The Logical Framework Method for Defining Project Success

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Abstract

Project success is a core concept of project management but its definition remains elusive. The project team must have a clear understanding of their project success objectives. This paper uses the logical framework method (LFM) as a foundation for defining project success. Using LFM, four levels of project objectives are identified: goal, purpose, output, and input. It is proposed that project success consists of two components—product success and project management success. Product success deals with goal and purpose; project management success deals with outputs and inputs.

Keywords: logical framework method; project objectives; product/project success; project management success

A review of the project management literature provides no consistent interpretation of the term "project success." McCoy (1986) observes that a standardized definition of project success does not exist nor an accepted methodology of measuring it. Wateridge (1998) notes that "very few people in the past have thought seriously about the success criteria." Similarly, Wells (1998) laments the lack of attention given to defining success except in quite general terms. This paper proposes the use of the logical framework method (LFM) to provide a detailed framework for defining and understanding project success. Importantly, the author proposes that it is common for project management literature to confusingly intertwine two separate components of project success—product success and project management success.

Project Success

Definition and Importance. The importance of the concept of project success is reflected by the Project Management Institute (PMI®) devoting its 1986 Annual Seminars & Symposium to this topic. Defining project success is a difficult task:

> Project success is a topic that is frequently discussed and yet rarely agreed upon. The concept of project success has remained ambiguously defined. It is a concept which can mean so much to so many different people because of varying perceptions, and leads to disagreements about whether a project is successful or not (Liu & Walker, 1998).

The criteria for measuring project success must be set out at the beginning of the project, otherwise different team members will find themselves travelling in differing directions and one or more of them might perceive the project to be a failure.

Two Concepts. Two distinct components of project success can be identified:

- Project management success—This focuses upon the project process and, in particular, the successful accomplishment of cost, time, and quality objectives. It also considers the manner in which the project management process was conducted.
- Product success—This deals with the effects of the project's final product.

It is common for project management literature to confusingly intertwine these two separate components of project success and present them as a single homogenous group. In order to properly define and assess project success, a distinction should be made between product success and project management success, as they are not the same.

Conceptually, the determination of project management success disregards product success, e.g., a project has been managed efficiently but eventually does not meet customer or organizational expectations (Shenhar, Levy, & Dvir, 1997). The focus of project managers on project
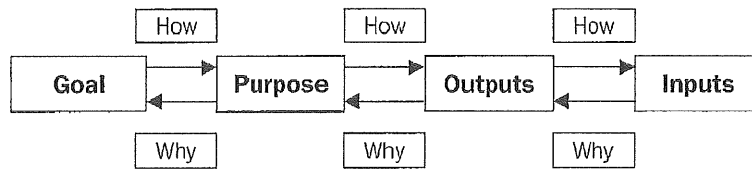
Figure 1. LFM: Hierarchy of Project Objectives

management success is highlighted by research on IT projects by Wateridge (1995; 1998), whereby project managers interpreted a failed project as one not meeting budget and schedule, i.e., project management success; while users placed greater emphasis on the meeting of requirements such as response times and reliability, i.e., product success. This indicates that "project managers are focusing on the short-term criteria relating of the project 'process' and concentrating on meeting time and budget constraints ... as opposed to the longer-term criteria relating to the 'product,' such as delivering a system with which the users are happy" (Wateridge, 1998).

Stakeholder Satisfaction. A Guide to the Project Management Body of Knowledge (PMBOK® Guide) (PMI, 1996) defines project management as "the application of knowledge, skills, tools and techniques to project activities in order to meet or exceed stakeholder needs and expectations from a project." Project stakeholders are individuals and organizations who are actively involved in the project, or whose interests may be positively or negatively affected as a result of project execution or successful project completion. Both project success components—product success and project management success—must meet stakeholders' satisfaction where their interests link with these components. The PMBOK® Guide links stakeholders with project success—"The project management team must identify the stakeholders, determine what their needs and expectations are, and then manage and influence those expectations to ensure a successful project." So stakeholder satisfaction is a crucial part of project success. Tuman (1986) observes that "The days when we could define success in terms of cost, schedule and technical objectives are gone. We must address a much wider range of needs, concerns and issues which are presented to us by a diverse mix of project stakeholders."

