Developing Organizational Capability: Pointers and Pitfalls

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Introduction - The Project Management profession faces a twofold opportunity

The project management profession is faced with a two-fold opportunity: the pressure for profitable, innovation-led growth, and the pressure for improved project and corporate governance. Decades of research has shown that, in order to be more successful in delivering strategy, change, and new products or services, organizations need to become more capable of managing their entire project work load. As their capability increases, so does their maturity.

This paper draws upon three strands of new research to demonstrate:

- which elements of project management capability are central to the successful delivery of change

- the adverse consequence of seeking to deliver projects when these elements of capability are missing,

- how the entire organization must be involved if the necessary elements of capability are to be developed, and

- where are the best places to start in developing these elements of capability..

It will provide clear pointers to any organization that seriously wishes to improve its capability, and highlight pitfals to be avoided.

The pressure for innovation, growth and profitability

Organisations face relentless pressure to deliver continually improving results, yet these can be secured only through two principle activities:

- continued and increased sales and / or operations - doing more of the same, perhaps with progressive improvement in efficiency or productivity, and

- delivery of projects – step changes resulting in new products, new processes, new markets, mergers or acquisitions.

At the same time, there are conflicting pressures arising from factors such as an escalating regulatory burden, the rise in consumerism, requirements for tighter corporate governance through Sarbanes-Oxley etc.

Projects lie at the heart of delivering on both of these pressures; they serve to deliver against corporate growth aspirations and they embody or respond to new external directives and increased risks.

All of this means that organisations face an escalating need to be able to deliver reliably – to consistently execute their strategy through projects, time after time. Strategic intent without the ability to execute counts for nothing.

Meanwhile, the evidence shows that there is a direct correlation between the degree of execution capability attained and the degree of success achieved.

Building excellent project execution capability has therefore become an imperative for all organisations wishing to survive and to excel in today's corporate rat-race.

As a profession, we must focus our effort upon those areas that will provide maximum leverage in the journey towards excellent execution capability.

"Capability" is not the same thing as "maturity", although both matter

Capability and maturity are two terms that are often used together and interchangeably, although each of them has both "general" and "technical" meanings. The way they are used in "natural language" differs somewhat from their technical meaning. In common parlance, for example, "capability" is most often used to suggest the ability to do something (John has the capability of running 100 metres in less than 10 seconds). Maturity, on the other hand, means both the age of someone or something and its suitability for accomplishing a purpose (Leave it to Tony, he's mature enough to handle it). These are the natural language uses of the terms. In engineering technical literature, on the other hand, the "capability" of a given process is described in terms of the quantitative characteristics of the process – for example the average throughput and its associated upper and lower control limits. In the same literature, the "maturity" of a process describes the stages that a process needs to advance through in order first to stabilise, and then to improve its "capability" (used in the technical sense).

Through the family of Capability-Maturity models (CMM) first developed by the Software Engineering Institute at Carnegie-Mellon University they became inextricably linked, and the term "maturity models" has become common currency.

The launch of OPM3® ProductSuite late last year has raised the question of "what benefits can I expect from a maturity assessment, or a programme to improve maturity?" Maturity is certainly a useful guide as to what can be attempted: e.g. implementing enterprisewide project software systems, and also to what sequence of events can usefully be followed in developing maturity in organizational project management. (Cooke-Davies, 2004b) Indeed , it can be convincingly argued that maturity of organizational project management is a necessary condition for the successful delivery of both organizational strategy and individual projects and programs. We can expect increasing calls for maturity assessments, and an increasing number of qualified assessors and consultants will be available.

On the other hand, on its own it is not a sufficient condition for successful delivery. There is the question of individual expertise – the second necessary condition. Only when both are present are sufficient conditions present to deliver strategy. By expertise, we are not thinking simply of project and program managers. The executive sponsor also plays a significant part (Crawford and Cooke-Davies, 2005), as do portfolio managers and senior management in terms of their understanding of organizational project management.

