (Meredith & Mantel, 1995; Statman & Sepe, 1989).

4.2   Close contract (2)

The observations of the PMBOK are particularly relevant at this point. The important tasks are verification of the project outcomes and settling the contract (see also Ceran & Dorman, 1995; PMI, 2004). This can also include early termination of the contract if the project is unable to deliver the specified outcomes. Contract closure is also mentioned in procurement (section 12).

The difficulty in contract closure is confirmed by research that has shown that the major problems that project managers have to deal with at closure are:
*   negotiating claims and final payment with clients (De, 2001)
*   demonstrating performance, including statutory requirements and
         performance guarantees (De, 2001)
Those issues arise even for projects that end as planned. The problems are greater still if the project, or a sub-contract thereof, terminates unusually. Disputes easily arise if a contractor abandons the work, or the   project manager terminates the services on the basis of non-performance (Battelle, 2004).

4.3   Administrative closure (3)

The *administrative closure*   includes collation and archiving of documents. This activity features prominently in the literature (e.g. PMI, 2004). The obvious output is documents archived in a project file. Other outputs are the freeing up of assets to the client or the project organisation: provision of user manuals, provision of spare parts, return of unused resources, and handing over intellectual property (Meredith & Mantel, 1995). Closure of the project office is another outcome. These are relatively easy to finalise providing only that the project plan makes provision for the work required. However, other important assets are intangible and harder to anticipate, as elaborated below.

4.4   Learn lessons (4)

Important intangible assets of a project include the skills and knowledge gained by the team members, which need to be captured by the individuals and used to enrich

the organisation (‹learning organisation›). Capturing that ›lessons learned‹ knowledge can be done with a review (Meredith & Mantel, 1995). However it is probably better to do so in a non-condemnatory manner as the purpose is to learn, not assign blame.   Perhaps you might like to create an atmosphere of trust and honesty by setting some rules about behaviour during the review meeting. Let everyone have their say and don‹t worry about trying to forge   consensus. Do the review as soon as possible to take advantage of well-established reinforcement principles from behaviourism psychological (Fontana, 2000; Robbins, Millett, Cacioppe, & Waters-Marsh, 2001). If the team doesn‹t take time to reflect on the outcomes, then the learning is lessened.

Learning and ›lessons-learned‹
A strong feature of much of the PM literature is the need to collect the learning from the project, and use these to improve the next similar project (Ceran & Dorman, 1995).   Thus, ›various authors realise that project environments could also benefit from the creation and re-use of knowledge, including from the lessons learned that should be documented during project close-out‹ (Pretorius & Steyn, 2005, p41).

However, it has been observed that this is not always as effective as it might be: ›though project history is prepared in many companies, this somehow does not reflect in learning from mistakes and modifying project management procedures appropriately‹ (De, 2001, p124).

4.5   Deliberately plan for closure (5)

Closure tends to be neglected and poorly planned (Brandel, 2006). Many projects attach ›closure‹ as a few tasks at the end of a a existing project. Furthermore, the tasks are executed   at a time when incentives and motivation are waning.   Closure of a project is not just initiation in reverse, thus ›quality practitioners who do not understand the different responsibilities of project initiation and project closure stages make severe errors‹ (Kloppenberg & Petrick, 2004, p 63).

If there is an industry that specifically addresses project closure in a methodical and successful manner, then it is the nuclear industry (Aitken, 2005; GAO, 2005). The problem they face is the challenging one of decommissioning radioactive plant. The reason they are successful at this is because they treat the closure as a project in its own right, and resource it accordingly, e.g. USD 7.5 billion for cleanup at Rocky Flats   (GAO, 2001). Not only so, but they also sometimes provide contract incentives for success (GAO, 2001).

4.6 Seek to increase value (6)

Check against original criteria of success

Projects are *initially* expected to produce value of some kind, e.g. financial return on investment (ROI) for the client. The PM method then creates a list of activities (the work breakdown structure) for building the necessary system. The risk is that the focus is on completing tasks or building a system, to the detriment of the original expectations of value. Thus:

> *›It≠s all too possible for completed projects to appear to be successful based on adherence to schedules and budgets, as well as delivery of benefits, even if they didn≠t meet the objectives that drove the original ROI case=* (Brandel, 2006, p37).