Logical Framework Method

In order to understand and analyze the concepts of project management success and product success, the author proposes the use of the LFM.

A synonym for success is *effectiveness*, i.e., the degree of achievement of objectives (Belout, 1998). Projects are formed to accomplish objectives and success is measured in terms of how well these objectives have been met. It is important to realize that a project has, in fact, a hierarchy of linked objectives that can be iden-

tified and structured by use of LFM. The American Aid Agency developed LFM in the 1970s for International Development to improve project management of development projects (Couillard, 1995; Youker, 1993).

LFM uses a top-down approach to formulate a hierarchy of project objectives such that, at any given level, the lower objectives are the means to satisfying the next higher level of objectives. The hierarchy displays a series of cause-and-effect linkages between one level of objective and the next higher level and toward a path to the ultimate highest objectives. It offers a global top-down vision of the project and provides a common understanding of the overall project scope for all project participants. Youker notes that the production of a hierarchy of project objectives acts as a communication tool and a clear target for the project team.

Project Objectives. The terminology for the different types of project objectives varies between authors. Conceptually, there is no logical limit to the number of levels of project objectives; however, a common four-level structure can be identified (see Figure 1) (Couillard, Lajoie, & Lowthian, 1995; Davis, 1995; Einsiedel, 1984; Youker, 1993).

▣ Project goal—The PMBOK® Guide (PMI, 1996) states that "all projects should be supportive of the performing organization's strategic goals." The project goal is the overall strategic orientation to which the project will contribute and should be consistent with the strategic plans of the organization. The project goal provides the rationale behind the project and describes its long-term objective. A program of projects can have the same project goal.

▣ Project purpose—This is the intended near-term effects on the users of the project as a result of utilizing the project's outputs. The project purpose provides the means toward the project goal and determines the required project outputs. The successful achievement of the project's purpose can be measured in terms of how well the project's product satisfies users' needs. The users and project-initiating organization may be the same or the project's outputs may be for the open market, in which case they will be two different groups. The project goal and purpose together explain why the project is being undertaken. Davis (1995) recommends that a project should only have one purpose, otherwise efforts become diffused and the project design weakened.

Project	Goal	Purpose	Outputs	Inputs
Power station project	Economic development	Electricity	Power plant	Resources and work
Nutrition project in developing country	Increased farmer income	Increased rice production	New farming practices	Resources and work
Fire hydrant project	Reduced fire losses	Prevent and fight fires	Fire hydrants	Resource and work
Light utility vehicle project	Facilitate tactical command of combat	LUVs replace current fleet and meet capability	LUVs	Resources and work

Table 1. LFM Examples

■ *Project outputs*—These are the immediate, specific, and tangible results or deliverables produced by project activities. The outputs explain what the project will produce.
■ *Project inputs*—These are the resource inputs and activities required to deliver each output. The activities explain how the project will be done and are defined, inter alia, by the work breakdown structure, responsibility chart, schedule, and budget.

The application of LFM can become bogged down by semantic arguments over the meaning of words such as *goal* and *purpose*. Youker (1993) recommends the use of the word "objective" for each level (i.e., goal objective, purpose objective, output objective, and input objective) and agreement by all concerned on a common understanding. A key role of LFM is to provide a "step-by-step conceptualization of the important elements of a project" (Youker, 1993). Whether the project outputs achieve the project purpose and project goal will depend on how well the hierarchy of project objectives has been formulated. It is important to emphasise that LFM is a way of "systems thinking" rather than an administrative procedure. Furthermore, its focus is on desired outcomes and not inputs.

Table 1 provides some examples of the LFM four-level project objective framework.

Logic. LFM is a "how-why" logic chain that displays the relationships between the hierarchy of project objectives. The "why" is the ends and the "how" is the means. The "why-how" logic linking the four levels of project objectives works as follows: Start with the project goal and ask, "How is this to be achieved?" The answer should be project purpose. Then ask, "How is this to be achieved?" The answer should be project output; and so on. Finally, the logic can be checked by working backward from the inputs by asking "Why?"

