



Literature Review



The factors which contribute to successful projects

Prepared for: The Association for Project Management

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Introduction

1. BMG has been commissioned by the Association for Project Management (APM) to undertake a programme of research which aims ‘to create an initial report which identifies the “Conditions for Project Success” and which, in providing a baseline evaluation of the current state of relevant project, programme, and portfolio activity, can be extended into longitudinal research delivering an annual “state of projects” report.’¹
2. The main elements of this research comprise a programme of discussions with senior project management (PM) professionals and academics to identify a set of key success factors, followed by a quantitative survey of project management professionals at varied levels of seniority and in varied industries. This survey will examine the frequency with which these factors are viewed as important, how frequently they are in place and to what standard, and the challenges faced in operationalising the factors.
3. The starting point for this research is a set of eleven factors which the APM has already identified as being very likely common factors in the delivery of successful projects. These eleven factors have been used to help structure the initial discussions with senior PM professionals and academics noted above. They are:
 - **Effective governance:** having clear structures and responsibilities for decision making in place, with clear reporting lines between individuals and groups involved in project management and delivery.
 - **Capable sponsors:** those with ultimate responsibility for project delivery recognise that responsibility and behave accordingly.
 - **Aligned supply chain:** the organisations which supply goods or services into the project are aware of what they are delivering into, of what is required and when, and are committed to meeting their obligations to a high standard and on time.
 - **Proven methods and tools:** best practice techniques in project management as appropriate to the type of project are consistently applied.
 - **Appropriate standards:** all good practice standards appropriate to the project (such as quality, environmental, health and safety or corporate social responsibility standards) are recognised at all levels and adhered to.
 - **Commitment to projects success:** there must be a will for the project to succeed and a belief that it can be achieved, amongst all parties involved in delivering the project throughout its lifetime.
 - **Supportive organisations:** the organisational infrastructure (for example, culture and structure) and environment in which the project is delivered is conducive to its success – for example, trade unions, affected communities and local authorities, professional and trade associations, or pressure groups are on side.
 - **Engaged users or operators:** the individuals or groups who will use the end product or service are engaged in the design and progress of the project.

¹ *Invitation to Tender for the Provision of Research Services: Conditions for Project Success*, APM, September 2013

- **Competent project professionals:** the team that manage the project are wholly competent, qualified and experienced in their particular roles.
 - **Capable project teams:** the subject matter experts contributing to specialist teams within the project are wholly competent, qualified and experienced in their roles.
 - **Secure funding:** the project has secure funding for the whole project, with possible contingencies in place to ensure funds can be released in such a way that cash flow difficulties do not arise.
4. However, a further element of the research programme is a review of the key published academic and professional literature on successful project delivery (which this document comprises). This review is intended to set the study in the context of an understanding of the factors which a wider selection of commentators have reported as being important to project success and to examine how far APM's selection of eleven criteria, as above, fits within the wider repertoire.
 5. In undertaking this review, it should be noted that there is a very large volume of material which could potentially be reviewed². A full review of this material is outside the scope of this project. Rather, an approach is taken which reduces the scale of review by two means. Firstly, only a selection of publications is considered. These publications are those supplied by APM, supplemented by a selection of other papers readily available on-line. It is assumed that these are sufficient to represent the ground covered by the wider literature. This is a reasonable assumption given that several of the publications reviewed (particularly Morris, referenced below) themselves draw on a wide range of other published material.
 6. Secondly, the review is conducted by specific reference to APM's eleven success factors, rather than by summarising the content of the set of documents. Thus, the review firstly examines the extent to which the literature supports the particular eleven factors identified by APM; and, secondly, then identifies other factors in the literature which are believed by authors to be important success factors but are *not* included in APM's list.
 7. In setting out the review it may be useful to consider a number of preliminary points.

Project success factors, project success criteria, and successful project management

8. Firstly, the literature generally tends to cover ground in which three issues are considered:
 - *Factors in project success:* the factors which are in place during the course of projects from inception to completion which increase the probability of the project succeeding.
 - *Project success criteria:* the indicators or measures by which projects are judged as successful or not.
 - *Successful project management:* the characteristics and tools of project management which are believed to be effective.

² For example, the recent book '*Reconstructing Project Management*', Peter W. G. Morris, Wiley-Blackwell, 2013, identifies ninety-one references specifically on success factors in project management and many more which bear more peripherally on the issue.

9. Whilst conceptually separable, these issues are sometimes intermingled in the literature. This is understandable. Firstly, in considering the factors which contribute or lead to success, it is reasonable to also consider what 'success' itself comprises. A basic distinction in the literature is that 'success' is divisible between the delivery of a project on time, to agreed specification and quality, and within budget, and the delivery of projects which go beyond that and are successful in meeting further objectives (which may or may not have been explicit) – to generate an anticipated level of business profit, to gain a high level of client satisfaction, to gain public approval, and so on. If, for example, a project delivers to a client as agreed but the client is ultimately dissatisfied because the contactor has not initially helped the client to articulate his aspirations, is that 'success'? Or, if a public building is delivered as specified but it is so disliked by the public for aesthetic reasons that it is pulled down within its viable lifespan, is that success? There is the possibility that success factors are defined in relation to 'technical' success but not in relation to wider or longer term outcomes. In this sense, therefore, the literature necessarily on occasion considers success factors and success criteria together.
10. Secondly, good project management, however that is described in the literature (and there is, of course, a very wide range of literature specifically on project management theory and practice) and however encapsulated in the terminology of one or more items in any list of success factors, is a self-evident and obligatory member of such lists. In essence, it is, in aggregate, a 'first tier' success factor which can then be disaggregated for 'second tier' purposes. As such, again, there is a natural tendency for 'success factor' literature to move into more detailed consideration of project management per se.
11. Generally, the review here attempts, in reviewing publications which cover 'mixed' ground, to report only on those elements which concern 'success factors' rather than straying into 'success criteria' and 'successful project management' territory. Whilst, as above, we recognise the interrelationships of the three perspectives, concern for concision and simplicity argues for this approach.

