

ANALYSING PROJECT SUCCESS MEASUREMENT APPROACHES

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Abstract

The definition of project success has changed over the years. This paper assesses understanding of project success and approaches to measure project success. This understanding is important for project managers because project success impacts the organization in several dimensions and makes project success much more relevant.

“Improving project performance” has been the most significant criterion for the company but how to evaluate project success has been a topic of debate for a long time.

Purpose

The purpose of this paper is to approach the project success concept systematically. This paper contributes to the literature by offering a tested framework that will enhance the performance of the evaluation approaches of project success.

Design/ methodology/ approach

Literature was reviewed systematically, and six approaches were finalized for the measurement of project success. A questionnaire was circulated amongst the Project managers/ Business Owners for this survey. Respondents were Project managers/ Business Owners in and around Pune. The survey involves 113 respondents, and the data was gathered using a 5-point Likert scale.

Findings

The result indicates that the following approaches are significant for measuring project success: "The project achieves its purpose", "It provides satisfactory benefit to the owner", "It satisfies the needs of the owners, users, and stakeholders", "It meets its pre-stated objectives", "It is produced to specification, within budget and on time", "It satisfies the needs of the project team".

Research limitations/implications

This study solely focuses on the Micro, Small, and Medium Enterprises (MSME) Manufacturing sector in and around Pune, India.

Practical implications

The findings of this study emphasize some implications and suggest that understanding and measuring project success is significant for project managers, teams, and in turn for the organization. The current study results will assist project managers as well as academicians.

Originality/value

An investigation was carried out in this study based on the current situation of the MSME manufacturing sector in and around Pune, India. Primary data was collected for this study.

Keywords: project success, project management, measuring project success, MSME

Paper type: Research paper

1. Introduction

There is tough competition for Indian manufacturers from new foreign entrants on the cost and quality of the products. International competitors are working on bringing in new products, making manufacturing more responsive and proactive. (Chandra and Sastry, 1998) Over the past few years, there has been endless discussion on what constitutes project success. (Judgev K, Müller R., 2005) When projects are successful, organizational performance increases, hence it becomes significant to understand project success. However, there is a lack of consensus on “what is project success?” among researchers. (Shenhar and Holzmann, 2017). A diversified understanding of project success is a must for project managers. Project managers must answer “How is the project doing?”. This is where measuring project success comes into the picture. Successful projects have a substantial positive impact on the organization’s performance so understanding project success is of prime significance for practice and research. (Love et al., 2012; Crosetto and Regner, 2018; Gil and Pinto, 2018).

Although there is a plethora of literature on approaches to measuring project success, there is still a lack of empirical evidence. The purpose of this paper is to systematically approach the concept of project success. We will suggest a framework composed of project success evaluation approaches.

This paper is structured as follows. This section talks about what are projects, what is project management, and why project management is important. Section 2 presents the literature review on the six constructs to measure project success. The next section describes the proposed framework. The research methodology is explained in Section 4. Results are presented in Section 5. Section 6 discusses the conclusions and limitations of the study.

For this paper, it is important to define what a project is. Many definitions are given in the literature, from the project management perspective, “a project is a temporary endeavour with a specific beginning and end”. This is the standard definition of a project given by the Project Management Book of Knowledge -PMBOK. (Project Management Institute, 2021)

Another good definition is offered by Tuman, “A project is an organization of people dedicated to a specific purpose or objective. Projects generally involve large, expensive, unique, or high-risk undertakings which must be completed by a certain date, for a certain amount of money, within some expected level of performance.

“Project management is the application of knowledge, skills, and techniques to the project tasks to meet the project prerequisites” (Project Management Institute, 2021) Project management is the main guiding principle when considering the concept of project success. (Shamim, 2022)

This paper deals with Project management hence the standard definition is “Project management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements”. (Project Management Institute, 2021)

Ahsan and Gunawan analyzed a hundred projects in Asian countries (Bangladesh, India, China, and Thailand); they determined due to the absence of Project management structures; the

majority of projects were delayed/ abandoned. (Ahsan and Gunawan, 2010). To eliminate such challenges, organizations implement project management strategies/practices. (Tahri & Drissi-Kaitouni, 2015)

The link between project management and project success is substantial, indicating that project management holds immense importance and cannot be underestimated. (Venczel, Berényi, and Hriczó 2021).