It is this combination of mature and effective processes, expert project and program managers and executive sponsors, and a supportive organizational culture that can most naturally be referred to as "capability". And there is plenty of evidence drawing upon decades of project management research that demonstrates the correlation between capability and success. (Cooke-Davies, 2004a)

This means that a direct and powerful business case can be built for developing capability, by demonstrating the correlation between improved capability and increased success.

For most organizations, projects don't come "one at a time" any more, so alongside project management there is a pressing need to develop the capability to manage multiple projects simultaneously, as well to ensure that the entire portfolio is continuously focussed upon execution of the organisations's strategy.

The influence of the project or programme sponsor upon project or programme success has been understated in the past, and a failure to develop capability in this area may undermine efforts made elsewhere.

It is helpful to recognize that there are three distinct areas of capability that require building.

- Organizational Agility
- Programme and project effectiveness
- Project management efficiency.

There is a tendency for organisations to focus upon one or other of these but without building all three, success may not be assured.

These three areas have something in common with portfolio, programme and project - but to classify capability into these three domains is an over-simplification.

Identifying the Key Drivers of Enhanced Delivery Capability

Further research, built upon the initial work referred to above, has now started to provide strong indications as to which factors, of the many involved, are the CRITICAL factors that must be addressed in order to secure superior delivery capability.

The new research has taken three forms:

1. A survey which examines the links between the capabilities that organisations possess and the delivery success that they achieve, and which contains 339 responses from senior managers, sponsors, project managers and project team members from 44 organizations in 27 countries and 23 industry sectors.

2. A review of published case studies covering 27 major projects in which the major factors contributing to success and / or failure were identified, and

3. A root cause analysis of the relationship between the most significant factors identified in (1) and confirmed by (2) that has exposed the key drivers to securing enhanced delivery capability.

Question 1: Which elements of organizational capability matter most?

An earlier analysis of the survey was published during 2005 (Crawford and Cooke-Davies, 2005), but the near-doubling of the sample size during the past twelve months gives results that are starting to have sufficient statistical significance that they can be taken as very strong indicators of the general state of capabilities in most sectors outside of the traditional engineering/construction environment for which the data remains thin (See diagram 1)

Capability is described in terms of the 44 elements that have been identified in project management research since 1970, grouped into three "levels".

Organizational level is the domain of the Board or Executive, and relates to those elements of capability that can be developed only at the level of a coherent organizational unit.

Sponsor/program/governance level relates to those elements that are primarily the province of executive sponsors, programme managers or governance committees.

Project level relates to those elements that lie within the sphere of control of a particular project team.