Terminological and classificatory issues

12. A further issue in considering the literature concerns language and the ways in which language is used to convey meaning in this field. There are several aspects to this issue. First, there is a certain amount of impenetrability in the literature which obscures meaning for the non-academic reader (an anonymous example, *'The fact is that the "processes and decisions to translate strategy into programmes and projects" become, in practice, a suite of "corporate project management practices" that in turn create the context for the management practices on individual practices'*, is fairly typical of some academic treatments). The impact of this is that, since it is sometimes difficult to understand authors' exact meaning, it is sometimes difficult to relate the literature to APM's relatively straightforward conceptualisation of project success factors.
13. Second, getting beyond the more impenetrable elements, there is then an issue of overlap or imprecision of meaning such that some identified success factors 'look' the same as others but may or may not be, depending on how the terms are interpreted. This task of interpretation can concern not just the publications of different commentators but can be needed for the same source of intelligence. For example, the Standish Group publishes an annual 'CHAOS' report (based on an international survey of IT project managers) which asks managers to identify the 10 main factors which lead to success or

failure in projects of which they have knowledge. In 1995, four of the ten items were 'clear statement of requirements', 'clear vision and objectives', 'Executive Management support', and 'competent staff'. By 2009, these may have been re-shaped into 'Clear Business Objectives', 'Executive Support', 'Project Management Expertise', and 'Skilled Resources'. The items in each case obviously cover the same sort of ground but the exact relationship between the two sets of factors and whether something new is implied is not wholly clear.

14. Finally, there is a related classification problem – basically, whether factors stand alone or can be incorporated in other more widely defined factors. As a simple example, three different papers³ identify a collaboration/teamwork factor. One as 'Organisation of collaboration among team members' and one as 'Adequate communication channels'. The third has four items which bear on the issue: 'Communication and Trust', 'Cooperation', 'Focussing on collaboration rather than technology', and 'Organisational culture and knowledge sharing'. There is no obvious method for adjudicating in such cases as to whether success factors should be aggregated at the headline level, leaving contributory characteristics to be explained in the sub-text, or should be disaggregated into different elements at that high level.
15. In short, therefore, the 'language' issue has three dimensions:
 - Understanding what is meant.
 - Deciding whether similar terms mean the same thing or not.
 - Deciding, when identifying lists of factors, whether related characteristics should be grouped under a banner headline or whether they have sufficient importance and distinction to be allowed their own 'top level' identity.

How have success factors been identified?

16. As final preliminary observations, it may be useful to consider how project success factors have been identified. If 'success factors' are to be used to educate project managers and to thus influence their subsequent practice, it is legitimate to ask in relation to any particular model: 'Where have the factors come from and what is their validity?'
17. In this respect, a number of approaches can be briefly described.
18. The first of these is simply the accumulated experience and the opinions based on the experience of a respected individual.⁴
19. The second is an extended version of this 'one man' approach in which a formal programme of qualitative interviews with a number of project managers is undertaken to extract and synthesise their collective experiences and views.⁵

³ Referenced in *Literature mapping: A bird's eye view on classification of factors influencing project success*, A. A. Abdullah et al, African Journal of Business Management, December 2010.

⁴ An example is '*Getting a grip: how to improve major project execution in control in government*', Lord Browne of Madingley, March 2013. Although the author consulted four other senior executives and commissioned a synthesis of research, the author explicitly recognises his own experience as a major contribution to the analysis.

⁵ For example '*Critical success factors in project management globally and how they may be applied to aid projects*', P. Steinfort and Derek Walker, Melbourne University, 2007.

20. Many other studies have extended the qualitative approach by conducting surveys, with varying degrees of statistical robustness, of project management professionals.⁶ Generally, these studies ask respondents to rate a series of factors as to their importance in successful project implementation. Item scores are typically then correlated with respondent observations of the success of projects to identify 'critical success factors' (CSFs).
21. Further studies⁷, rather than attempt these multi-factor approaches, have assessed in detail the importance of single factors, for example, leadership, which, a priori, were believed to be particularly critical to success.
22. Finally, mention may be made of formal 'models' of project success. These models essentially constitute checklists against which the delivery of projects may be scored. An example is the Portfolio, Programme and Project Management Maturity Model ('P3M3') which has been used⁸ to assess organisations' practices in the management of their project portfolios. These models are not themselves investigatory of project success factors (since these are built into the model as a checklist), but they explicitly embody a theory of factors in project success, presumably validated by previous experience and research.

