



# The “real” success factors on projects

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## Abstract

A comprehensive answer to the question of which factors are critical to project success depends on answering three separate questions: “What factors lead to project management success?”, “What factors lead to a successful project?” and “What factors lead to consistently successful projects?” This paper draws on new empirical research from more than 70 large multi-national or national organizations to answer each of these three questions, and to identify 12 factors that are, in one way or another, critical to project success. © 2001 Published by Elsevier Science Ltd and IPMA. All rights reserved.

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## 1. The challenge of identifying the critical factors that lead to project success

Since the late 1960s (at least) project management researchers have been trying to discover which factors lead to project success (e.g. [1–3]) and have reached conclusions that have been widely reflected in literature written for project management practitioners.

In spite of these well-known research results and despite column-miles of words that have been written about project management [4], despite decades of individual and collective experience of managing projects [5], despite the rapid growth in membership of project management professional bodies and despite a dramatic increase in the amount of project working in industry, project results continue to disappoint stakeholders [6–8].

So what are the critical factors that “really” lead to successful projects?

## 2. Answering three questions, not one

At the end of 1993, a group of 15 large European private sector companies formed Human Systems’ first project management knowledge network to identify project management best practice, and to learn together how to improve project performance. Since then the number of networks has grown to seven, and the membership to over 70 organizations in Europe, Australasia and North America. In parallel with this programme of work, the author of this paper has conducted an

academic research programme leading to the submission of a dissertation to Leeds Metropolitan University and the subsequent award of a PhD. This paper draws extensively upon both the empirical results and the accompanying academic research.

Two distinctions must be drawn at this stage in the discussion. Firstly, De Wit [9] and other writers distinguish between *project success* (measured against the overall objectives of the project) and *project management success* (measured against the widespread and traditional measures of performance against cost, time and quality). The second distinction is also important- it is the difference between *success criteria* (the measures by which success or failure of a project or business will be judged) and *success factors* (those inputs to the management system that lead directly or indirectly to the success of the project or business).

With this behind us, we can make the first confident assertion in the paper: the answer to the question differs considerably depending upon which of three questions you are asking. What factors are critical to project management success? What factors are critical to success on an individual project? What factors lead to consistently successful projects? We will consider each of these three questions in turn.

## 3. Question 1. What factors are critical to project management success?

Firstly, the question of which factors lead to project management success.

The data on which the conclusions in this section are based is taken from a detailed analysis of 136 (mainly)

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European projects that were executed between 1994 and 2000 by a total of 23 organizations. The projects ranged up to over \$300 million cost and 10 years duration, with an average of \$16 million and 2 years, and a median of \$2 million and 18 months. Full details of the projects and the analysis are contained in [8].

The first surprise thrown up by the analysis was that when schedule delay and cost escalation were compared for individual projects there was the expected strong correlation between the two, but only a small amount of the cost escalation was accounted for by schedule delay. This is illustrated in Fig. 1, where each point on the graph represents one of the projects and its performance against schedule (on the  $x$  axis) and budget (on the  $y$  axis).

Two observations can be made about this phenomenon: firstly, mean performance against budget (4% cost escalation) is generally better than mean performance against schedule (16% late); and secondly, when the adequacy of specific project management practices, and the maturity of specific project management processes are compared with performance against each of these two criteria, then different practices are found to correlate significantly.

These practices that correlate to on-time performance are:

- F1 Adequacy of company-wide education on the concepts of risk management.
- F2 Maturity of an organisation's processes for assigning ownership of risks.
- F3 Adequacy with which a visible risk register is maintained.
- F4 Adequacy of an up-to-date risk management plan.
- F5 Adequacy of documentation of organisational responsibilities on the project.

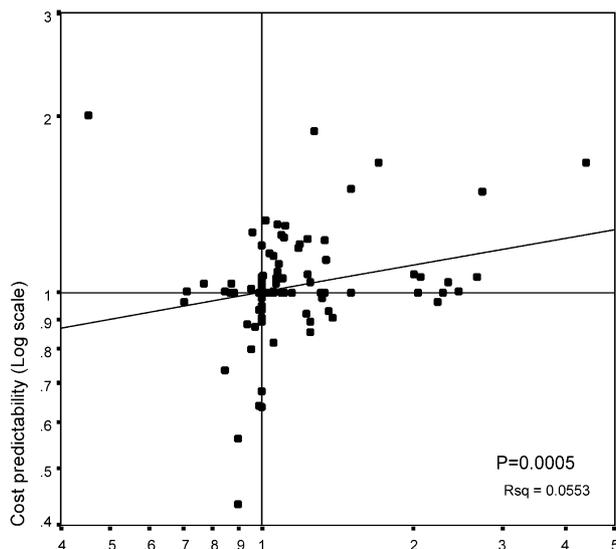


Fig. 1. Relationship between cost predictability and time predictability.