The Standish Group had been researching and collecting data for projects all over the world for two decades. According to their report – CHAOS Manifesto, the project status can be successful, challenged, or failure. Successful projects have been defined as those that are on time, on budget, and have satisfactory implementation. Disputed projects are over budget, late, and/or have an unsatisfactory implementation. As depicted in Table 1 and Figure 1, failed projects are those projects that were either canceled before completion or not used after implementation. (CHAOS MANIFESTO, 2012)

TABLE 1 - SUCCESS RATE- THE STANDISH REPORT

Project	Success Rate
Successful	39%
Challenged	43%
Failed	18%

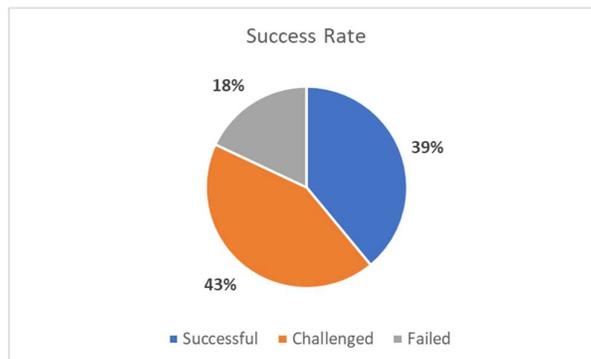


FIGURE 1 - SUCCESS RATES - THE STANDISH REPORT

Hence, for prevention of the project failure, project management methodology is used. It has been recognized over the last fifty years that project management is an effective tool for managing projects. However, the success of project management is dependent on project success. Project success definitions are ambiguous. Organizations want to attain stability in these projects, and hence the project failure/ delays cannot be ignored. (Belassi & Tukel, 1996) Organizations are trying to improve their methods of managing projects to achieve higher project success rates (Avots, 1969). The modern business environment is very unstable which in turn reduces the rate of project success. (Andersen et. al, 2006). Project success is multi-dimensional, different people have got different ways of assessing project success. (Shenhar et al. ,1997) Project success is measured against the overall objectives of the project. (Cooke-Davies, 2002)

For organisations' success, projects are a critical contributor, hence the measurement of project success is meaningful. (Jonas et al., 2013) Project success is "the highest level achieved at any point of assessment, regardless of performance at lower levels." (Bannerman, 2008)

2. Literature Review

There are a lot of methods/dimensions/ approaches of measuring/ evaluating project success. A central issue of discussion is "how to measure project success? In this paper, the authors put forward a conceptual model depicting approaches of project success measurement. The authors talk about six of them:

2.1. The project achieves its purpose

The project purpose should be clearly stated and understood by the stakeholders and the project is successful when the project achieves the earlier stated purpose. (Andersen et al., 2006)

The approach "meeting the purpose" of the project is an important aspect of measuring project success. (Jugdev and Muller, 2005) In the survey done by Collins and Baccarini in 2004, the respondents noted that project success could be measured by determining "was the project completed to specifications" or whether the project exhibited "fitness of purpose". (COLLINS & BACCARINI, 2004)

An empirical indicator of project success – "is the project appropriately chosen for the purpose?" (Bannerman, 2008)

2.2. It provides satisfactory benefit to the owner

The "owner" of the project is the investor, hence, the benefit to the owner is of prime importance in the project's success. (Turner & Zolin, 2012)

Recently, the researchers suggested the "project owner" is held accountable for realizing the business case. Researchers have mentioned that one of the dimensions of measuring project success is realizing the business case which is evaluated by the project owner. Project ownership success captures the value generated for the project. (Meredith & Zwikael, 2019)

Project success is greatly seen as involving benefits to the stakeholders including the owner, manager and the project team. (Baccarini, 1999; Ika, 2009; Jugdev & Müller, 2005).