We would characterise the last of these three levels as being what has traditionally encompassed 'project management', whereas the broader view encompassing all three levels might be referred to as the 'management of projects'.
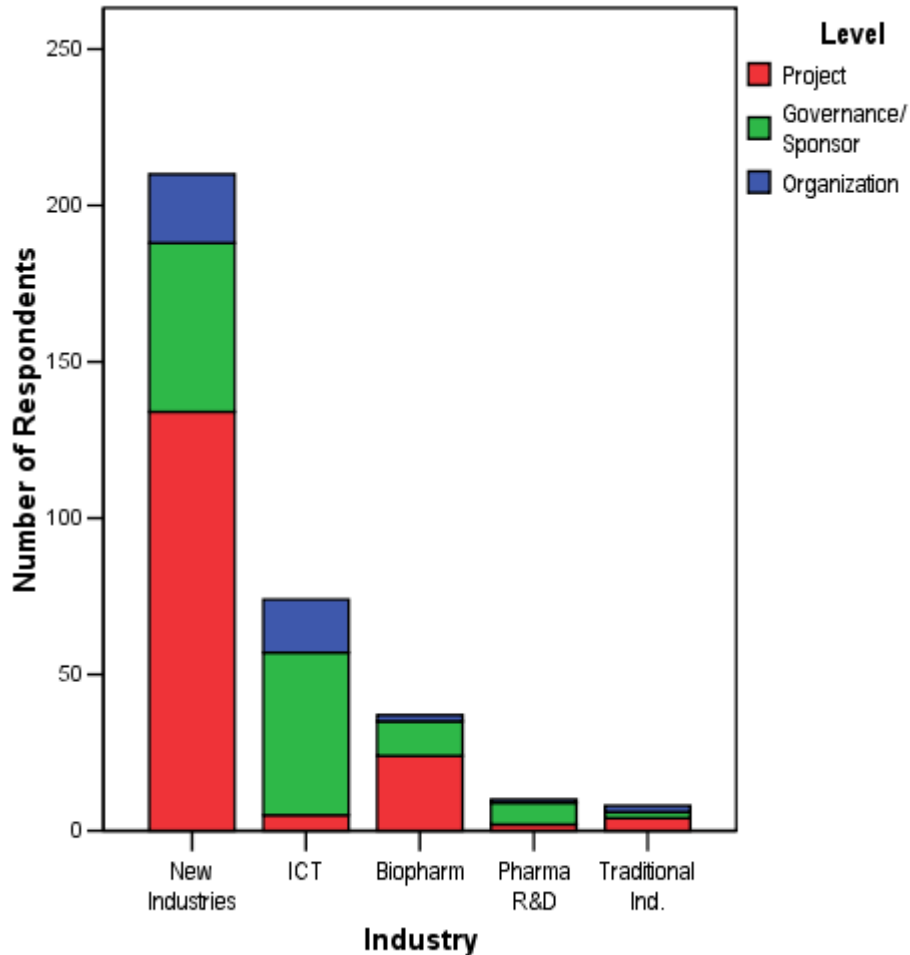

Figure 1: Structure of Respondents to Survey Instrument

Delivery performance in the survey is assessed at three levels:

Agility is measured by the delivery of corporate strategy, improvement in the productivity of scarce organizational resources, effectiveness and efficiency of the whole project portfolio.

Effectiveness is measured by the actual benefits realized, the technical performance of the delivered product, and satisfaction of customers, sponsor(s) and users.

Efficiency is measured by the traditional measures of on-time, on-budget, in-scope performance, along with product quality and a measure of health, safety and environment (HSE)

Virtually all of the 44 elements of capability identified by earlier research (see Cooke-Davies, 2004a) correlate to superior delivery performance in one or the other of these three criteria, or their constituent measures. This is hardly surprising, but simply corroborates the general findings of much research during the past thirty years or so.

Respondents are only able to answer questions at the level for which they can be expected to have knowledge (i.e. business managers can answer all three levels, sponsors and project

management office staff can answer at the sponsor/governance level and at the project level, and project managers and project team members can answer only at the project level. Thus there are a maximum of 339 possible answers at the project level, 150 at the sponsor/governance level and 44 at the organizational level.

Thirteen of them, however, are shown to have a statistically greater than average correlation to one or other of these measures. These thirteen are:

Organizational:

	1	Capacity to resource the whole project portfolio

Sponsor/Governance

	2	Approval of projects only on the basis of a solid business case
	3	Fully resourcing each project
	4	Considering all strategic options for the delivery of a project
	5	Assuring that all benefits promised by the project have committed "owners"
	6	Ensuring that each project is fully aligned with the organizational strategy

Project

	7	Competent project manager
	8	Proven methods and systems for planning
	9	Clarity about the technical performance expected from the product of the project
	10	Accurate information used as the basis for decisions
	11	Effective teamwork
	12	Project team has the necessary authority to deliver the project
	13	Effective risk management

The absence of more organization-level elements is likely to be a result of the relatively smaller sample size at this level.

Question 2: What evidence is there from published project reviews that these factors truly impact results?

A detailed examination was conducted into both published and un-published findings covering 27 major projects, together with meta-research covering 4282 further projects.