Some initial summary points

23. Overall, the output of the huge range of empirical research and theoretical consideration of success factors in project management is complex and it is evident that there is no 'unified general theory' which is regarded as the basis for a universally accepted characterisation of critical factors.
24. The origins of this lack of consistency may lie in the way in which research into success factors is typically configured. Investigations of project success factors typically first develop a conceptualisation of what those factors are, this conceptualisation drawn from open-ended discussions with project management experts and/or from literature review. There is then a synthesis of these inputs to produce a list of Critical Success Factors (CSFs). This list is then tested for validity in a wider consultation with, or survey of, project managers. However, the basic problem is that the initial identification exercises either do not produce the same lists or, with reference back to our 'terminology' discussion earlier, do not describe the items in language which unequivocally accords in meaning with that of other lists.
25. The question then is of why, apart from the 'language' problem, the lists do not correlate well. The answer, drawing further on the literature, may be that there are 'fault lines' reflecting complexities in project situations and characteristics which reduce the commonality of research findings. These relate to:
 - Whether the same success factors apply to single 'one off' projects as to projects which are positioned in a wider structure in which several projects contribute to each of several programmes within an organisation's portfolio of programmes. In

⁶ For example, *The critical success factors for effective project management: a pragmatic approach*, Z. Shehu and A Akintoye, the Build and Human Environment Review, Volume 2, 2009.

⁷ For example, *The project manager's leadership style as a success factor on projects*, F. Toney and R. Muller, Project Management Journal, 2005.

⁸ For example in the National Audit Office's assessment of the Home Office's major projects: *Management of Major Projects*, NAO for the Home Office, September 2010.

the latter case, success factors – such as the individual project manager’s ability to defend the project’s prioritisation against other projects with competing budgets – may be critical, where they do not apply in the single project case.

- The degree of variation which occurs between projects in different sectors and of different sizes – for example, in some smaller projects, hypothetical success factors in the literature such as ‘vision’ may scarcely be in play or ‘governance’ may involve such a short chain of responsibilities as to be nugatory.
- The relevance of success factors may be strongly linked to project stages and to project management roles. The literature makes the point that ‘strategic’ factors, such as defining and establishing ‘mission’ or setting realistic timescales and budgets may be weighted to the early stage of projects whereas ‘tactical’ factors such as trouble-shooting or client management are on-going or later-stage factors. Simply, different studies may conceptualise project success differently because their consultees are at different levels and in different positions and, hence, perceive project success from different perspectives.
- And, as discussed earlier, there is no great clarity in the ‘project success factor’ literature as to whether particular sets of success factors are linked to the ‘technical’ criteria for success (basically, delivery to time, budget, and quality standards) and/or to ‘final’ criteria for success (including long-term business returns over the product life cycle, client or public satisfaction measures, and so on). It may be that different sets of success factors, or at least different weightings of factors, apply, depending on the success criteria which project managers contributing to ‘project success factor’ research are using – for example, if they are primarily concerned with the traditional time, cost, and quality measures they may be more likely to identify ‘technical’ success factors such as cost control or quality assurance; whereas if client satisfaction is used as a success criterion then factors such as client engagement may be given prominence.

26. In the light of these preliminary observations, a range of literature is now reviewed. For brevity, the approach taken is:

- In the next section, each of APM’s eleven preliminary success factors is considered in turn. Instances where a reasonable approximation of each factor is evident in the literature are described or simply identified. A brief discussion of congruence between the APM factor and the wider approximations is set out.
- In the following section, a list of success factors which are not in APM’s list but which are suggested by the literature is provided. The aim here is to identify additions (possibly validated by qualitative research on-going at the time of writing) which APM may wish to consider).
- A final section sets out some brief summary points and conclusions.

27. In referencing the literature addressed by the review, a simple approach is used. Because many of the documents reviewed (particularly those which themselves are literature reviews) are referenced multiple times, references [(1), (2), (3), etc.] are to a list of publications appended at the end of the review instead of using the conventional but sometimes confusing ‘ibid’ and ‘op cit’ method.

APM success factors: correspondences in the literature

28. This section reviews a range of 'project success' literature, using APM's preliminary eleven success factors as a template:

Effective governance: having clear structures and responsibilities for decision making in place, with clear reporting lines between individuals and groups involved in project management and delivery.

Price Waterhouse Cooper (2014) identify 'governance – enabling decision making' as one of 'twelve elements of (project) delivery excellence but after no explanation of what this opaque terminology means (3).

Martin (1976) identifies 'organise and delegate authority' as a critical success factor (CSF) (18).

Lock (1984) identifies 'project authority from the top' as a CSF (19).

Sayles and Chandler (1971) identify 'control systems and responsibilities' as a CSF (20).

Morris (2013) defines governance as 'set, monitor, and maintain values, strategy, assurance mechanism, risk/return aspirations' but also remarks that 'at this level of generality (such descriptions) are pretty anodyne' (9).

In a more extended treatment, Morris (2013) has sections on governance in 'Reconstructing Project Management': commenting (approvingly) on APM's 2004 'Principles of Project Governance' but also noting that these do not include any reference to morality or ethics as a component of governance; and then Morris considers governance as an aspect of project management in Enterprise-Wide Project Management situations (EWPM), noting, for example, that 'The late 1990s and early 2000s saw rising application of stage-gate reviews, peer reviews, and peer assists as governance mechanisms' (21).