- F6 Keep project (or project stage duration) as far below 3 years as possible (1 year is better).

On the other hand, those that correlate to on-cost performance are:

- F7 Allow changes to scope only through a mature scope change control process.
- F8 Maintain the integrity of the performance measurement baseline.

In each of these cases, there is a significant measurable improvement in project success against the specific criterion, as is shown in the example in Fig. 2. In this, the time predictability is shown on the vertical axis as a multiple of the forecast duration (i.e. 1.5 means 50% late). Each vertical bar represents the range of outcomes for which there exists a confidence of 95%, and the four numbers on the horizontal axis show the result for F5 when the practice is “not at all adequate” (1) through to “fully adequate” (4). Similar patterns were recorded for each of the factors F4–F11.

There was also a visible correlation between the predictability of outturn of the range of projects within a particular organization, depending on the strength of the overall group of success factors F1 to F8.

#### 4. Question 2. What factors are critical to success on an individual project?

As has already been pointed out, project management success is not the same as project success. To bridge this divide, it is necessary to bring into play the interests of those who established the project (the stakeholders) and what it was that they hoped to achieve through the project (the benefits). An analysis of six recent project management “bodies of knowledge” identified 60 core elements that are central to the way a project manager thinks about his or her work [8]. When these are clustered into eleven topic areas, and related to each other through a “systemigram”, it becomes clear that “anticipated benefits” become the touchstone not only for formal “stage gate” reviews of projects, but also for the continuous “informal assessment” of the likely success of projects carried out by senior management, and influencing decisions about priorities and resource allocation.

Comparison of the eleven topic areas with previously published research about project success factors reveals a silence about “benefits”, perhaps because little has been written about benefits management or benefits realization until recently, and perhaps because the

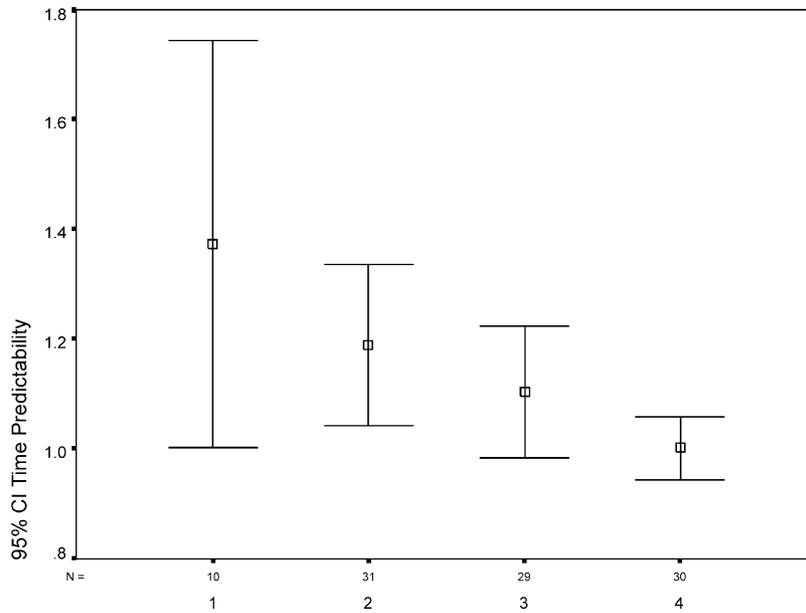


Fig. 2. Improved project success with improving adequacy of factor F5.

