# Critical success factors for projects

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**ABSTRACT**

More and more organisations are recognising that translating corporate strategies into actions requires projects. Consequently, it is vital that projects are successful. Critical success factors are important influences that contribute to project success. This paper reports the outcome of a survey on critical success factors derived from the responses of 150 members of the Australian Institute of Project Management. A synthesis of the responses discerned fifteen critical success factors, of which two were predominant - project understanding and competent project team.

Keywords: *critical success factors, project success,*

## INTRODUCTION

More and more organisations are recognising that translating corporate strategies into actions requires projects (24). In fact, all projects should be supportive of the performing organisation's strategic goals(25). Consequently, it is important that projects are successful. The factors affecting project success are referred to as Critical Success Factors (CSFs). So, project critical success factors are the set of circumstances, facts or influences which contribute to the project outcomes. [1].

## PREVIOUS RESEARCH

Various authors [2-16] have identified a number of CSFs for projects. A review of the literature highlights nine common CSFs for projects:

*Project Understanding*: It is important that the project team understand the project, particularly with respect to project goals and objectives. Understanding the project mission is the most important factor related to project success [13].

*Top Management Support*: Management support for projects has long been considered of great importance in distinguishing between success and failure [4, 14]. Project management is dependent on top management for authority, direction and support. Top management should make it clear that the project is worthwhile and that they support it [4, 17]. Interestingly, many upper managers are unaware of how their behaviour influences project success [18].

*Communication*: Effective communication is vital in creating an atmosphere for achieving project success [8]. Communication is not only essential within the project team, but also between the team and the rest of the organisation and the client [13].

*Client Involvement*: Client involvement and consultation in the project delivery is important to project success [10]. For a successful project the user must be strongly committed to the project goals and be involved in the project management process [19].

*Competent Project Team:* The competence of the project manager and project team members is a critical factor for project success [3]. It is important that the project manager and project team be selected wisely to ensure they have the necessary skills and commitment to perform their functions effectively.

*Authority of the Project Manager:* In successful projects the project manager is not only strongly committed to meeting project objectives, but also has the authority to have control over developing plans, making changes as required, and fulfilling them [5]

*Realistic Cost and Time Estimates*: Realistic and accurate cost and time estimates are critical to project success [5, 14]

*Adequate Project Control:* Successful projects have good control and reporting systems that provide adequate monitoring and feedback that enables comparison of team performance and project goals [7, 9, 10]. Adequate monitoring and feedback mechanisms give the project manager the ability to anticipate problems, oversee corrective measures, and ensure that no deficiencies are overlooked [20].

*Problem Solving Abilities:* Regardless of how carefully a project is planned, it is impossible to foresee every problem that could arise. It is vital that the project team is responsive and capable of taking appropriate action when problems develop [10, 14]


## RESEARCH METHOD

*Sample*


The population for the research was those involved in the project management process as represented by membership of the Australian Institute of Project Management (AIPM), which is the professional

body representing project managers and project management users in Australia [21]. The 1999 AIPM Handbook lists 2,126 members and their contact details. The selection of a sample reflecting the population was required. Approximately half of AIPM members had e-mail addresses so the sample size was selected as 1103, being those AIPM members with e-mail addresses.

*Procedure, response rate*

The survey questionnaire was designed to be answered by e-mail. Taking into account 257 bounced responses, a maximum of 846 e-mails may have been successfully delivered to the intended respondents. A total of 150 completed questionnaires were ultimately returned for inclusion in the study.  This represents a response rate of 18% (150 returned / 846 maximum received).

*Questionnaire Design*

The research was into two project management concepts – project success and critical success factors. It is only part of the latter that is reported in this paper. The questionnaire had three sections:

- Demographic information on the respondents

- Project success – definition and criteria  (not part of this paper)

- Project success – critical success factors  (partially reported in this paper)

The CSF section of the survey consisted of two questions – an open-ended qualitative question (reported herein) and a quantitative Likert-scale question (not part of this paper.