In a survey, some respondents noted that owner benefit is all that matters. (Collins & Baccarini, 2004) According to Bannerman, an empirical indicator of project success is - owner benefits are realised. (Bannerman, 2008)

The benefit to the owner is one of the top four success measures given by Shenhar, Dvir and Levy. (Shenhar et al., 1997)

2.3. It satisfies the needs of the owners, users, and stakeholders

Projects have multiple stakeholders, each one having different views and expectations of the project. Project success should keep in mind all these aspects. (Lyytinen & Hirschheim, 1987). According to Muller and Turner, this criterion stands is at second position. Customer (one of the stakeholders) satisfaction is important for organisation because of the competitive market. (Müller & Turner, 2010)

Serrador and Turner, who studied 1386 projects, assert that the level of stakeholder satisfaction is the criterion by which project success is evaluated. (Serrador & Turner, 2015)

Customer satisfaction is a complex topic and has to be measured by substitute topics like surveys or complaints. (Pinto & Slevin, 1987) Baker, Fisher and Murphy strongly confirm the importance of including client satisfaction as any measure of project success. They stress that

the project is effective when it will directly benefit the intended users. The project will have to make a positive impact on those who make use of it. (Baker et al., 2008)

“The needs of the owners, users, and stakeholders” is a significant theme for project success. If the satisfaction of this group is not measured, it will not give correct results for project success. (Davis, 2016) Many researchers agree that stakeholder benefits are the major project success measures. (Baccarini, 1999; Bannerman, 2008; Shenhar et al., 2001)

Baccarini focuses on the multidimensionality of the project success and stakeholder satisfaction with regard to project management process. (Baccarini, 1999)

According to Zwikael and Meredith’s research, the project managers answered in the survey that they need to give benefit to majority of stakeholders. (Meredith & Zwikael, 2019)

All stakeholders need to be in agreement- top management, project managers, and users – this will increase the probability of the project being successful. (Rogers, 2019) An empirical indicator of project success- successful projects satisfy the needs of all major shareholders. (Bannerman, 2008) Increased employee productivity and organizational success are primarily attributed to higher levels of employee commitment towards individual projects or the business as a whole. (Tripathi et al., 2023)

The benefit to the stakeholder is one of the top four success measures given by Shenhar, Dvir and Levy. (Shenhar et al., 1997)

2.4. It meets its pre-stated objectives

Morris and Hough state in their study that for measuring project success it is important to know that did the project meet the objectives in terms of financial and technical requirements. (Morris & Hough, 1993)

The objectives of the project should be agreed upon by all the stakeholders. (Turner & Müller, 2003) The project objectives are the most appropriate criteria for measuring project success. (de Wit, 1988)

Turner and Zolin agree that pre-stated objectives should be agreed up by all the stakeholders to measure project success. (Turner & Zolin, 2012) Zwikael and Meredith suggest that one of the dimensions of project success is to ensure that planned objectives are met. The project managers in their survey mentioned clearly that a successful project realizes the benefits of the project. (Zwikael & Meredith, 2018)

The case study presented by McLeod, Doolin and MacDonell in 2012 suggest that participants clearly state that the project is successful – “All objectives have been met”. (McLeod et al., 2012)

The project success refers to the measure of the degree to which project objectives are met. (de Wit, 1988)

Based on 1386 projects covered by Serrador and Turner, they state project success is based on how the project meets the set objectives. (Serrador & Turner, 2015)

2.5. It is produced to specification, within budget and on time

The most prominent measurement so far for the success of a project has been triple constraint (or iron triangle). This method was invented by Dr. Martin Barnes in 1969 and is also called the traditional method. According to Muller and Turner, this criterion stands at the top. Morris and Hough conducted eight case studies and they mentioned in their list that “did the project meet specification, was within budget and on time?”. (Morris & Hough, 1993)