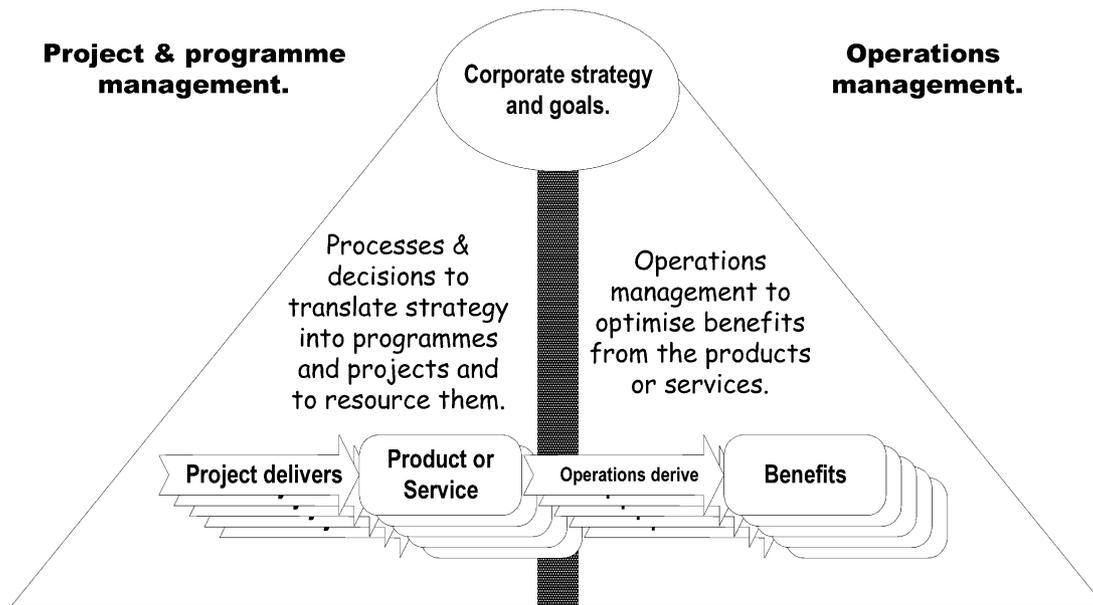


Fig. 3. The importance of project management and operations management working together to deliver beneficial change from projects.

subject of “benefits” has been subsumed in the general discussion about “project purpose” or “project goals”.

Two things need to be said about this recognition of the importance of benefits management:

1. As Fig. 3 shows, benefits are not delivered or realised by the project manager and project team, they require the actions of operations management. This calls for a close co-operation between the project team on the one hand and the “sponsor” or “customer” on the other.

2. Delivering project success is necessarily more difficult than delivering project management success, because it inevitably involves “second order control” (both goals and methods liable to change) whereas the latter involves only first order control (hold goals constant, and change practices to meet pre-determined goals).

Thus, in addition to the eight factors that are critical to project management success, a ninth is critical to project success:

F9 The existence of an effective benefits delivery and management process that involves the mutual co-operation of project management and line management functions.

is difficult to make significant progress, and which appear to be critical to consistent corporate success. These are:

**5. Question 3. What factors lead to consistently successful projects?**

As we move from project management success, through project success to corporate success, a completely new set of processes and practices comes into the picture as being determinate of consistently successful projects. The fact is that the “processes and decisions to translate strategy into programmes and projects” that were referred to in Fig. 3, become, in practice, a suite of “corporate project management practices” that in turn create the context for the management practices on individual practices, as is shown diagrammatically in Fig. 4.

Every year, each member of the knowledge networks completes a detailed questionnaire about project management practices at both the corporate level, and the individual project level, and thus members have a general idea about what organizations around the world do well and what needs improving. The majority of members of the networks have achieved well-defined processes and methods for their mainstream projects in one or more of the departments, and these are normally followed. Standard life cycles with “stage gates” at pre-defined decision points are common.

However, the current state of practice in large organizations is showing three areas of practice in which it

F10 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.

F11 A suite of project, programme and portfolio metrics that provides direct “line of sight” feedback on current project performance, and anticipated future success, so that project, portfolio and corporate decisions can be aligned. Since corporations are increasingly recognizing the need for “upstream” measures of “downstream” financial success through the adoption of reporting against such devices as the “balanced scorecard” [10], it is essential for a similar set of metrics to be developed for project performance in those areas where a proven link exists between project success and corporate success. For the project management community, it is also important to make the distinction between project success (which cannot be measured until after the project is completed) and project performance (which can be measured during the life of the project). No system of project metrics is complete without both sets of measures (performance and success) and a means of linking them so as to assess the accuracy with which performance predicts success.

