apm Risk Management Specific Interest Group

Contracting for Performance

APM White Paper

Written by
APM Risk Specific Interest Group (SIG)

Authors – Bryan Barrow and Peter Campbell

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Background

Classic project objectives are set in terms of cost, time and performance. Bringing it in on time and to budget are risk management achievements which are internal to the project.

Performance starts before there is a project and continues after the project is complete. Managing risks to performance is a subtler aspect of project management, while within business-as-usual organisations the delivery of performance is a key issue on scales ranging from the individual to the whole business.

For many people working within project management, understanding the risks to performance is by no means straightforward. For example:

- When we talk about performance, do we mean meeting objectives and delivering a 'fit-for-purpose' product?
- Is performance all about quality, audits, KPIs or KRIs?
- Do we have agreed definitions for performance?
- How should we measure performance?
- Do we know what the risks to performance are?

Exploring the issues around risk to performance

The Association for Project Management Risk Specific Interest Group (SIG) held a one day event with the Institute of Risk Management (IRM) in July 2009 to explore these issues. The specific objectives for the event were:

- to explore what good practice meant in three areas: risk management, performance management and benefits realisation management;
- to explore how these three areas differed and to explore the lessons that attendees could learn from each area;
- to consider whether they should be brought together to form a single discipline or not.

The presenters for the event were:

- David Chard, Principal Consultant at OTC Optima Ltd;
- John Knott, Principal Consultant, John Knott Associates;
- Peter Campbell, Director Risk Advantage Ltd and Chair of the APM Risk SIG;
- Val Jonas, CEO of Risk Decisions Ltd, and;
- Matthew Leitch, Principal Consultant with Internal Controls Design

Andy Garlick, independent risk Consultant with The Risk Agenda and PPP Secretary for the Institute of Risk Management opened the event by posing three questions:

- How well do we deal with risk to performance?
- Is what we do worth the effort?
- Is there scope for improvement?

To illustrate the scale of the challenge – and the opportunities – facing organisations running projects, Andy said that for every 100 projects:

- 40% (40 projects) failed to deliver – these were cancelled or faced serious delivery problems;
- 40% of the rest (25 projects) failed to be accepted by business users;
- 40% of the rest (15 projects) failed to generate the expected benefits, and;
- Just 20% (20 projects) delivered the planned benefits[1].