Pinto and Slevin (1989) suggest a CSF as 'Top Management Support – willingness of top management to provide the necessary resources and authority/power for project success', a factor which appears to have some, if not exact, relationship to the APM definition (16).

Deloitte (2013) assert simply that 'Governance-direction and oversight of projects' is one of seven areas that 'have significant impact on project success' (17).

Commentary

Many other papers (other than those referenced above) include elements (such as 'top management support') as CSFs which, while not specifically using the 'governance' term, have some relationship to governance as APM defines it – essentially, the appropriate and effective identification and distribution of authority in the delivery of projects. Overall, the literature supports inclusion of the governance item and APM's definition (as set out in full in its 2004 'principles') appears much the strongest and clearest (albeit, perhaps, that it might take on board Morris' point about the absence of reference therein to ethics).

Capable sponsors: those with ultimate responsibility for project delivery recognise that responsibility and behave accordingly.

Morris (2013): references (p.76) a paper which suggests that the 85% of project successes and failures could be explained by sponsors' abilities in shaping strategy and controlling

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turbulence; asserts (p.145) that 'the two key roles on any project or programme are those of sponsor and project/programme manager'; defines 'sponsor' as the member of the client organisation: he/she is the owner of the project business case.... and represents the funder's interests.... The sponsor has a key role in assuring proper governance of the project.... Significantly, the sponsor may have no particular competence in the management of projects. Nevertheless, his conduct.... can arguably make him the most influential actor on the project'; identifies (p.253) the sponsor's strategic interest as the first key variable shaping and determining the trajectory of projects; and that (p.261) good project management should understand and respond to sponsors' business drivers (21).

Alexandrova and Ivanova (2012), in the context of consideration of EU projects, identify 'support from the agency administering the Operational Programme' as a success factor – a somewhat peripheral recognition of a sponsorship role (13).

Similarly, Steinfors and Walker's (2007) CSF of 'key stakeholder understanding of goals/objectives with a clear and agreed statement of outcomes defined' may be similarly positioned (14)

Price Waterhouse Cooper (2014) advocate that as part of governance, project success depends on understanding 'the organisation's appetite for change and identify who will sponsor and drive the programme' (3).

In a governmental context, the National Audit Office (2010) noted that 'Home Office Board level oversight of the portfolio of (its) projects is being improved' – recognition that the role of the organisation commissioning projects (the external sponsor role) is important to project success (5).

Similarly, Browne's paper (2013) is focussed generally on the government's ability (and frequent failure) to act effectively as sponsor of major projects (5).

PMI notes that 75% of surveyed managers have active sponsors on 80% or more of their projects (4).

Commentary

Use of the term 'sponsor' is infrequent in the literature received [other than in Morris (21) as discussed above]. The reasons for this may be twofold. First, some of the literature examined is not particularly recent and 'sponsorship' as a clearly-identified factor in project success may be relatively new in itself. Second, however, in a client/contractor project model, the client frequently acts as sponsor and literature references to client management and relationships may be the earlier equivalent of references to 'sponsors' in later texts; and in projects which are internal to organisations, the 'sponsor' may effectively be the Board or business owner or, where there are extended programme/projects, the sponsor may be the programme manager to whom project managers report. In this latter case, since much literature looks at internal project delivery, the many references to 'supportive/senior managers' may be, in effect, a different way of saying 'supportive sponsors'.

However, two further points are, perhaps, worth making here.

The first is that, given that the term 'sponsor' is in relatively sparse usage, it seems likely that it may well not be clearly understood by some (perhaps many) project managers. A practical implication for the remainder of the research of which this review is a part, is that testing the salience of the 'capable sponsor' success factor may need to clearly define 'sponsor' for prospective contributors.

The second point is a more 'philosophical' one. It is that, in the client/contractor project delivery model, the sponsor role often lies with the client. In that sense, it is not (as in the case with most of the other eleven success factors) a matter which is directly within the control of project management professionals. It may be objectively the case that good external sponsors help towards project success but that is an observation, not in itself an impetus towards better project outcomes, since the initial quality of the external sponsor is what it is, not something in the power of the contractor to determine. It may be that, to make its full contribution to the educational function of APM's set of eleven success factors, the 'capable sponsor' item should, in its subtext, make some reference to the mitigating actions which contractors need to take when external sponsors are *not* capable.

Aligned supply chain: the organisations which supply goods or services into the project are aware of what they are delivering into, of what is required and when, and are committed to meeting their obligations to a high standard and on time.

Price Waterhouse Cooper (2014) recognise 'Integrated suppliers' as one of their twelve elements of (project) delivery excellence (3).

The National Audit Office (2010) notes that 'the Home Office is developing Supplier Relationship Management as a means of better engaging with suppliers to deliver improved value for money' – a point which may be relevant here but has a focus on the client/supplier relationship rather than on APM's more extended interest in inter-supplier relationships (5).

Morris (2013) which generally provides the most complete analysis of project management theory, gives relatively little attention to the supply chain issue beyond observing its significance to 'Japanese' manufacturing approaches ('just-in-time' and so on) and that sophisticated system tools (BIM, nCAD are quoted examples) will 'help the leveraging of supply chain capabilities' (21)

Commentary

Supply chains appear to be the subject of scant attention in the wider literature. This may be because the literature tends to focus on within-organisation features, systems and processes rather more than on external aspects of project delivery.