Researchers agree that project schedule (on time) is still the sole project success measurement. (Cao & Hoffman, 2011)

In the 1980s, the concept of cost and time was added to the project success dimension. Many researchers agree that producing the project to specification, within budget and on time are the major project success measures. (Baccarini, 1999; Bannerman, 2008; Shenhar et al., 2001, Al-Shaaby A and Ahmed A, 2018)

One aspect which is important to note is that the project managers mentioned - the target given to them most is keeping the project within allocated costs and timelines. There is consensus in the literature review that perceptions of specification, within budget and on time are used to evaluate the project's success. (Meredith & Zwikael, 2019)

According to Al-Shaby, Cost contributes to the project success evaluation method. However, iron triangle method has been criticised for exclusive focus on the project management process and not giving importance to all the stakeholders. This is also agreed upon by following researchers: Atkinson, 1999; Baccarini, 1999; Bannerman, 2008; de Wit, 1988; Jugdev & Müller, 2005; Wateridge, 1998.

In the case study presented by McLeod, Doolin and MacDonell all the participants used the iron triangle as project success measurement. (McLeod et al., 2012)

2.6. It satisfies the needs of the project team

According to PMBoK, a project team is defined as a set of individuals who support the project manager so that the project achieves its objectives. Turner and Zolin created a dimension of "impact on team" to denote that the project success needs to be seen from this perspective as well.

Project fails and project manager, the project team is held responsible for the failure- says Thomas Rogers. (Rogers, 2019) Project managers depend on their team for project success. The project team is treated as a single entity. ((Balaji & Murugaiyan, 2012; Blaskovics, 2016; Gehrig, 2007; Muller, & Turner, 2010)

The success of the implementation team in crafting a deliverable plays a significant role in project success. (Creasy, & Anantatmula, 2013).

Team morale, skill development, team member growth and team member retention – these are measures of team satisfaction which is the success measurement dimension. (Shenhar & Dvir, 2007)

This paper discusses six approaches to measuring project success. The first approach involves meeting the project's purpose, ensuring that it is clearly stated and understood by stakeholders, and completing the project according to its purpose. The second approach focuses on providing satisfactory benefits to the project owner, who is held accountable for realizing the business case. The third approach considers meeting the needs of owners, users, and stakeholders and ensuring their satisfaction. The fourth approach involves meeting the project's pre-stated objectives agreed upon by all stakeholders. The fifth approach focuses on achieving efficiency in the project's delivery, while the sixth approach measures the project's impact on society or the environment. Each approach has been discussed based on the viewpoints of various researchers and scholars.

Based on the literature review, repetition for each criterion is taken into consideration and the following approaches of measuring project success have been identified:

TABLE 2 - SUCCESS CRITERIA

Success Criteria (SC) Code	Criteria for project success
SC1	The project achieves its purpose
SC2	It provides satisfactory benefit to the owner.
SC3	It satisfies the needs of the owners, users, and stakeholders.
SC4	It meets its pre-stated objectives.
SC5	It is produced to specification, within budget and on time.
SC6	It satisfies the needs of the project team.

Considering the mentioned research, Project success evaluation methods identified by different researchers:

TABLE 3 - RESEARCH LIST

Code	Description	Researchers
SC1	The project achieves its purpose	Al-Shaaby A, Ahmed A (2018)
SC2	It provides satisfactory benefit to the owner.	PMBOK,
SC3	It satisfies the needs of the owners, users, and stakeholders.	Kate Davis 2014, Atkinson (1999), (Wang and Huang, 2006) DeLone and McLean (2003); Petter, DeLone, and McLean (2013), (Lipovetsky et al., 1997), Serrador and Turner
SC4	It meets its pre-stated objectives.	kate Davis 2014, Al-Shaaby A, Ahmed A (2018), (Lim and Mohamed, 1999, Collins and Baccarini, Serrador and Turner
SC5	It is produced to specification, within budget and on time.	(Atkinson, 1999; Barnes, 1969; Cooke-Davies, 2002; Freeman and Beale, 1992; Jugdev and Müller, 2005; Lim and Mohamed, 1999; Müller and Turner, 2007b; Munns and Bjeirmi, 1996; Pinto and Slevin, 1988; Smith-Doerr et al., 2004; Tishler et al., 1996; Toor and Ogunlana, 2010; Tukul and Rom, 2001; Turner et al., 2009; Wateridge, 1998). Zwikael, O., Meredith, Al-Shaaby A, Ahmed A (2018), Serrador and Turner
SC6	It satisfies the needs of the project team.	Muller and Turner, (Sudhakar, 2016), Thomas and Fernandez, 2008, (Dvir et al., 2003)