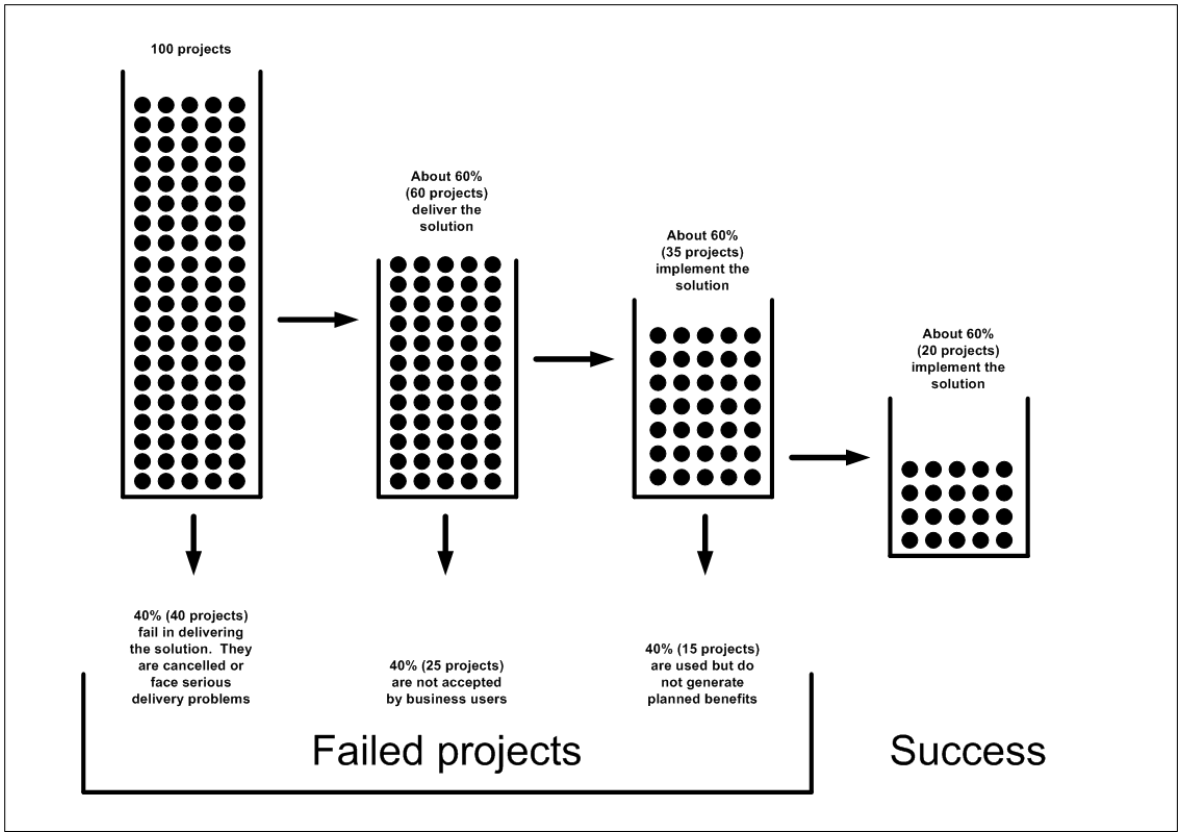

Figure 1: Proportion of projects that fail to complete, fail to get accepted or fail to deliver the expected benefits

The presentations that followed explored these themes in more detail.

[1] Carroll, T: Project Delivery in Business as Usual Organisations, Gower (2006)

Performance baseline reviews and project risk

In his presentation David Chard examined the links between successful project outcomes and up-front planning, particularly the use and benefits of conducting performance measurement baseline reviews.

A performance baseline review (PBR) is a formal review carried out at the outset of a project to confirm that:

- all of the in-scope deliverables for the project have been included in the project plans;
- the plan is fully resourced and has sufficient budget;
- risks have been identified and are being managed.

The PBR has its roots in both earned value management (EV) and cost/schedule control system (C/SCS).

The main benefits of the PBR are:

- **Better decisions,** taking into account risks, opportunity and uncertainty;
- **Predictable performance,** arising from a better understanding of the variability of outcomes and the setting of informed targets;
- **Achievable commitments,** based on higher confidence levels in achieving objectives;
- **Better prices,** based on justifiable, defensible negotiating positions;
- **Better performance** through improvements to cost, schedule and performance;
- **Early warning of potential problems**, leading to a greater chance of resolution.

David described the three types of review, namely:

- the integrated baseline review (IBR), which covers the initial work scope, the project schedule, resources and the estimate/budget;
- the demonstration review (DR) and the surveillance review (SR), both of which cover the project control system, change management, project accounting and review reporting.

Areas covered by the review	Type of Review		
	IBR	DR	SR
Work scope	•		
Schedule	•		
Resources	•		
Estimate / budget	•		
Project control system		•	•
Change		•	•
Accounting		•	•
Review reporting		•	•

Figure 2: Areas covered by different types of review

The IBR:

- provides both customers and contractors with confidence that all of the project workscope has been captured, scheduled, resourced/budgeted and integrated realistically;
- lays the foundation for measuring real progress against a real baseline;
- provides an independent assessment from which improvements can be made, and importantly;
- ensures that risks have been identified and are being managed.

The risk component of the IBR includes both a review of the project control data (risk management plan, risk database, risk reports, assumptions, dependencies, etc.) and structured interviews with key personnel, including the project manager and risk manager.

Taken together, these reviews help to establish and monitor the project's performance measurement baseline (PMB), which represents all that the project is planning to do in terms of the statement of work and any work packages. It also helps to establish whether there is sufficient management reserve (MR). This is made up of the following:

- The project's technical contingency (TC), the amount of budget / time / resources set aside to cover the specific items in the risk register, plus budget for mitigations agreed but not yet transferred to the baseline;
- The project's management contingency (MC), the budget set aside to cover as-yet unidentified risks.

Performance measurement of risk management

John Knott continued the debate by challenging the reasons why people usually manage risks and concluded by highlighting the correlation between a small number of root cause events and the number of project risks. His key recommendation was to identify root causes and to undertake activities which had a high action to risk ratio.

What's at risk?

Knott opened the discussion by posing the question: why do we manage risk in the first place? The typical reasons, he suggested, did not always result in a consistent approach to identifying and managing risk. Nor did clarity on what was at stake. Organisations often failed to fully understand the risk to performance because they failed to measure the right things and also failed to control and manage the risk process.

The top causes of failure

This view was backed up by The National Audit Office (NAO) and Office for Government Commerce (OGC) [2] who jointly published a report in 2005 on the top causes of failure. In their assessment the lack of skills and a proven approach to project and risk management came in at fourth place. At number one in the list was the lack of a clear link with strategic priorities,

[2] http://www.ogc.gov.uk/documents/cp0015.pdf

suggesting that difficulty in aligning with strategic priorities was reflected in the inability to measure the right outcomes.