Proven methods and tools: best practice techniques in project management as appropriate to the type of project are consistently applied.

Mir and Pinnington (2014) observe 'a significant increase.... in the use of PM methodologies and tools' but argue that, in spite of this, 'project success has not significantly improved' (1).

PMI notes rising trends in a variety of methods and tools (rise of change and risk management techniques, rising use of Agile systems, etc.) (4).

Jugdev and Muller (2005) quote Standish Group CHAOS lists as including 'formal methodologies', 'effective tools', 'model-based process improvement' as CSFs (6).

Baker et al (1988) identify 'planning and control techniques' as a CSF (22).

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Shehu and Akintoye (2009) suggest that 'simplicity and easiness of techniques' is important: 'It is highly recommended that simple and well understood tools and techniques are employed to avoid the unnecessary waste of time in order to apprehend how the tools/techniques work' (8).

Cooke-Davies argues that one CSF is 'a suite of project, programme and portfolio metrics that provides direct line of sight feedback.... so that project, portfolio, and corporate decisions can be aligned' (12).

Alexandrova and Ivanova (2012) identify SMART planning as a project success factor (13).

Steinfort and Walker (2007) identify 'adequate communication and project tools' as a success factor (14).

Pinto (1987) identifies 'availability of the required technology and expertise' as a success factor (16).

Deloitte (2013) offers one particular tool: 'Enabling Risk Analytics for project success' (17).

Morris (2013) includes numerous descriptions of PM tools and systems (21).

Commentary

Issues of, and approaches to, project management techniques and tools is threaded throughout the literature. There appear to be two issues. First, there is some scepticism (see first reference above as example) as to whether increasing use of these has actually improved project success (and certainly some authors, reviewing project management history, note that approaches which were once well-regarded are now little used). Second, given their variety, whilst in the APM's view 'best practice' techniques and tools should be applied, it may be difficult for practitioners to distinguish those which are 'best practice' from those which are merely fashionable or well-marketed.

Appropriate standards: all good practice standards appropriate to the project (such as quality, environmental, health and safety or corporate social responsibility standards) are recognised at all levels and adhered to.

Commentary

This is clearly an area in which APM is taking a leadership position. There are occasional references in the literature which imply adherence to standards but these are oblique as well as very infrequent. The obvious exception is that of quality standards in so far as quality is one of the corners of the 'iron triangle' (of time, budget, and quality) which form the most basic criteria for project success.

The reasons for this omission may be (as in the case of 'sponsors' discussed earlier) because 'standards', perhaps loosely grouped as 'corporate social responsibility', have gained greater salience in recent years and, hence, post-date much of the 'project success' literature; and, with a frequent 'technocratic' focus on project success, operating to ethical or legal standards may be taken as a neutral factor by authors who are more concerned with internal, 'system' factors.

Commitment to project success: there must be a will for the project to succeed and a belief that it can be achieved, amongst all parties involved in delivering the project throughout its lifetime.

Browne (2013) argues that better financial incentivisation is required for project leaders and team members in the Civil Service to generate commitment and continuity (2).

Jugdev and Muller (2005) observe that ‘we now understand that CSFs include senior management commitment to provide the vision, strategy, and sponsorship – that is, commitment from executives throughout, not just at the start’ (6).

Baker et al (1983) identify ‘goal commitment of project team’ as a CSF (22).

Jiang et al (2002) propose that pursuit of project success requires ‘buy-in from all involved’ (23).

Steinfort and Walker (2007) position ‘commitment’ amongst a list of other ‘soft’ project characteristics (support, team approach, mentoring, etc.) which are reported as significant to project success (14).

Commentary

Given that commitment might be assumed to be a self-evidently valuable contribution to project success, it receives a relatively low level of attention in the literature and there is some focus on maintenance of commitment from senior management rather than APM’s more inclusive approach. The reason for this limited attention may be, as in other areas, that project management tends towards technical rather than towards people-centred inputs to project success.

Supportive organisations: the organisational infrastructure (for example, culture and structure) and environment in which the project is delivered is conducive to its success – for example, trade unions, affected communities and local authorities, professional and trade associations, or pressure groups are on side.

Price Waterhouse Cooper (2014) recognise the need to ‘identify and assess the stakeholders who are impacted or will be influencers of the realisation of programme benefits’ and to ‘track stakeholder alignment with the programme’s vision and deliver course correction activity when necessary to maintain that alignment’ (3).

Jugdev and Muller (2005) observe that ‘we are aware that success factors relate to.... the external environment (eg. politics, economy, social, natural)’ (6).

Morris and Hough (1987) identify ‘Politics’ and ‘Community involvement’ as having significant bearing on project success (24).

Similarly, Pinto and Slevin (1987) point to ‘power and politics’ and ‘environment events’ as factors impacting on project success (16).

Alexandrova and Ivanova (2012) imply the importance of maintaining stakeholder relationships in identifying ‘effective communication between project stakeholders’ as a CSF (13).

Steinfort and Walker (2007) noted both ‘rational/scientific’ and ‘political/cultural’ influences on project delivery and outcomes (14).