Therefore, LFM shows cause-and-effect between the hierarchy of project objectives. LFM structures clear thought and judgment as to whether the hierarchical relationships between the project objectives are logical and viable. Importantly, "the stronger the cause-and-effect linkages between the project objectives, the better the project design"

(Davis, 1995). This ensures that the project contributes to the strategic plans of the organization.

Responsibilities—*Goal and Purpose.* The goal and purpose can be viewed as strategic objectives while the outputs and inputs are operational objectives. Couillard et al. (1995) observe that the organization's strategic plans to which the project goal contributes are external to the project and considered by the project as "given." Senior management within the project-initiating organization (sometimes referred to as the sponsor, client, or owner) sets the project goal. This organization is "the main party concerned about the success of the project in the long term ... (and) cannot expect to abdicate responsibility by passing all duties to the project teams" (Munns & Bjeirmi, 1996). Thus, senior management within the project-initiating organization is ultimately responsible for ensuring the link between organizational plans and the goal and purpose of selected projects and the creative processes in identifying possible ideas for a project (Munns & Bjeirmi).

The correct formulation of a project's goal and purpose is outside the responsibility of the project team, whose focus and responsibility is the production of the project outputs. However, the project team should review early in the project the appropriateness of the linkage between the outputs, purpose, and goal

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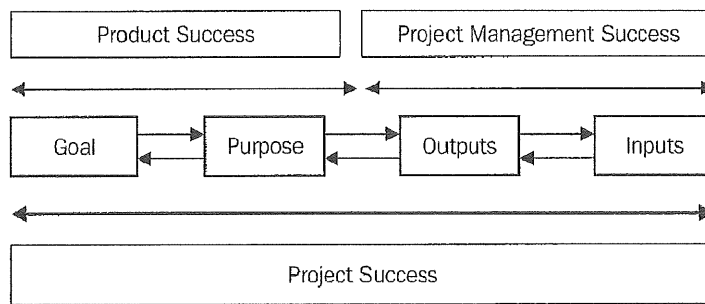
Figure 2. Link Between LFM and Project Success

as part of the scope management process, and be constantly aware of the project's goal and purpose throughout the project. Consequently, the project manager must be cognizant of the project owner's strategic plans to appreciate the project goal and purpose. Project managers "must understand the business environment and view their project as part of the company's struggle for competitive advantage, revenues, and profit" (Shenhar et al., 1997).

Outputs and Inputs. The project management team is responsible for producing the project output but, as mentioned previously, the determination of the project purpose is beyond their responsibility (Davis, 1995; Einsiedel, 1984; Youker, 1993). So, from a project management perspective, "projects end when they are delivered to the customer. That is the point at which project management ends. They do not consider the wider criteria which will affect the project once in use" (Munns & Bjeirmi, 1996).

Linking LFM and Project Success. The LFM provides a very useful framework for articulating the concept of project success, in that project management success relates to the LFM objectives of project outputs, and project inputs and product success relates to the LFM objectives of project goal and project purpose (see Figure 2).

Project Management Success

Project management success has three key components: (1) meeting time, cost, and quality objectives (project outputs and inputs); (2) quality of the project management process; and (3) satisfying project stakeholders' needs where they relate to the project management process.

Time/Cost/Quality. *Time*—Success can be measured in terms of meeting the schedule (McCoy, 1986; Morris & Hough, 1987; Pinto & Slevin, 1988; Turner, 1993). The time success criterion could be measured in terms of schedule over/underrun as a percentage of the initial plan (Might & Fisher, 1985).

Cost—Success can be measured in terms of meeting the budget (McCoy; Morris & Hough; Pinto & Slevin; Turner). The cost success criterion could be measured

in terms of cost over/underrun as a percentage of the initial budget (Might & Fisher). The setting of the cost objective is easier when the project is procured externally of the project-initiating organization because contracts set out the cost target. Whereas for internal projects "it is much more difficult to obtain an objective target cost when there are no market forces operating ... (and) there are many costs which should be allocated to the project but are treated as general organization overheads" (Freeman & Beale, 1992).