Position	Cause
1.	Lack of a clear link with strategic priorities
2.	Lack of clear senior management ownership and leadership
3.	Lack of effective stakeholder engagement
4.	Lack of skills and proven approach to project and risk management
5.	Insufficient attention to breaking down development and implementation into manageable steps
6.	Evaluation of proposals driven by initial price rather than long term value for money
7.	Lack of understanding of / contact with supply industry at senior levels
8.	Lack of effective project team integration between clients, the supplier team and the supply chain

Figure 3: The top eight causes of project failure

The need to improve the quality of risk identification

One possible solution to this problem was to improve the quality of risk identification. However, according to a study by the risk management services provider Det Norske Veritas (DNV) and the Association of Insurance and Risk Managers (AIRMIC) very few organisations managed all categories of risk in an integrated fashion and risk policies had little direct influence on the amount of risk accepted.

The report went on to say:

"There is scope for improving the quality of risk identification, even in some of those organisations that are best at risk management".

Structured risk identification helps to avoid blind spots

Even if organisations became better at identifying risks, they still faced setbacks if they failed to focus on managing root causes of failure, rather than risks. Instead, they should invest time in identifying the root causes of risks.

Knott presented a summary of two risk reviews. In the first, of 668 risks identified all of them could be traced back to sixteen root causes, while the vast majority of the risks (617) were associated

with just ten causes. In the second review, covering ten major programmes, the top cause of failure was associated with 35% of the risks to the programmes as a whole and the top three causes were associated with nearly 40% of the risks.

Action on root causes helps to reduce risk to performance

Knott went on to show how real risk management efficiency could be achieved through actions on root cases. In one case study, over 600 risks were mitigated by just 23 high level actions, a risk to action ratio of nearly 27:1. Critically, this included a large number of risks that had not been identified at the start of the project.

Measuring performance

Due to one of the advertised speakers not being able to attend on the day Peter Campbell, chairman of the APM Risk SIG, provided a short notice presentation on 'measuring performance'. First was a discussion on what performance actually means; for example, a design brief for a new car states:

- The car must have range of 400 miles.
- The car must be capable of maintaining an average speed of 70 mph.

The point was made that these are quantifiable parameters; however, if the car can travel at 90 mph but its range is now 300 miles would this be a major or minor non-conformity? How will we know? The answer lays in the project definition which should include a range of acceptability criterion and trade-off. Using this example; if it is critical that a project requirement is to have a range of 400 miles, the fact that we gain 20 mph on average speed matters not. There will be requirements that can be traded and others that can not; however, clear delineation, like clear objective, must be stated for any realistic measurement to be made.

An example was used of planning a journey to show that detail is needed before we can measure how well our objectives are to be met:

- We need to define our **destination** before we can say we've completed our journey.
- We need to plan our **route** to measure progress.
- We must select a **method** of transport.

Saying we want to travel to Scotland and arriving in Glasgow when specifically we want to be in Edinburgh can not be seen as a failure unless the location was a stated requirement. Level of detail is important.

How can progress be measured if a route or direction has not been made clear? If an in-direct route has been accepted it is unfair to measure the travel time against a direct route which will, more than likely, be a longer journey.

If a travel time can be met only by taking a flight then accepting a road solution is not the fault of the provider but that of the client. To identify risk, we need to understand objectives and to measure performance we need to understand our requirements.

Risk admiration or risk management?

In her presentation Val Jonas, CEO of Risk Decisions Management Solutions, asked the audience whether in their experience organisations were more interested in risk admiration or risk performance. She went on to outline an approach to risk assessment that provided them with the means not only to identify risks, but also to actively manage them.

"99% of risks are 'performance' risks"

Successful projects were those that were delivered within agreed time, cost and quality targets. Risks and uncertainty acted against projects by driving them outside these targets. In Jonas' view almost all risks were performance risks - the failure to meet agreed (or expected) time, cost or quality criteria. The difference between success and failure therefore came down to what was affordable and it was here that many organisations struggled, mainly from:

- the failure to assess – and to account for – risks to projects, and;
- the failure to follow through from assessment to management.

Failure to properly analyse risk affects the whole project

Jonas identified a key shortcoming in many risk assessments: the tendency to be overly optimistic about the likelihood of completing on time. This was often a result of ignoring the likelihood (or reality) of schedule variance. As a result many projects simply did not set aside sufficient funds to cover the *true* cost of the project.

This failure to assess the true level of risk went on to affect subsequent risk management activities, including:

- identifying how much funding was required to cover both the *expected* cost of the project *and* the cost of any contingencies;
- determining the level of exposure the project was subject to, i.e. the difference between what the company had budgeted for and what it could cost if key threats were not managed, and;
- prioritising and managing risks throughout the life of the project.