Hence the need to check against the original intended *value.*

Project managers can go further than this though, by seeking to *increase value* through subsequent enhancements. We are not talking here about changes to scope that occur during the project (scope creep), but about opportunities to develop secondary projects that add further value to the customer. The problem is that ›people think of projects as temporary endeavors ...[and therefore] disband the project team= (Brandel, 2006, p38). By being too focussed on only the project itself, they miss the opportunity for derivative works. These other works may be product enhancement, secondary functionality, or related products. Ideas for these derivatives may come from brain-storming with the client after the project is *closed.*

4.7 Soft closure (7)

Strong outcome focus in project management

Project management is a very outcome-driven method. It earnestly seeks achievement of functional objectives, and all its tools and processes are focussed on the criteria of project success. Those criteria are primarily quality (function), cost, and schedule. Furthermore, those criteria are usually client-centric, i.e. seek to maximise value from the client perspective.

Consequently project management can sometime be perceived as too instrumental, and too preoccupied with functional outputs, to the detriment of the human dimension of the staff concerned. Certainly the PMBOK acknowledges the importance of human resource management (section 9), but even so it is mostly task-oriented. For examples the PMBOK lists the need to document project roles and the reporting hierarchy, ›obtaining the human resources=, ›improving the competencies= of individuals, tracking performance, resolving problems (PMI, 2000, p 199)   - the whole purpose being to ›enhance project performance=. To be fair, the

PMBOK does mention team-building briefly. It also mentions rewards, though it does so only from a behavioural psychology perspective: ›only desirable behaviour should be rewarded‹ (PMI, 2000, p214). There is nothing wrong with behavioural psychology, but it is focussed on output behaviour and the control thereof, rather than addressing other dynamics of motivation.

Thus there is evidence for a strong task-orientation throughout the PM method. We are *not* saying here that this is wrong, but simply that there may be room for a better balance and inclusion of motivation and other soft perspectives. Project management is a sound *management* methodology, hence it‹s popularity at middle-management, but is less well-equipped to address the soft *leadership* issues. By this we mean motivating staff, personal development (*all of* technical competence, organisational skills, *and* self-efficacy), vision, and the politics of power and influencing the behaviour of others.

What motivates the project leader (sponsor/champion)?
Many projects don‹t need much leadership. Such leadership that is required is provided by the executives and human resource managers of the host organisation, and by the project sponsor (a politically powerful person who endorses the project and advocates for it at senior levels). As regards the latter, who can also be called project champions, research has shown that champions are motivated *not* by the technical merit of the project, but by the political advantage (Markham, 2000, p444). Furthermore, as regards terminating projects, the same research shows that champions protect their projects from termination. Their behaviour is primarily political rather than functional, since ›champions are successful at providing resources to projects that are no more likely to succeed than other projects‹ (p444). In other words, a champion‹s support for a project is not based on the technical merit of the project nor any superior ability to discern successful candidate projects, but on the political opportunity. Consequently, ›managers can no longer assume that champions are selfless, sagacious, visionary, and intrinsically motivated‹ (p444).

There is a tendency in project management to perceive greater rationality in executive decision-making than may actually exist. Thus there is a belief that the initial approval decision (or termination decision) for a project at executive level will be based on ›true business priority‹ (Melymuka, 2004), economics (e.g. nett present value, NPV) (Cook & Rizzuto, 1989; Dobson & Dorsey, 1993; Statman & Caldwell, 1987), salvage (Messica & Mehrez, 2002), formal processes (Rad & Levin, 2005), or other objective criteria. It is probably more realistic to say that these only influence the decision, and that decision-making is seldom purely rational but rather ultimately based on intuition, selfishness, politics, etc., (Elton & Roe, 1998; Markham, 2000).

Motivation of team members
Champions and sponsors aside, it is particularly at closure that an element of local leadership is valuable. Leadership is needed to at this stage to maintain motivation of the team:

> *During this phase, it is very important to maintain team effort and enthusiasm as personnel tend to get disturbed over uncertainties about their future role and sometimes their continuation in the job.* (Doshi, 1999)

There can be anxiety even in a project that ends normally. If the project is terminated prematurely then the opportunity for anxiety is much greater, and can demoralise staff (Balachandra et al., 1996).