Quality—Success can be measured in terms of conformance to functional and technical specifications (Baker, Murphy, Fisher, 1988; Morris & Hough, 1987; Turner, 1993). In other words, "the project must produce what it said it would produce" (PMI, 1996). Technical performance success depends on to what extent the technical requirements specified at the commencement of the execution phase were achieved (Freeman & Beale, 1992).

Quality of the Project Management Process. Project management success should also encompass consideration of how efficiently the project has been managed. Criteria such as cost, time, and quality are only effectiveness criteria; however, consideration of efficiency is also necessary (de Wit, 1988). ISO 10006 provides guidance regarding quality of the project management process. Other examples include:

▨ Anticipating all project requirements, having sufficient resources to meet project needs in a timely manner, and using these resources efficiently to accomplish the right task at the right time and in the right manner (Tuman, 1986).

▨ Dealing with the issues early or as soon as they surface and keeping management informed (Lientz & Rea, 1995).

▨ Effective coordination and relation patterns between project stakeholders, e.g., team spirit, participative decision-making (Baker et al., 1988).

▨ Minimum scope changes, no disturbance to the organization's main flow of work, and no disturbance to corporate culture (Kerzner, 1992).

▨ Completeness of the termination, absence of post-project problems, quality of post-audit analysis, identi-

fying technical problems during the project and solving them (Freeman & Beale, 1992).

It might be considered that these efficiency factors are in fact variables contributing to project management success rather than measures of project management success itself.

Stakeholder Satisfaction. As stated previously, project management success entails satisfying project stakeholders' needs where they relate to the project management process. The key stakeholders during the project management process are the client and the project team (Munns & Bjeirmi, 1996).

Product Success

Product success has three components: (1) meeting the project owner's strategic organizational objectives (project goal), (2) satisfaction of users' needs (project purpose), and (3) satisfaction of stakeholders' needs where they relate to the product.

Project Goal. Product success means achieving the project goal, i.e., "the project reaches a favorable termination in support of the enterprise mission ... (and) succeeds as a building block in the design and execution of enterprise strategy" (Cleland, 1986). Organizations initiate projects to meet their strategic objectives such as profitability, market share, or technological advancement. For example, Cooper and Kleinschmidt_(1987) identify three dimensions for measuring product success: financial performance, opening new opportunities, and market impact.

Project definition and early decision-making is critical to product success (Munns & Bjeirmi, 1996). Product success is in fact measured against the criteria used to select the project. Consequently, as Munns and Bjeirmi observe, the quality of the decision-making process in selecting an appropriate project in the first place is critical in the ultimate achievement of product. Furthermore, the project goal "must be clearly articulated prior to project launch ... Project managers must be made aware of the results expected from their projects" (Shenhar et al., 1997).

Project Purpose. The project's product must have fitness for use, i.e., "the product or service produced must satisfy real needs" (PMI, 1996). Pinto (1998) claims that the traditional focus on the project management objectives of time-cost-quality shows a lack of any real concern for the customer and must be redressed. Customer satisfaction means that "a project is only successful to the extent that it satisfies the needs of its intended user ... Project managers must now devote additional time and attention to maintaining close ties with and satisfying the demands of external clients" (Pinto, 1998).

Stakeholder Satisfaction. Product success entails satisfying project stakeholders' needs where they relate to the project goal and purpose. The key stakeholder here is the customer/user. Research by Shenhar et al.

(1997) found project managers consider project customers to be the most important stakeholders. PMI (1996) and ISO (1997) advise that in trying to satisfy the conflicting needs and expectations of stakeholders, differences should be resolved in favor of the customer. Similarly, "the real measure of project success is to be found in customer satisfaction" (Wideman, 1998).

Contrasting Product Success and Project Management Success

Product vs. Process. Product success deals with the project's *product* and project management success deals with the project *process*.