Whilst this analysis demonstrates a high correlation with the 13 factors listed above, it is also fair to say that it reveals some shortcomings in the depth of analysis provided through such reports as are available.

For example, the reports highlight sponsors who are "inexperienced", or who "failed to drive the project through" or they state that there was a "lack of continuity" or extreme "political interference" at sponsor level; however, there tends to be lack of more detailed analysis as to how this manifested itself in terms of the factors that we have identified.

So for instance, whether the 'strategic options were considered', or whether 'all benefits had committed owners' are simply not mentioned.

The published material available also tends to relate to individual projects or programmes so that it is not possible to uncover whether "all projects were aligned with strategy" or whether

there was "capacity to resource the whole project portfolio", nevertheless, these issues are manifested in terms of the alignment of the single projects concerned.

At the Sponsor / Governance level, the review provides strong support for two of the relevant factors listed above:

2   Approval of projects only on the basis of a solid business case

22% of the projects sampled highlighted difficulties in this area; for example, two of three developers invited to tender for Portsmouth's Spinnaker Tower declined on the basis it was 'economically unfeasible'. Actual Millennium Dome (NAO, 2000) visitor numbers were 54% of the business plan projection, whilst Channel Tunnel freight traffic was 24% of the business plan numbers.

3   Fully resourcing each project

18% of the sample reviewed highlighted resourcing difficulties; the 1901 Census (NAO, 2003) on line project suffered insufficient resources to undertake transcription, whilst the Rural Affairs 2005 Single Payment Scheme (NAO, 2006) was implemented at the same time as a wider business change programme and lost staff to it as a consequence. An unpublished report from UK financial services sector highlighted repeated changes to key personnel, including a gap of 2 months with no project manager!

For the remaining three factors at this level, evidence is much thinner:

4   Considering all strategic options for the delivery of a project

This is a topic which simply did not appear to be considered within the review sample – with a single exception, in that in procuring the work for the new Scottish Parliament, a lack of consideration as to the most appropriate form of contract is highlighted.

5   Assuring that all benefits promised by the project have committed "owners"

Only one unpublished report from the private sector mentioned securing benefits in this way

6   Ensuring that each project is fully aligned with the organizational strategy

Again, only highlighted in one report concerning the Benefits Payment Card (NAO, 2000) where it was observed that the two sponsoring government organisations each had different strategic goals for the project!

The strongest support from this analysis is in relation to the project level where there is powerful evidence from actual cases for all but one of the factors.

7   Competent project manager

30% of the projects reviewed indicated issues with the level of competence of the project / programme manager. The report into the CRAMS (NAO, 2001) project highlighted the use of 7 successive project managers within an eight year period, of whom only one had experience of major IT implementation. Other reports highlight issues relating to project managers not managing stakeholder expectations, weak quality checks and blurring of responsibilities. Two successful projects highlighted the value of having appointed experienced project managers.

8   Proven methods and systems for planning

37% of the projects reviewed indicated that this was a critical area; these were split between 22% where ineffectiveness or inadequacies with regard to planning were a contribution to difficulty or failure, and 15% where good planning was seen as key to successful delivery.

Observations range from 'no real plan' (from an unpublished report) to failure to finalise the draft Project Execution Plan (Scottish Parliament); at the other end of the spectrum the BAA Terminal 5 report refers to the programme being broken down into 18 projects, 150 sub-projects and circa 1,000 work packages with execution plans in place at each level.

9   Clarity about the technical performance expected from the product of the project

A staggering 48% of the projects reviewed provide indications that lack of clear, and/or changing technical requirements led to problems with project delivery. In the Scottish Parliament the design brief was not kept up to date as the design itself evolved; at Wembley Stadium (NAO, 2003), Multiplex claim over 600 changes were made to the original specification. As with planning, successful projects such as the Channel Tunnel Rail Link (NAO, 2005) and West Coast Mainline upgrade (NAO, 2006) identify well defined and controlled technical performance specifications as helping successful delivery.