## RESULTS

Tables 1 -  distribution of respondents by industry:

| INDUSTRY | No | % |
|---|---|---|
| Construction | 68 | 45.3% |
| Information Technology | 22 | 14.7% |
| Resources | 16 | 10.7% |
| Telecommunications | 10 | 6.7% |
| Multiple (& Other) | 9 | 6.0% |
| Defence | 7 | 4.7% |
| Education | 7 | 4.7% |
| Manufacturing | 6 | 4.0% |
| "Most" or "All" | 5 | 3.3% |
| TOTAL | 150 | 100% |

Pinto and Mantel [22] refer to the ten CSFs developed by Pinto and Slevin [13] and suggest that "these critical success factors were found to be generalisable to a wide variety of project types and organizations." However a single set of project success factors may not be suitable for all industries [1, 8]. Liu and Walker [23] suggest that as industries operate differently, "a set of CSFs may not be transferable from one project to another project…Only generic areas can be identified and used as broad guidelines." Interestingly, an analysis of the responses of this survey did not reveal any significant variation in responses between industries.

*What factors do you believe are critical to achieve project success?*

This open-ended question sought opinions of what factors are critical to achieve project success – see table 2. The aim was to identify similarities between the literature and the responses and also to add to the body of knowledge on CSFs. The literature review identified nine generalisable CSFs. Fifteen CSFs could be discerned from the respondents' replies.

**Table 2 - Critical Success Factors**

| Rank | Critical Success Factor | % identified |
|------|------------------------|--------------|
| 1 | Project Understanding * | 73% |
| 2 | Competent Project Team * | 61% |
| 3 | Communication * | 42% |
| 4 | Realistic Time & Cost Estimates * | 40% |
| 5 | Adequate Project Control * | 29% |
| =6 | Client Involvement * | 23% |
| =6 | Risk Management | 23% |
| 8 | Resources | 22% |
| 9 | Teamwork | 21% |
| 10 | Project Planning | 20% |
| 11 | Top management Support * | 16% |
| 12 | Stakeholder Involvement | 11% |
| 13 | Project Managers Authority * | 9% |
| 14 | External Factors | 7% |
| 15 | Problem Solving * | 3% |

(* = CSF identified in literature review)

*Content Analysis*

A qualitative content analysis of responses yielded a rich variety of themes, which are sythesised herein.

*Project Understanding (73%)* - This stood out clearly as the most commonly identified CSF. Responses included:

- Understanding of client needs & clear project goals and end user requirements
- The project has a defined mission
- Comprehensive clearly defined and agreed scope of works fully understood by all parties
- Requirements are clear and unambiguous
- Clear, precise and accurate documentation

*Competent Project Team (61%)* - It was identified that not only must the team be technically capable, but it must also be the 'right mix' and balance of compatible team members so that they can work together and forge an effective project team.  Some respondents stated that team members should be full-time to one project such that their efforts can be focused on the project. Also, there should be team continuity over the entire life of the project. It was also suggested by some respondents that not only must the project team have the appropriate skill to start with, but also that this should be coupled with regular ongoing training to ensure that the appropriate skills are developed and effectively maintained.

*Communication (42%)* - Respondents identified that communication should be continual, strong, timely, effective, open, clear, and constructive.  Some respondents stated that communication should occur at all levels in the project.  "up, down and laterally" between all stakeholders.

*Realistic Time and Cost Estimates (40%)* - Respondents identified that time and cost estimates should be adequate and realistic to undertake the scope of the project, planned, sound, accurate, and "correct to suit market conditions". Some respondents suggested that good cost and time estimates could be achieved by good estimation & bidding procedures early in the feasibility phase of the project to "prove" the viability of the project and get the project off to a good start.

*Adequate Project Control (29%)* - Respondents suggested that project plans should be flexible to facilitate change if required. Continual monitoring and tracking of project progress be undertaken with respect to the schedule, costs, scope and risks and corrective action taken immediately problems are noticed. Many respondents identified the need for adequate and effective change control, suggesting that changes to the project be correctly managed using formal change management procedures. Regular, accurate, formal reporting systems to the project manager and client are required so that appropriate control measures could be applied in a timely fashion.