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Deloitte (2013) points to 'stakeholder alignment' as a factor in project complexity which needs to be achieved in order for projects to be successful (17).

Morris (2013) notes that 'Stakeholder Management has been one of the major areas of growing awareness in project management practice since the 1990s. A stakeholder is an individual or group of individuals within or external to the project or programme who have an interest in its outcome, for whatever reason. Stakeholder management refers to the activity of identifying, analysing and influencing, and as far as possible meeting, the expectations of stakeholders and their particular interests and needs (through such techniques as influence diagrams) and using 'influencing' behavioural practices. The cost of managing all potential stakeholders can be high, however, and some 'cutting-to-fit' might be necessary' (21).

Commentary

The ideal that stakeholders should be supportive of a project as a contribution to its success is substantially recognised in the literature (though not by those authors who take the 'technocratic' approach referred to in earlier commentary).

This 'success factor' stimulates an obvious question relating to the many cases, particularly of projects which impact on local environments, in which all stakeholders are not supportive (and cannot be encouraged to become so by the traditional means of compensation). This is hinted at in Morris' references above to 'as far as possible' and the use of 'influencing' practices. The question is essentially whether projects which override objections and are delivered successfully in build/engineering terms are judged overall as successful. And then, how critical can this 'supportive organisations' factor be if 'successful' projects are delivered, perhaps frequently, in these circumstances in which all stakeholders are not supportive?

Engaged users or operators: the individuals or groups who will use the end product or service are engaged in the design and progress of the project.

Jugdev and Muller (2005) propose that successful projects 'develop and maintain good relationships and effective communications with key stakeholders, and, in particular, project sponsors because their understanding, involvement, commitment and appropriate decisions for the project will be essential to achieve project success' (6).

Pinto and Slevin (1989) identify 'client acceptance' as a CSF (16).

Shehu and Akintoye (2009) identify 'understanding the stakeholders' attitude' as a (low order) CSF (8).

Abdullah et al (2010) note that 'impact on the customer' and 'identification of 'the cost, time, and quality parameters which fulfil the customer's desires' have been identified as success factors (10).

Bredillet (2005) notes 'increased customer involvement' as part of a 'new project management environment' (25).

Belassi and Tukul (1996) identify 'client consultation' as a CSF (26).

Slevin and Pinto (1989) identify 'client consultation – communication, consultation, and active listening to all impacted parties' as a success factor (16).

Successive Standish CHAOS reports identify 'user involvement' as a top-rated success factor.

Commentary

The engagement of end users and operators (essentially clients or customers) in project delivery has not been widely identified in the literature as a success factor or at least not as explicitly as in APM's formulation. Customer satisfaction is frequently observed as a success *criterion*, but references to customer *engagement* are infrequent and some of those identified, as above, are somewhat less definitive than the APM factor.

Competent project professionals: the team that manage the project are wholly competent, qualified and experienced in their particular roles.

Capable project teams: the subject matter experts contributing to specialist teams within the project are wholly competent, qualified and experienced in their roles.

Browne (2013) notes an 'alarming lack of attention to identifying the right skills and experience' required by project leaders and teams in government projects and recommends corrective action (2).

Price Waterhouse Cooper (2014) identify 'high-performing teams' as one of their twelve elements of (project) delivery excellence (3).

The National Audit Office (2010) notes that the Home Office 'still needs to gain a comprehensive overview of staff skill sets in programme and project management' (5).

Sayles and Chandler (1971) note 'project managers' competence' as a CSF (20).

Baker et al (1983) identify 'adequate project team capability' as a CSF (22).

Alexandrova and Ivanova (2012) identify 'competence of the project manager' and 'competence of project team members' as two of the three highest-ranked CSFs in delivery of EU projects (13).

Steinfort and Walker (2007) identify 'project competencies and PM skills' as a success factor (14).

Pinto and Slevin (1989) identify the 'quality of personnel' as a critical success factor (16).

The Standish Group's annual CHAOS reports regularly identify 'competent staff', 'skilled resources', or 'project management expertise' as CSFs.

Commentary

Competence of project management and teams is a frequently observed factor in the literature. That it is not universally observed as a success factor, since it is self-evident that project staff competence must be a factor in project success, is presumably because some authors treat it as a given in order to focus on more specialised project characteristics in their investigations.

Secure funding: the project has secure funding for the whole project, with possible contingencies in place to ensure funds can be released in such a way that cash flow difficulties do not arise.

Browne (2013) observes that major public projects require 'high quality assurance on project readiness and value for money' to inform decisions on funding (2).

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Price Waterhouse Cooper (2014) identify a success factor as 'establish programme costs, secure financing, and run financial management processes , including cost control and reporting' (3).

Martin (1976) identifies 'allocate sufficient resources' as a CSF (18).

Baker et al (1983) identify 'adequate funding to completion' as a CSF (22).

Murray (2001) identifies 'adequate project funding' as a CSF in IT projects (27).

The US Office of Government Commerce (2003) recognised 'sufficient budget' as necessary for project success (28).

Steinfort and Walker (2007) observe 'adequate resources being committed for the project based upon detail derived from an achievable project plan' as a success factor (14).

Pugh (1985) observed cost over-runs as a function of poor project definition (29).