One Can Succeed—And Fail! Projects can be product failures even when the project management success objectives of time, cost and quality have been successfully met. Conversely, projects can be project management failures but a product success. As de Wit (1988) says, "One frequently observes that a project team gets credit for a successful project which it does not deserve and, conversely, the team may be incorrectly blamed for project failure. A project can be a success despite poor project management performance, and vice versa." For example, the North Sea oil development projects in the 1970s suffered substantial cost and time overruns (i.e., project management failures) but were considered a product success. The main reason was the substantial increases in the price of oil in 1973 and 1979 that made them very successful in achieving the project goal of profitability.

Project Management Success is Subordinate to Product Success. The project management success criteria of time, cost and performance are subordinate to the higher product success objectives of goal and purpose. Consequently, "this explains why projects, which ought to be considered a disaster in project management terms, are perceived as successes simply because the higher-level objective was met" (de Wit, 1988).

The "fitness-for-use" objective of product success is of an higher order than the "conformance to requirements" focus of project management success:

> Meeting specifications is not enough. Poor project definition and weak articulation of product requirements may result in dissatisfied customers even when project specifications are fully met.... One should notice the possible disparity between meeting performance objectives and satisfying the customer. The traditional assumption is that performance is well defined and, if met correctly, the customer must be satisfied. In reality, however, this is not always the case. Many projects have failed because they did not fulfill customer expectations, even though they were well executed. ... Project managers must be attuned to customer requirements and to his or her real needs. Consequently, project managers must act decisively to

rectify the gap between project perceived performance and actual customer needs (Shenhar et al., 1997).

Project Management Success Influences Product Success. Project management success can influence the achievement of product success. Good project management can contribute toward product success but is unlikely to be able to prevent product failure. For example, project management may help to identify the unfeasible nature of the project and indicate that it should be abandoned or changed (Munns & Bjeirmi, 1996). Poor project management in terms of cost and/or time overruns may result in the nonattainment of product success such as profitability or market share. And increased competition and shorter project life cycles means that meeting project deadlines will add to the competitiveness of new products (Shenhar et al., 1997).

Internal vs. External. Project management success measured in terms of cost-time-quality can be viewed as "internal measures of efficiency"(Shenhar et al., 1997). Each objective is intended to satisfy some interest group internal to the organization so that, for example, accountants are concerned with time and cost considerations while engineers are primarily concerned with the performance criterion (Pinto, 1998). In contrast, achieving product success is concerned with the project's external effectiveness (Shenhar et al., 1997).

Project Success Criteria—Characteristics

Success Has "Hard" and "Soft" Dimensions. Some project success criteria are "*hard*," i.e., objective, tangible and measurable. These are usually related to the objectives of cost, time, and quality (Archibald, 1992; McCoy, 1986). Hard criteria are relatively easy to gauge and to reach some degree of consensus. The "*soft*" success criteria refer to such aspects as happiness, job satisfaction, enhanced reputation, and attention to detail. This dimension is subjective, subtle and more difficult to evaluate.

Success is Perceived. Every project has a wide variety of stakeholders, all of whom will have their own particular subjective perception of success (Stuckenbruck, 1986; Wideman, 1998). In fact Baker et al. (1988) suggest the term "perceived success of a project." Consequently, a project can be a success for one party and a disaster for another (de Wit, 1988). Stuckenbruck (1986) points out that "The question as to whether a project was or was not a success will depend to a great extent on who is asking the question. Different stakeholders in the project, unfortunately, may have very different criteria as to what constitutes project success."

Each stakeholder will have their viewpoint of success depending on their needs and how well these needs are satisfied by the project. For example, an architect may consider success in terms of aesthetic appearance, an engineer in terms of technical competence, an accountant in terms of dollars spent under budget, a human re-

source manager in terms of employee satisfaction, and chief executive officers rate their success in the stock market (Freeman & Beale, 1992). To reach consensus of success criteria among all stakeholders is quite unrealistic and so only by establishing common goals can criteria acceptable to all be achieved (Liu & Walker, 1998). Finally, de Wit provides a sobering conclusion on the ability to objectively measure project success:

> *Measuring success is complex and a project is hardly ever a disaster or failure for all stakeholders during all phases in the project life cycle. A project can be a success for one party and a disaster for another. (Also), a project may be perceived a success one day and a failure the next. Therefore, to think that one can objectively measure the success of a project is an illusion (1988).*

Success Criteria Must be Prioritized. Success criteria can conflict with each other, which means there will often be trade-offs that must be agreed by all parties before the project is started (Wateridge, 1998). In many projects there will be a large number of stakeholders, in which there is a need to identify which stakeholders are going to have the most influence in determining project success (Tuman, 1986). From this, attention must be focused on important stakeholders if project success is to be accomplished.