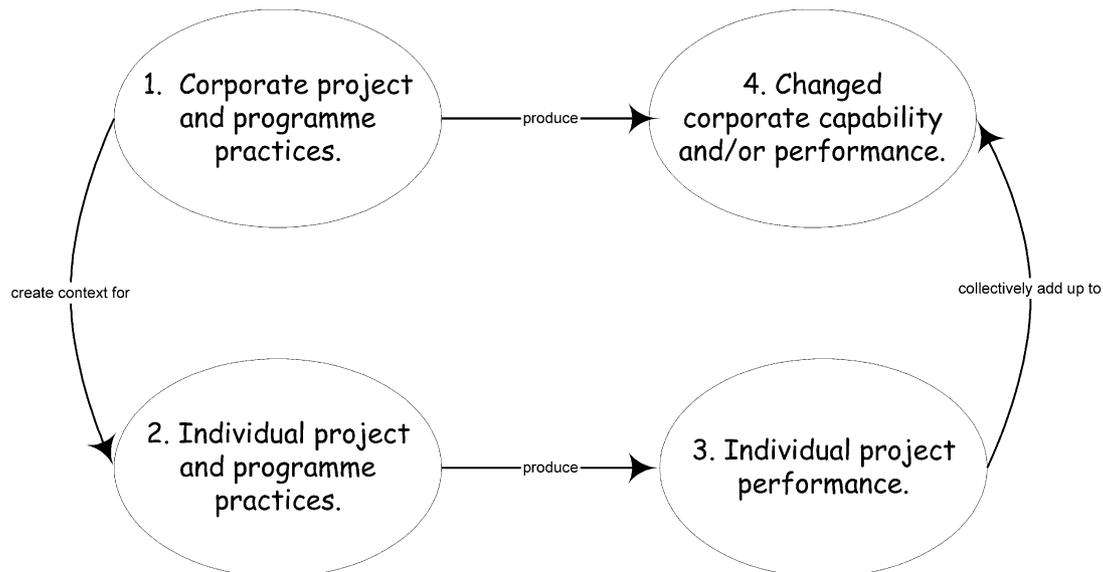


Fig. 4. The corporate context for project success.

F12 An effective means of “learning from experience” on projects, that combines explicit knowledge with tacit knowledge in a way that encourages people to learn and to embed that learning into continuous improvement of project management processes and practices. Indeed, for Kerzner [11], continuous improvement represents the fifth and highest stage of project management maturity in an organization.

## 6. How project success and corporate success are linked

Project management literature is generally silent on the topic of corporate success, although the 1990s have seen an increasing emphasis on the role that projects play in bringing about beneficial change to an organization [12–14]. However, different kinds of projects undertaken by members of the knowledge networks illustrate clearly that both direct and indirect links exist between project success and corporate success.

### 6.1. General corporate strategy

- Successful Business Process Reengineering projects (which have a notoriously low rate of achievement of their objectives) can lead directly to improved competitiveness.
- Successful corporate restructuring or merger/acquisition projects can lead directly to enhanced shareholder value.

### 6.2. Business operations

- If the business is essentially project-based (as is the case in many of the traditional project management environments such as Engineering, Defence, Petrochemical exploration, Construction or IT/IS Systems Integration) then successful project performance translates directly into an improved bottom-line.
- If the business is operations-based, then successful projects to support or to improve operations (such as marketing projects, plant shutdowns, or production engineering projects) lead indirectly to improved bottom-line performance.

### 6.3. Research and development

- Successful research projects and (in the case of some industries such as Pharmaceuticals) develop-

ment projects lead to a maximised return on R&D spend, leading directly to the creation of new streams of operating revenue.

- Successful development projects improve time to market, and can enhance competitive position, product sales or product margins.

### 6.4. IT/IS development

- Successful IT/IS projects deliver improved financial benefits (either directly or indirectly), and/or reduced wastage from aborted projects (Standish [7]).

### 6.5. Facilities provision and management

- Successful projects to design, procure and construct new capital assets can enhance time to market, return on investment, reduced operating costs or some combination of all three.

This list is not exhaustive, but what all these and other types of project have in common, when successful, is that each of them contributes to the creation of additional corporate value—and sustained long-term value-creation is the ultimate measure of corporate success.

## 7. The “people” side of project management

The 12 “real” success factors for projects have all been derived from either “hard” data (F1–F8) or from “softer” evidence (F9–F12). They are all factors that have been implemented, or are being implemented, in large multi-national or national organizations.

It may appear curious that none of these 12 critical success factors is directly concerned with “human factors”, although it is fast becoming accepted wisdom that it is people who deliver projects, not processes and systems. As [3] said in the title of his paper, “When it comes to project management, it’s the people that count.”

There are two reasons that we would like to suggest for this strange omission. Firstly, the research on which this paper is largely based has focused on what people and teams do, rather than on the quality of their human interactions or motivation and decision-making practices. Secondly, there are human dimensions to nearly every one of the 12 factors that have been identified. It is not as if there are some factors that involve processes, and others that involve people—people perform every process, and it is the people who ultimately determine the adequacy. Thus the “people” side of the success factors is woven into their very fabric.

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