Commentary

Delivery within budget is a generally recognised *measure* of basic project success. Successful management of the budget and cost control is, therefore, a widely recognised factor in *successful project management*. The security and adequacy of project funding itself, as a *project success factor* gets less attention in the literature though, as above, recognition of the factor is not absent. Perhaps, as with project staff competence above, 'secure funding' is regarded as such a basic underpinning of project success that authors' attention again turns to more specialised aspects of project delivery.

Other success factors in the literature

29. The previous section drew parallels between APM's eleven success factors and references in the project success literature to factors which appear to have correspondence, exactly or more peripherally, with the eleven. This section now examines the literature to identify factors which authors believe to be significant to project success but which are not explicitly included in the APM's list, although in some cases, it may be argued that they are implicit in or subordinate to one or more of the APM factors.

30. We identify three 'extraneous' factors. The first of these is concerned with having clear **project objectives** and the consistency and clarity with which these objectives are maintained through to project end. Allied to this are the concepts of '**vision**' and '**mission**' – that those with high level project responsibility have, and believe in, a clear picture of what a project's outcome will be. Some references to this include:

Pinto and Slevin (1989) identify 'Project Mission – initial clearly defined goals and general directions' as their 'top' CSF (16).

Steinfort and Walker (2007) also place 'a clear mission/vision and agreed goals' at the top of a list of nine CSFs (14).

Alexandrova and Ivanova (2012) identify 'clarity of project goals' as a CSF (13).

Price Waterhouse Cooper (2014) include a guideline for success as 'Visualise what good looks like – have a shared vision of this or you won't know if you've got there' (3).

Browne (2013) notes a frequent failing in government projects that 'detailed objectives of the project are not always explicitly stated' (2).

Shehu and Akintoye (2009) note that their own research 'supports the literature, in which clarity and consistency of vision have been advised for any programme that wishes to be successful (8).

31. The second extraneous factor identified is one which might be simply labelled '**good planning and review processes**'. However, in this, several concepts and related activities are bundled together. These include:

- Initial planning and early-stage behaviour.
- Project lifecycle management involving review processes and stage gates.
- Risk management and troubleshooting.

32. An adjunct to this, though a slightly odd one in relation to project success factors, is that prompt abandonment of a project is good practice when review processes demonstrate that project costs are likely to outweigh benefits or that intended outcomes are simply unachievable.

33. Some relevant references include:

Steinfort and Walker (2007) observe 'project plan and programme method of work being resolved and agreed by all parties' as a success factor (14).

Shehu and Akintoye (2009) observe that 'planning is one of the most important critical success factors'. Their own research places 'effective planning' at the head of a list of CSFs and they quote a series of other authors in support of their view (8).

Browne (2013) notes that his first insight is 'that the lowest standards that are set at the start of a project are the highest standards that can be expected for the rest of the project. Investment of time and resource in a rigorous process at the outset is essential for success' and that 'an ongoing and rigorous review process with real teeth which monitors the agreed measures of progress is essential to highlight the potential need for intervention' (2).

Price Waterhouse Cooper (2014) advise: 'Be willing to cancel projects – review the merit and utility of your projects based on current information' and further identify good practice as establishing 'formal risk identification, assessment, and mitigation processes' (3).

Pinto and Slevin (1989) identify 'monitoring and feedback – timely provision of comprehensive control information' and 'troubleshooting – ability to handle unexpected crises and divisions from plan' as CSFs (16).

Morris and Hough (1987) identify a 'success factor' as: 'Project termination: in the event that the project had to be cancelled, was the decision made reasonably and efficiently?' (24).

34. The third extraneous factor is one which concerns **Portfolio, Programme and Project Management**. This is somewhat difficult to translate into an individual-project success factor but an approximation may be: 'Where a project is part of a wider programme or portfolio of programmes/projects, is that project positioned so that its relevance to the wider programme/ portfolio environment is clearly understood and that it is appropriately prioritised and resourced?'. Some relevant references include:

Browne (2013) observes 'a critical innovation in the private sector has been the emergence of a portfolio management approach to major projects, that is, a central project authority takes the role of prioritising across a company's projects on the basis of benefit to cost ratio, risk and deliverability. This exercise is repeated frequently, allowing a company to take a view on which projects require ongoing high investment; the allocation of the most capable project leaders; and, within a context of limited resources, identifying by contrast those projects that should be re-scoped or stopped.' (2).

Cooke-Davies (2002) suggests that 'portfolio and programme management practices that allow the enterprise to resource fully a suite of projects that are thoughtfully and dynamically matched to the corporate strategy and business objectives.... appear to be critical to consistent corporate success' (12).