Risk planning and response needs to include risk tolerance and risk exposure

When assessing risks projects could produce better estimates of true project cost by:

- obtaining a *range* of estimates (maximum, minimum and most likely duration) instead of using a single estimate, and;
- using these estimates to assess the probability of completing by a particular time, or for a particular cost.

Once the project has completed this assessment, it would be in a much better position to determine the level of risk, contingency, reserves and exposure.

Having assessed the risks the next step is to determine the overall budget for the project, or baseline cost. This baseline cost should include: (1) the *planned* costs for the project (the in-scope work), and; (2) the funding needed to cover *known* risks.

Having identified the baseline costs for the project (inclusive of the costs for dealing with known risks) it is still vital that some allowance for schedule variance is made. This schedule reserve,

when added to the baseline project costs, gives a 'contracted' cost. The level of schedule reserve will often reflect an organisations' level of risk tolerance (or risk appetite).

However, there was still a difference between the contracted cost and the total level of exposure, represented by the difference between the contract cost and the maximum project cost. Jonas stressed that risk owners should be made aware of their risk exposure and that action owners be appointed to manage these risks.

Term	Definition
Baseline cost	The difference between the minimum and target project cost
Scheduled cost	The difference between the target and contracted project cost
Maximum cost	The difference between the contracted project cost and maximum project cost

Figure 4: Baseline, scheduled and maximum project costs

Three areas for particular focus

Jonas concluded by recommending three specific actions for improving the management of risk. These were:

1. managing down the *level* of risk by focussing both on the causes of risks and on the consequences of risks;
2. focusing on reducing the level of project exposure, although Jonas advised projects not to be risk averse;
3. the need to address tombstone risks, those with a small probability but very large impact;
4. reassessing residual risks as the project progresses, revising the cost of any recovery actions if mitigating actions are successful.

What happens when you integrate risk and performance measurement?

When plans are made and resources allocated, ideas about what benefits will result are uncertain and we often know least about the ultimate impact and benefits, if any, of what we plan to do. Examining this source of risk reveals some startling, natural similarities between performance management and risk management, opportunities to integrate the two comprehensively and answers to important practical and theoretical problems in both disciplines.

Do we want to integrate

Matthew Leitch asked if we want to integrate and referred to the finding of a pole which asked two questions:

1. Assuming we have time to work on it if necessary, how should risk/uncertainty be managed?
   - Separately from other management thinking i.e. separate meetings, documents, specialist support manager perhaps.
   - Integrated into other management thinking e.g. about performance, strategy, planning, resource allocation.

2. If an organisation is in a position to create explicit models for risk analysis and for strategy/performance thinking, relevant to a particular aspect of its business and at the same organisational level, how should it organise the work?
   - Separate teams, meetings, documents, and models for strategy and for risk.
   - One team, one set of meetings, one set of documents, and one set of models.

The result of this research was that the majority said that Integration was the preferred option and working as one team was the best. From this the conclusion was that Integration was the way forward.

Lessons from a government department

From a 'merging' exercise looking at a performance report (critical success factors) merged with risk, in other words 'things we must get right' and 'things that might go wrong' many were the same point in different language:

- CSF: "We need to raise customer satisfaction."
- Risk: "There is a risk that customer satisfaction will not increase."

We may not be entirely comfortable with their version of 'risk' but at least some 'risks' are clearly the same as objectives, just dressed differently. Keeping them as if they are different ideas makes little sense.

Lessons from simulation and mathematics

Matthew described how Monte Carlo simulation modelling should start with a deterministic model e.g. schedule, cash flow spreadsheet and information about uncertainty around estimated inputs then added. The output from this simulation tool calculates and displays implied uncertainty around predictions and displays tornado diagram or similar, showing which uncertainties are most important. Key points were:

- A model of the whole project/venture; not just risks.

- Uncertainty attached to many variables (inputs and propagated to other variables).
- Variable and its probability distribution ≈ a 'risk'.
- E.g. "sales" and "impact of bad weather" are treated the same: as uncertain variables in model.

Lessons from strategy maps

Balanced scorecards – strategy maps (AKA logic diagrams, rationale, mental model) can be used to identify links between performance and risk using financial, customer, internal and learning and growth categories. The key points were:

- Structurally the same as the mathematical model approach
- But not fully quantified – actually just pockets of quantification usually
- We can 'read off' a reasonable set of 'risks' from the mental model
- Clarifies meaning of 'all the risks'; clarifies thinking about 'impact'

Lessons from risk register content

Risk registers based risk management often proceeds as if all risk events are either dramatic or all or nothing; however this is not always true. We must get behind the form of words used to identify the mental model of 'risk'. Examples of dramatic could be:

- "The damages awarded are more than £100,000"
- "The cost of compliance to get a license is excessive."