10   Accurate information used as the basis for decisions

Only 7% of the projects reviewed specifically record this as an issue, however, it is clear that the problem is implicit in many other cases. The report into Rural Affairs - 2005 Single Payment Scheme (NAO, 2006) confirms that a lack of clear metrics to measure implementation progress led to over optimistic progress reporting so that the risk of failure was identified too late to take action. In relation to the Scottish Parliament Building the related review states that Ministers were rarely given accurate information with regards to costs or design on which to base decisions.

11   Effective teamwork

18% of the projects reviewed highlighted teamwork as a factor; these were split between the 7% that reported weakness in teamwork as contributing to difficulty or failure and 11% observing upon it's positive contribution to success.

The BAA Terminal 5 report records "highly effective integrated teams committed to achieving milestones".

12   Project team has the necessary authority to deliver the project

Surprisingly, no correlation could be found with this factor which was not mentioned in any of the reports reviewed. This is possibly because the reports relate only to high-profile projects, where it is to be expected that a sufficiently "heavyweight" project manager would be appointed, with the full support of sponsoring organizations.

13   Effective risk management

This factor was cited in one way or another by an astonishing 63% of the project reviews that were analysed. The report into the New UK Passport System (NAO, 1999) highlighted that there was no formal risk analysis, whilst in the Benefits Payment Card (NAO, 2000) project, 224 Risks were registered although none were then assessed for probability & impact, nor were risk owners identified; risks around the complexity of requirements not fully identified, whilst risks to the Business Case identified but not fully assessed.
Again, in successful projects, a positive approach to risk management is clearly identified as an essential contributor to that success.

Question 3: Where is the best place to start developing

The evidence is highly convincing that there are a small number of critical factors that are essential elements of the capability to deliver strategy and projects successfully. So surely, all that organizations need to do is summon their collective will, reach deep into their pockets, and set up a series of initiatives to tackle items 1 to 13 above?

Wrong! As any reader who has tried to bring about significant organizational and cultural change will know, the system always pushes back! This is partly because any healthy organism (and what is an organization but an organism?) has in-built mechanisms both to sustain growth, and also to resist un-necessary changes and threats to the system. Just think of the effort that needs to be exerted in an intensive care unit to stop a healthy body from rejecting those very transplanted organs that it needs for survival.

But it is also because the thirteen factors do not stand alone and independent of each other. Each of them impacts one or more of the others, to create a tangled web of inter-relationships that is very difficult to untangle.