*Client Involvement (23%)* - Client Involvement is achieved by close consultation, managing expectations, developing honest and open relationships, and building rapport and trust.

*Risk Management (23%)* - Respondents identified the appropriate management and mitigation of risk as a CSF. Important elements in the risk management process are risk identification, analysis and allocation, which must be rigorous, practical & accepted. Risk management must be conducted diligently, and a risk mitigation plan is in place early on.

*Resources (22%)* **-** Sufficient resources in terms of people, time, money, expertise and facilities were identified as a factor critical to project success. Resources were typically identified as an adequate number of people particularly in terms of quantity, experience and skills to serve the needs of the project. It was also observed that adequate resources from all stakeholders was required and that adequate resource levels must be prepared, maintained and managed throughout the project lifecycle.

*Teamwork (21%)* **-** Parties in the team must be willing to work together as a "team". To develop teamwork between parties, respondents suggested teams needed sound working relationships between all parties including realistic expectations of each other. The entire project group should be working to the same goals in a cooperative environment with a strong team work ethic. Project team members must be compatible and work in a harmonious, non-adversarial environment. Some respondents noted that "alliancing" between stakeholders as opposed to "adversarial" relationships was critical and to work in this fashion honesty and integrity must exist on both sides.

*Project Planning (20%)* **-** Respondents identified the need for thorough, adequate and effective project planning for all work to provide the team with the best chance to meet project objectives during

project execution. It was also noted that the project plan must have ownership by team members, and that the project plan once prepared must be followed and re-planned as required.

*Top Management Support (16%)* **-** Respondents identified commitment of upper management, active management driving the project, senior management 'owning' the project and organisational support as typical values describing top management support.

*Stakeholder Involvement (11%)* **-** Respondents noted that stakeholders should have early, regular and extensive involvement in the project process. Stakeholders needed to "buy-in" to the success of the project and be committed to it and the project team needed positive and ongoing contact with stakeholders.

*Project Manager's Authority (9%)* - Respondents considered that the project must have a management structure that defines responsibilities, the project manager having authority over the resources required of the project and single point accountability for project outcomes. The project manager should be a strong and effective leader with understanding of the project and with authority and respect of the project team.

*External Factors (7%)* - External factors are those influences outside the control of the project team that can influence project success. Here, respondents identified a stable political environment, stable industrial environment, and a balanced economic climate as being important in that they provide a suitable environment in which the project can be implemented and succeed.

*Problem Solving (3%)* - Respondents suggested that the parties involved should work together to solve problems, respond positively to fixing problems that emerge, and be team minded when problems occur to solve them together.

### Comparison with literature

The following observations regarding CSFs are made in comparing the results of this survey with the literature:

- All nine CSFs in the literature were mentioned in the survey, thereby adding support to the relevance of the literature-derived CSFs. In particular, the top six most identified CSFs in the survey correspond with CSFs from the literature, thereby reinforcing the appropriateness and ubiquity of these six CSFs.

- After the top six, the next three most identified CSFs were not commonly found in the literature:

    o The identification of risk management as a CSF reflects the growth of its awareness and application over recent times.

    o The identification of teamwork as a CSF corresponds with a growing awareness of the importance human behaviour aspects of project management.  It is being recognised that project management is about managing people, rather than simply focusing on tools and techniques.

    o In today's competitive environment, organisations are striving to do more with less.  This probably results in projects having to be executed with perhaps barely adequate resources. Therefore it is not surprising to find that respondents considered appropriate resourcing to be a CSF


SUMMARY

The search for factors that influence project success has been of growing interest over the past decade. This survey into CSFs for projects  is based on a considerable sample of 150 members of the Australian Institute of Project Management. The key outcomes of this research are:

- The identification of 15 CSFs for projects (Table 2). Project understanding and competent project team are the foremost important CSFs. This emphasises the critical need for the project manager to promote a strategic perspective, rather than over-focus on the tools and techniques of project management

- In particular, this survey found three higher-ranked CSFs – risk management, resources, which do not prominently appear in the literature. This survey therefore adds to the body of knowledge for CSFS in projects.

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