This psychology aspect to project teams might seem paradoxical to some practitioners, given that the purpose of the project in the first instance was financial, and it is likewise generally assumed that people work on projects for the financial (extrinsic) reward. In offering an explanation for this, it may be helpful to partition motivation into extrinsic and intrinsic. Personal economic profit is an extrinsic motivation, especially if a performance bonus is paid to team members. Intrinsic motivation refers to deeply held personal motives for performing some action, and in this regard goal-setting theory perhaps explains the situation: people are motivated to achieve a goal they deem challenging but feasible, because they seek the satisfaction that accomplishing it will give them. The type of people who self-select into project roles perhaps have a high need-for-achievement. Terminating the programme prematurely denies them the satisfaction and sense of self-efficacy (hence self-worth), and could be resisted.

Thus we are saying that even though the project itself might originally have been motivated by the economic value, the team who implement it are not emotionless automatons but instead attribute their own *personal values and hopes* to the project and thereby motivate themselves. In this regard a project is NOT simply a temporary economic endeavour (Brandel, 2006), but a partnership whereby a client obtains a tangible output of economic value, the hosting organisation obtains a financial profit, and the individuals of the team obtain an income and enhanced self-efficacy. To deny the self-efficacy component is to miss out on an important part of the motivational reason for people to undertake work.

A candidate theory for intrinsic motivation within project teams

As a starting point this paper offers the following theory for motivation in project teams. We speculate that anticipation of project success provides some prior intrinsic motivation to team members, *and* increases their self worth. However we anticipate that all that changes at the end of the project, so there is a life-cycle of motivation (or perhaps an upward spiral would be a better analogy):

* Thus we expect that initially team members will be motivated by a sense of an achievable challenge (goal-setting theory) (Locke & Latham, 1990). Specific goals also help set the definition of what level of output will be cause for satisfaction (Locke & Latham, 1990), and the anticipatory seeking of that satisfaction is the basis of motivation (Bandura, 1989 p1180). The challenging attribute of the goal causes the protagonist to change beliefs about self efficacy (3), which positively affects commitment to the goals (4) (Bandura, 1989).

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*   The successful completion of a project gives the team members a sense of accomplishment. If the project ends normally, then   as the project nears completion that source of motivation turns to satisfaction (or not as the case may be), and is used up. Instead new needs arise, e.g. the need for ongoing employment. Unfortunately the project environment often make ongoing roles uncertain, so the need cannot be fully met and this can lead to anxiety.

*   If the project is terminated prematurely, then the individual is denied the sense of accomplishment (hence motivation may immediately flag), and self-efficacy may be decreased. The person may actively resist these outcomes, e.g. by seeking to have the project continued.

*   In this theory the motivation for the between-project phase is based on anticipation of the next project accomplishment (failure). Thus the positive motivation is presumably conditional on the evidence that there *is* going to be a next project or a positive belief that the psychological contract with the employer is strong enough that   *some* project will be provided in the end even if none is currently apparent. (This suggests that personal outlook and positive employment relationships may be important in sustaining motivation in the lulls between projects). The opportunity for de-motivation also exists, if the individual perceives that there is no following project, or that the next project is likely to result in failure. The de-motivational effect would be particularly strong if the previous project had also failed. This is consistent with other reported research:

> *Repeated negative feedback appears to induce individuals to see each successive failure as more and more diagnostic. As a result, even a short series of failed attempts evokes beliefs that future attempts will also fail. These emergent expectations of failure, generated by causal attribution processes, associative learning, and/or discounting of ambiguous information, appear very compelling and induce people to forgo profitable marginal investments.*= (Zikmund Fisher, 2004, p365)

The above theory is simply a conjecture, informed perhaps by psychology, but nonetheless only a starting point. Further research would be required before one could consider the theory validated and reliable as a guide to action by practitioners. However in the absence of other theories or such validation, it may at least be useful for identifying the types of issues practitioners may consider.

5 Discussion

5.1 Implications for practising project managers

What are the practical implications for project managers for the closure stages? Well, the research that exists is limited, but we can tentatively extract several concepts and synthesise some recommendations, though it should be remembered these are primarily conjectures.

*   ACKNOWLEDGE THE POSSIBILITY OF TERMINATION DECISIONS: consider breaking the project into stages (phases) and making specific provision for conscious decisions about termination. It=s a form of risk management, and in this way termination decisions are not a surprise hazard event.