One technique for doing that, developed within systems theory and subsequently subsumed into the six sigma toolkit, is the inter-relationship digraph. In this technique, root causes are identified through the logical process of comparing any two factors in a system and asking the question, "Do problems with A cause problems with B?" If the answer is yes – then a causal arrow is drawn.
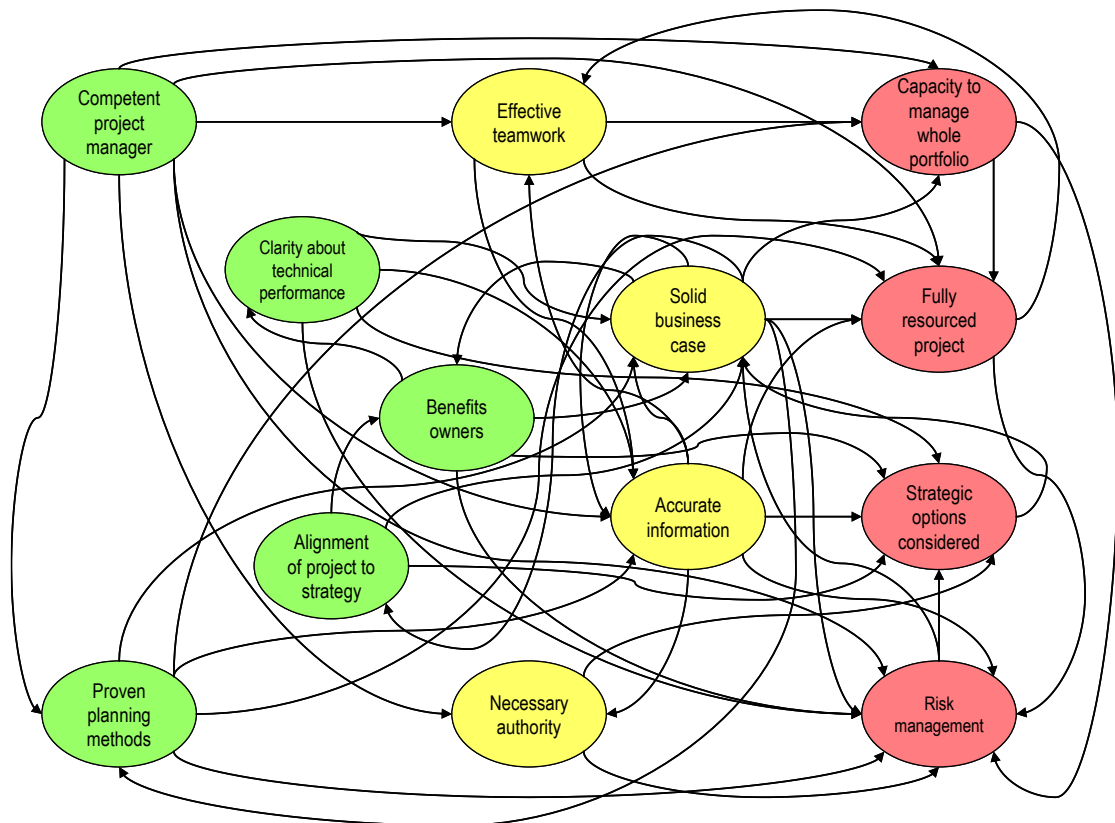

Figure 2: Inter-relationships between the thirteen significant factors

Perhaps not surprisingly, the "tangle" shows up clearly – but by arranging the factors so that those with the most "cause" are on the left of the diagram, and those with the most "effect" are at the right, then there is some sense to the resulting picture.

To say the same thing in tabular form, Figure 3 distinguishes between "drivers", "driven" and those in the middle that are themselves both drivers and driven – which we have called "amplifiers.

Clearly, the place to start is at the left hand side – and since this paper is addressed to a project management audience, with those factors that can be influenced most readily by the project management community. In this case, the three factors (shown in full in Figure 3 below) of competent project manager, proven planning methods, and clarity about technical performance are three of those for which there is strong evidence not only from the survey, but also from the published reviews of successful and unsuccessful projects.

	Drives	Is driven by	Balance	
Competent project manager	7	0	7	
Proven planning methods	5	2	3	
Clarity about technical performance	4	1	3	**Drivers**
Benefits owners	4	2	2	
Alignment of project to strategy	3	1	2	
Accurate information	6	5	1	
Solid business case	7	7	0	**Amplifiers**
Effective teamwork	3	3	0	
Necessary authority	2	2	0	
Capacity to resource whole portfolio	2	4	-2	
Fully resourced project	2	6	-4	**Driven**
Strategic options considered	1	6	-5	
Risk management	2	9	-7	

- The project manager possesses the necessary competence for the specific project, as can be demonstrated by evidence. **[Competent Project Manager]**
- The planning systems, processes and practices used to develop the project plan are rigorous and proven, and incorporate effective review processes. **[Proven Planning Methods]**
- The technical performance requirements from the product of the project have been specified clearly and unambiguously. **[Clear Technical Performance]**

Figure 3: Three critical drivers

One final piece of work was done to "close the loop" on these three inter-related research activities. You could reasonably ask, "What impact would it have if we were simply to improve our organizations capability in these three factors alone?"