Success is Affected by Time. Each success criterion has its own timescale for measurement (Turner, 1993). For example:

Product success—Judgment of whether the project goal has successfully been met can only be made once the project's product has been utilized and this can be many years after the project's completion. Therefore, determination of successful achievement of the project goal tends to be of a long-term nature, orientated toward the expected total life span of the completed project (Munns & Bjeirmi, 1996). However, successful attainment of project purpose "can be assessed after a short time, when the project has been delivered to the customer and the customer is using the product. Customer satisfaction can typically be assessed within a few weeks to a few months of the date of purchase" (Shenhar et al., 1997).

Project management success—Judgment of whether a project has successfully met the objectives of time, cost, and quality is a short-term measure made on completion of the project. Judgment of whether a project has been conducted in a quality manner and has successfully met the needs of the project team occurs throughout the project.

Research by Baker et al. (1988) showed that in a post-project analysis the successful accomplishment of time and cost objectives were not considered of greatest importance in evaluating the "project success." They suggest that as this research dealt with completed projects, time and cost objectives may have seemed somewhat unimportant with the passing of time if the project's output meets the strategic

goals of the project. But, if the survey had been conducted on current, ongoing projects only, the management emphasis on meeting schedules and staying within budgets would undoubtedly have been reflected more heavily in the research results (Baker et al., 1988). Similarly, research by Hartman and Ashrafi (1996) found that time and cost are the most important priorities during the project definition to execution phases; however, client satisfaction became the most important priority and "project success" criteria at project completion.

So both Baker et al. and Hartman and Ashrafi suggest that the perception of "project success" changes with time. However, it seems they have in fact intermingled the two separate concepts of product success and project management success. It is not that the focus and perception of "project success" changes with time but rather two different success concepts are being measured—project management success during and at the end of the project; and product success during the operational use and end of the project's product life.

Success is Not Always Manageable. The project manager should be able to control and influence the achievement of the project management success criteria of cost, time, and performance. However, stakeholder satisfaction may be beyond their control. Project managers can attain high levels of perceived project success even under adverse circumstances (Baker et al., 1988).

Success May be Partial. Project success may be partially achieved—"projects can also be measured in varying degrees of success. Very often success and failure is seen as 'black and white.' However, projects may not always be seen as completely successful or complete failure" (Wateridge, 1998). The determination of project success can be ambiguous and becomes extremely difficult to give an unequivocal verdict of success or failure as some criteria are successfully meet whilst others are not (de Wit, 1988).

Conclusion

LFM assists in the understanding of two components of project success: project management success and product success. It is not unusual for project management literature to confusingly intertwine these two separate components of project success and present them as a single homogenous group. These two concepts must be articulated and differentiated in the project plan in order that the project team clearly knows its objectives. Product success is of a higher order and ultimately is of greater importance. Nevertheless, both parts of project success must be strived for.

The benefits of this proposed LFM framework for articulating project success are: provides a common, clear understanding of the project objectives and project success criteria; structures thought and judgment of the appropriateness of the stated project objectives; provides a clear target so that all project team member are traveling in the same direction; acts as a communication tool for project stakeholders; and facilitates the appropriate allocation of responsibilities for the achievement of project success.

References

Archibald, R.D. (1992). *Managing high-technology programs and projects.* New York: John Wiley.

Baker, B.N., Murphy, D.C., & Fisher, D. (1988). Factors affecting project success. In D.I. Cleland & W.R. King (Eds.), *Project management handbook* (pp. 902-919). New York: Van Nostrand Reinhold.

Belout, A. (1998). Effects of human resource management on project effectiveness and success: Toward a new conceptual framework. *International Journal of Project Management 16* (1), 21–26.