Key points and conclusions

35. A first key point is to reiterate that a literature review of 'project success literature' runs into substantial complexity and issues of terminology and language. Complexity and variety leads some commentators to observe that 'none of the key successful factors described in the literature are responsible on their own for ensuring a project's success – they all are inter-dependent and require a holistic approach to be taken'⁹ or that 'project success can be measured in different ways at different times by different people' and 'project success is multi-dimensional'¹⁰.
36. The variety is such that this review has observed many 'success factors' in the literature which have not been explicitly mentioned. Broadly, our assumption is that these are subsumed in or are implied by existing items in the APM list of eleven success factors. For example, 'leadership' gets some special focus in the literature: our assumption is that APM's 'Governance' and 'Commitment' items *may* imply recognition of a leadership dimension (though not with any great clarity). Similarly, the literature contains dozens of 'technical' CSFs (including, say, 'Agile change control', 'Focussed benefits management', 'effective quality management', 'maintaining a visible risk register', 'reporting against balanced scorecards', 'SMART planning', 'mature scope change control processes'): our assumption is that the relevance of these technical inputs is subsumed by APM's 'Proven methods and tools' and 'Competent professionals/capable teams' items.
37. However, observation of the variety of success factor models and the suggestion, as above, that no single set of factors may provide a unique solution in all cases and at all times prompts further reflection on the ultimate purpose of developing these models in the first place. There are, perhaps, three purposes. The first is purely 'academic' concern to understand the conditions which have to be in place for project success. The second is didactic – essentially to suggest to project managers that, if they wish to deliver successful projects, they should ensure that as many of the model constituents are in place to a high a standard as possible. The third is to use the model as a benchmarking tool by which the overall quality of project delivery can be collectively assessed at any one point in time and tracked over different points in time.

⁹ For example: *Project Management pitfalls*, T Richardson, Business Communications Review, 25(8), 1995

¹⁰ *Modelling project management performance*, D J Bryde, International Journal of Quality and Reliability Management, 20(2), 2003

38. APM's interest in developing a project success factor model is clearly not motivated by the first purpose.
39. However, if APM's model is valid, it clearly has some value in the second case – assisting the PM profession to improve its performance. Our only observation on this, at this point, is to note again what we observed earlier (in commentary on the 'capable sponsor' item): that some APM items ('capable sponsors', 'supportive organisations', and 'engaged users or operators') are external factors substantially not within the control of project managers (this is mainly in the case of external projects involving a contractor/client relationship). Essentially, to have a didactic function these items may need to have a sub-text in which the items are brought within the scope for project manager action, basically involving the development of influencing skills, for example: 'having the skills to maximise the engagement and capability of sponsors', 'having skills and techniques for increasing the supportiveness of external organisations or for circumventing their non-supportiveness' and 'having the skills and techniques for increasing the engagement of users and operators'.
40. The third purpose of APM's model clearly applies: it is designed for use as a benchmarking tool for the project management 'industry' in the UK. The study of which this literature review is part, is intended to underpin that benchmarking procedure. The question then arises as to whether the literature review supports the adequacy of the current model, eleven items, as the basis of a benchmarking tool.
41. The basic answer to that question is 'yes'. In so far as language variation and interpretation of meaning permit, it is evident, as shown earlier, that the academic and professional literature has substantial consistency with the APM model.
42. There are, however, a number of points which APM may wish to consider.
43. Firstly, some items in the APM list (competent professionals, capable teams, and secure funding) are recognised in the literature as CSFs but perhaps less frequently in explicit terms than might have been imagined. We have hypothesised that these are such obvious requirements for success that some studies which have enquired about the relative importance of other factors have omitted them simply because their importance is so self-evident. In APM's case, we suggest that benchmarking against these items will be valuable mainly in observing how often and to what degree they are in place in projects: we would not expect any variation from 'very important' score on a significance measure.
44. Secondly, we could find very little reference in the literature which supports the 'appropriate standards' item other than implicitly in reference to quality as a basic success criterion and, hence, identifying quality control and assurance as a success factor. Basically, there appears to be scant literature which correlates, for example, adherence to health and safety or environmental standards with project success. This may be because much of the literature reviewed may pre-date more recent emphasis on these aspects. But also, there may be an argument that standards/regulations while clearly important to ethical delivery of projects are not particularly helpful to delivery on time and to budget, the traditional metrics of project success – hence there is no positive correlation. Use of this item in a benchmarking procedure may well provide a first test (as far as we can tell) as to whether having standards in place (beyond those which are

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statutorily required and, presumably, therefore do not discriminate between projects) are significant to success.

45. Thirdly, we have noted that the literature supports the proposition that three 'factors' may be contributory to project success which are not very clearly addressed by APM's current list. These are:
 - A factor concerned with clarity of objectives, with maintaining focus on objectives throughout the project lifespan, and on 'mission'/'vision'.
 - A factor concerned with project planning, project review, and project responsiveness.
 - A factor concerned with project positioning within 'portfolio/programme/project' structures in complex organisations.
46. APM may wish to consider whether such factors should be tested for significance alongside the existing eleven.
47. Finally, in terms of existing literature, as well as of common parlance, we suggest that some of the terms used in APM's list may need careful presentation when offered to the industry for benchmarking purposes. Without seeking to offer definitive alternatives, we would suggest that working PM professionals may not be consistent in their interpretation of the following:
 - Governance – the literature is not consistent as to what 'governance' is, it sometimes being interpreted as 'authority from the top' or simply 'power' rather than with APM's more structural view of governance as the organised distribution of responsibilities.
 - Sponsorship – this is recognised in the literature as a factor which is receiving growing attention but its definition and the location of 'the sponsor' on the client-side in the case of external projects and within Board/senior management structures in the case of internal projects may need clarification for some project managers.
 - 'Users or operators' – much of the historic literature which concerns the engagement of external users/operators simply refers to 'clients' and that term and the concept of the 'internal client' may be helpful in clarifying who 'users or operators' actually are in many or most cases.

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