For that, we have turned once again to the survey, and obtained an average score for each of the 339 sets of data for just these three factors. The average for each respondent has then been converted back into one of four "bands" of results that corresponds to a scale of 1 to 4, and the results compared with the overall score for "efficiency" (a compound of time, cost, scope, quality and HSE). As Figure 4 shows, there is a dramatic and convincing improvement in the results that can be expected, although bringing these three factors to full capability is not sufficient on its own to ensure successful delivery (equivalent to a score of 3 on the vertical scale).

It does, however, support very convincingly the case for investing in the improvement of these three factors, as the points of "highest leverage" in improving overall delivery capability.

Conclusion - Implications for Building corporate capability

We believe that we can draw four distinct conclusions from our research and that these have equally clear implications for organisations intending to strengthen and develop their corporate project delivery capability.

Firstly it is clear that improving delivery capability can and does lead to an improvement in project and program success. The survey on its own, in spite of being based on decades of earlier research, could nevertheless be self-fulfilling in terms of the project management community simply viewing the world through the lens of its own deeply-believed paradigm. On the other hand, the input from external reviewers reported in the published data on

successful and unsuccessful projects provides a richness of example and a depth of colour to support the survey's findings. Investment in delivery capability is a sound investment in organizational success.
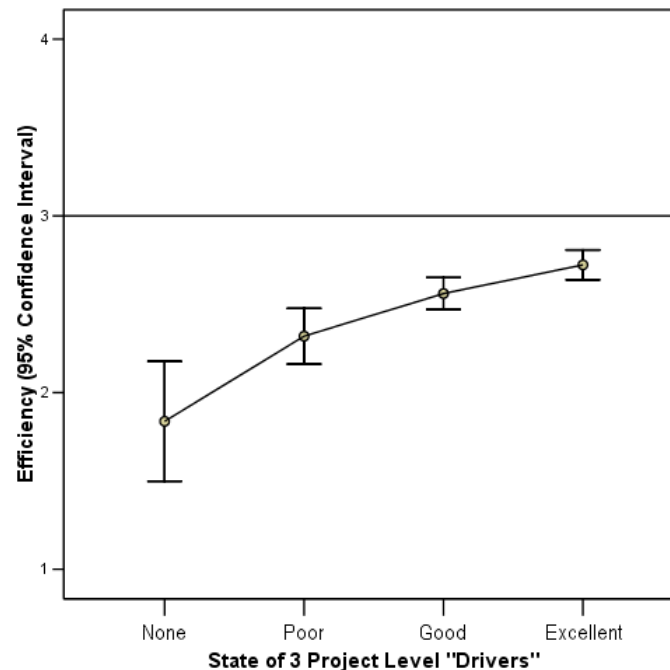

Figure 4: Impact of Improving the 3 Critical Elements of Capability

Secondly, sorting out the delivery of portfolios, programmes and projects is not something that can simply be delegated to the project management community. It is a "whole organisation activity". Individual projects may be the point at which "the rubber hits the road", but in order to bring power and traction to that point, there has to be a whole set of inter-locking capabilities at organisational and governance/sponsor/programme level that work together to provide the necessary delivery capability.

Thirdly, any journey of improvement has to start somewhere, and the indications are that there are three "high-leverage" places that make better starting points than elsewhere: develop a cadre of competent project managers, supported as appropriate by competent executive sponsors and programme managers; create a robust and proven organisation-wide planning methodology (involving both rigorous processes and the right tools) that is demonstrably capable of supporting the project managers; and ensure that projects are finally approved only when they have clear and unambiguous goals.

Finally, and this conclusion comes from the experience that has led us to conduct this research over the years rather than from these particular research findings, there is no better way to undertake a programme to improve delivery capability than to start with an established baseline. If you wish to invest in improvement, start by establishing your current performance, so that you are then able to demonstrate both the extent and the value of the improvement as it is delivered.

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