    Assess the state of the project against the original objectives. Review the status of the technical artefact, the financial variance from budget, and the schedule variance. Forecast the final cost and schedule. Then present this to the client and project organisation and determine their level of residual interest in the project and their acceptance (or otherwise) of the forecast outcomes.

*   DELIBERATELY PLAN FOR CLOSURE: there is probably merit in deliberately designing a plan for closure.   If a decision has been made to force closure of a project then this would seem not just advisable but essential. It will be necessary to write up a new project plan (work breakdown structure) for just the termination phase.   If termination (premature closure) is occurring then plan for how claims of contractors will be managed (Battelle, 2004).

*   UNDERSTAND INTRINSIC MOTIVATION: Project managers may do well to consider that the handover/completion milestone is only the *nominal* last activity. Don=t make the mistake of thinking that the organisational work on the project stops when the artefact of the project is complete (Meredith & Mantel, 1995). The organisational work includes managing the staff morale and their redeployment.   It may be helpful to perceive that there are a set of tacit (not explicitly stated) tasks at the bottom of the WBS, and the project *actually* only terminates when the team is successfully decommissioned. By >success= is meant that they are (a) personally satisfied with their contribution to the immediate past project, and more importantly (b) engaged with healthy motivation on their next employment position. In other words, we are saying that it is probably not sufficient to simply hand the staff back to a central human resources department to reassign/dismiss.

In particular, be alert to the anxieties that team members have about their future employment roles (Doshi, 1999). We anticipate a graded scale of responses that you might like to consider:

(a)   awareness that others may be anxious, i.e. develop an attribute of emotional-maturity (sometimes called emotional intelligence),

(b)   find ways to empathise with others through meaningful communication, i.e. develop a relationship-orientation to complement and balance the strong task-orientation that might otherwise dominate, and

(c)   find ways to help team members to transition to new positions after completion, i.e. actively find solutions to their anxieties (as opposed to palliative care).

Towards the end of a project it may be important that the project manager change his/her focus from what has probably been predominately a task-orientation, to include an equally strong relationship-focus (see also (b) above). Simple things might help: Compliment the team members on their contribution (Ceran & Dorman, 1995).

5.2   Implications for further research

We identify motivational leadership at project closure as a potentially important missing function of local project *leadership.* It is therefore a *risk* area for project managers, but likewise also an *opportunity* for project researchers to make a significant contribution to the body of knowledge.

The project management method hardly even acknowledges the existence of intrinsic motivators for team members, neither the motivation that prompts people to be willing to join a project team, nor the motivation that provides the ongoing quality labour, nor the motivational discontinuity as the project closes. There could be great value for integrating into project management some of the extant concepts from the leadership and psychology literatures. Furthermore, project management researchers could take the lead in some of these areas by exploring the important topic of how to provide leadership to sustain motivation through the different phases of the project, including before and after the project. (Most constructs of motivation in psychology implicitly assume a steady-state employment, and most leadership constructs focus on vision and initial motivation to accept a change effort.   By comparison project management includes several different phases where motivation can be expected to vary).

6   Conclusions

Successful close-out of a project does not automatically occur when the project deliverables are handed over to the client. A substantial amount of organisational work remains to be done by the project manager. This is particularly so when the project is at risk of failure. Even if the project is likely to end normally, there are still motivational needs of project staff that need addressing, and a candidate theory has been presented to describe the motivation that arises (or fails) at the various stages of a project.

For projects that are terminated (premature closure), the closure processes is still more complex. The decision-making process for termination is complex, and is likely influenced by escalation of commitment bias. That bias is only partly represented as a sunk cost bias, because closeness to completion is as much if not more important. It is recommended that project managers specifically plan for closure, i.e. that a decision to terminate probably needs a new and explicit closure plan. Motivational issues for project staff may be particularly significant in termination.

Biography

Dirk Pons has a background in mechanical engineering, and a PhD in engineering design. He is a long-standing user of project management methods, and teaches the topic at CPIT. His research interests naturally include project management, and also extend to engineering design, risk, and reliability, and he has several publications in international journals.   He is a professional educator and a frequent contributor to the PMI conferences.

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