Cleland, D.I. (1986). *Measuring success: The owner's viewpoint.* PMI Annual Seminar & Symposium, Montreal.

Cooper, R.G., & Kleinschmidt, E.J. (1987). Success factors in product innovation. *Industrial Marketing Management, 16* (3), 215–224.

Couillard, J. (1995). The role of project risk in determining project management approach. *Project Management Journal, 26* (4), 3–15.

Couillard, J., Lajoie, R., & Lowthian, B. (1995). *Using the logical framework method to develop work breakdown structures.* PMI Annual Seminar & Symposium, New Orleans.

Davis, K.H. (1995). *Logical framework analysis: A methodology to turn vision into reality.* AIPM National Conference, Adelaide, T-D-393–397.

de Wit. (1988). Measurement of project success. *International Journal of Project Management, 6* (3).

Einsiedel, A.A. (1984). *Improving project management—A self-instructional manual.* Boston: International Human Resources Development Corp.

Freeman, M., & Beale, P. (1992). Measuring project success. *Project Management Journal, 23* (1), 8–17.

Hartman, F., & Ashrafi, R. (1996). *Failed success and failures.* PMI Annual Seminar & Symposium, Boston, PD 39, 1–5.

Internal Organisation for Standardization (ISO). (1997). *ISO 10006: Quality management—Guidelines to quality in project management.* Geneva: ISO.

Kerzner, H. (1992). *Project management: A systems approach to planning, scheduling and controlling.* New York: Van Nostrand Reinhold.

Lientz, B.P., & Rea, K.P. (1995). *Project management for the 21st century.* San Diego: Academic Press.

Liu, A.N.N., & Walker, A. (1998). Evaluation of project outcomes. *Construction Management & Economics, 16,* 209–219.

McCoy, F.A. (1986). *Measuring success: Establishing and maintaining a baseline.* PMI Annual Seminar & Symposium, Montreal.

Might, R.J., & Fisher, W.A. (1985). The role of structural factors in determining project management success. *IEEE Transactions in Engineering Management, EM 32* (2).

Morris, P.W.G., & Hough, G.H. (1987). *The anatomy of major projects.* Chichester: John Wiley.

Munns, A.K., & Bjeirmi, B.F. (1996). The role of project management in achieving project success. *International Journal of Project Management, 14* (2), 81–87.

Pinto, J.K. (1998). The elements of project success. In D.I. Cleland (Ed.), *Field guide to project management* (pp. 13–21). New York: Van Nostrand Reinhold.

Pinto, J.K., & Slevin, D.P. (1988). Critical success factors in effective project implementation. In D.I. Cleland & W.R. King (Eds.), Project management handbook (pp. 479–512). New York: Van Nostrand Reinhold.

Project Management Institute. (1996). A Guide to the Project Management Body of Knowledge. Upper Darby, PA: Project Management Institute.

Project Management Institute. (1998, March). PMBOK® guide update under way. PMI Today, 1–3.

Shenhar, A.J., Levy, O., & Dvir, D. (1997). Mapping the dimensions of project success. Project Management Journal, 28 (2), 5–13.

Stuckenbruck, L. (1986). Who determines project success? PMI Annual Seminar & Symposium, Montreal, 85–93.

Tuman, J. (1986). Success modeling: A technique for building a winning project team. PMI Annual Seminar & Symposium, Montreal, 94–108.

Turner, J.R. (1993). The handbook of project-based management—Improving the processes for achieving strategic objectives. London: McGraw-Hill.

Wateridge, J. (1995). IT projects: A basis for success. International Journal of Project Management. 13 (3), 169–172.

Wateridge, J. (1998). How can IT/IS projects be measured for success? International Journal of Project Management, 16 (1), 59–63.

Wells, W.G. (1998). From the editor. Project Management Journal, 29 (4), 4–6.

Wideman, R.M. (1998). How to motivate stakeholders to work together. In D.I. Cleland (Ed.), Field guide to project management (pp. 212–226). New York: Van Nostrand Reinhold.

Youker, R. (1993). Defining the hierarchy of project objectives. PMI Annual Seminar & Symposium, San Diego, 78–83.

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