Examples of all or nothing could be:

- "The jury finds us guilty."
- "We fail to win a license in the Government's auction

Even though people are gently encouraged to think in more dramatic terms a huge proportion of risk register items imply a scale and a region or point. People think this way naturally.

A prescription

Waiting for the perfect analysis to be finished is rarely sensible, so do these in parallel:

- Get the obvious plan steps and controls in progress/in place immediately – based on what usually works/what obviously makes sense.
- Get mental model thinking underway that will feed in improvements to the initial plans and controls.

What to do:

- First thoughts will be muddled, unconnected, incomplete, un-quantified, ill-defined (e.g. first draft risk register).
- Move on from those first thoughts.
- Keep coming back with slightly more interesting thinking: more connected, less muddled, more complete, better defined, more quantified.

Why progress like this?

- Impossible to get to great mental model etc, in one step.

- Not moving on from first thoughts is frustrating and boring; the flow of insights and actions dries up; people lose interest.

How much of this already happens in your mind and your organisation:

- Do you have unproven hypotheses about how your world works?
- Does life go on despite doubts and confusions?
- Does it take more than one meeting to get ideas straightened out?
- Do you try to gain from better information and understanding?
- Do important uncertainties trigger actions to learn more?
- Do you correct plans asap or wait for a perfect replacement?
- Do management teams at different levels have their own ways of looking at things?

Conclusion

This was a successful day in which a strong case was made for the benefit of including performance measures in risk management analysis to provide a realistic view of the level of achieving project objectives. Clarity in project definition is a prerequisite to measuring performance as any other project objective. As can be shown from polls, most people think that integrating performance into cost and time parameters is the best way of assessing projects; however, once objectives have been set the next step of 'managing' both progress and delivery is an essential requirement.

About the Association for Project Management

The aim of APM is to develop and promote project management across all sectors of industry and beyond. APM is the largest independent professional body of its kind in Europe, with over 18,000 individual and 500 corporate members throughout the UK and abroad.

APM members are skilled and experienced professionals recognised in the UK and throughout the world via the International Project Management Association (IPMA); APM is the UK member of the IPMA.

At the heart of the APM is the *APM Body of Knowledge*, *5th edition*; fifty-two knowledge areas required to manage any successful project. We promote use of the *APM Body of Knowledge* through qualifications, accredited training, research, publications and events.

APM approach to knowledge maturity

Background

As project management is a competence based discipline, we accept that practice developments can come from a number of sources. The maturity of a concept can also vary when it 'surfaces'. For example, some ideas are broadly conceptual e.g. sustainability issues within project management, others more developed or can come from other disciplines e.g. governance. The route any concept takes in its maturity will vary. However, there are a number of vehicles available when developing an idea.

White paper

White papers aim to raise an issue for wider consultation. The white paper is designed to create feedback and establish the interest and the credibility in the subject. This is typically distributed via email or the web.

Magazine publication (e.g. *Project* magazine)

Similar to a white paper, a magazine article is a developed idea. As it is printed on hard copy, and therefore has a degree of permanence about it, the content is more definite (attempting to answer questions rather than ask them).

Guide (e.g. Prioritising Project Risks)

Typically produced by Specific Interest Groups, APM guides are short positioning statements, outlining key components of any subject. They are printed and featured on the APM website. They are written by a panel (from the guide) and represent a peer group view on the subject.

Conference

From a customer perspective, a conference has a high cost and is highly constrained (held on a particular day, time, place etc.). Therefore a high level of commitment is required from the delegate. Conference subjects should have a 'must have' compulsion to them – for example, research proof that the subject is relevant, strong case study evidence, authoritative speakers etc.

Included as 'standard practice'

The culmination of this subject development is that it is accepted as standard practice. This might mean that it is included in the *APM Body of Knowledge* or even referenced or featured in government legislation.

Further reading

Guidelines

- The Association for Project Management's (APM) *Project Risk Analysis and Management Guide, 2nd edition.*
- The *APM Body of Knowledge, 5th edition.*
- The U.K. Office of Government Commerce's (OGC) management of risk (M_o_R) approach.

Standards

- British standard for risk management (BS31100)
- The joint Australian / New Zealand risk management standard (AS/NZS 4360:1999)
- Canadian risk management standard – CAN/CSA-Q850-97
- Office for Government Commerce's Management of Risk (M_o_R)