3. Research objectives

- To narrow down and identify the most important approaches of measuring project success.
- Find the most impactful approach of the project's success.

4. Research design and Data analysis

This study was carried out through a questionnaire survey. A well-structured questionnaire consisting of two parts was designed for the study. The questionnaire was designed based on the factors recognized from the literature review. The first part covers the demographic profile of project managers, and the second part includes items related to project management related practices. All relevant data was collected between January 2020 and April 2020. This study also involves a statistical analysis for grouping the variables and assessing the reliability of the factors. The respondents are from MSME Manufacturing. According to the Government policies, MSME can be classified as per Table 4.

TABLE 4 - MSME DEFINITION SOURCE

[HTTPS://MSME.GOV.IN/KNOW-ABOUT-MSME](https://msme.gov.in/know-about-msme), 1 JULY 2020

	Investment	Turnover
	Less than 1 cr.	Less than 5 cr.
MICRO	Less than 10 cr.	Less than 50 cr.
MEDIUM	Less than 20 cr.	Less than 100 cr.

In the present study, primary data was collected from the project managers and business owners in and around Pune, India. The questionnaire was distributed to a total of 113 participants. As per the MCCIA -Maharatta Chamber of Commerce, Industries and Agriculture (MCCIA) which is a database of Industries, MSME data was selected for this study. Based on this data and literature review, sample size of 113 was determined for this study (MCCIA, 2018). MCCIA has 1000+ companies' data from the manufacturing sector. Hence, this sample size is a representative figure of MSME manufacturing sector.

The participants marked each variable on a Likert Scale of 1 to 5, where:

1 - Strongly Disagree, 2 – Disagree, 3 – Neutral, 4 – Agree, 5 - Strongly Agree

Collected data is homogeneous as it is collected from project managers.

SPSS 25 is used to test the framework and the results are tabulated in the following section.

5. Results & Discussion

Cronbach's Alpha defines internal consistency. Nunnally argued that in theoretical studies, even modest reliabilities of 0.60 or 0.50 may be acceptable. Generally, the agreed lower limit for Cronbach's alpha value is 0.70, it may decrease to 0.60 and still be acceptable, especially in exploratory studies and in research in the Social Sciences (Hair et al., 2010)

TABLE 5 - RELIABILITY STATISTICS

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.845	.848	6

In this study, Cronbach's Alpha is 0.848 which is the accepted value. (Refer Table 5)
 Factor analysis is used to create a statistical model which predictive. Factor analysis focuses on the formation of factors. It was done to get the loading of variables. It aims at grouping variables based on a high correlation between them. Also, there can be a possibility of a lower correlation between variables. As the model is based on the correlation between variables, KMO & Bartlett's Test of Sphericity was used to measure the sampling adequacy for each variable in the model and the complete model. This test acts as a practical measure of the suitability of the data available for factor analysis; The KMO test returns a value on a scale of 0 to 1. (Refer Table 6)

TABLE 6 - KMO AND BARLETT'S TEST

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.851
Bartlett's Test of Sphericity	Approx. Chi-Square	275.755
	df	15
	Sig.	.000

Also, this test relates to the significance of the study and shows the validity and suitability of the collected responses. If the Sphericity is less than 0.05, Factor Analysis can be used (Bartlett, 1950).

Table 6 shows that sampling adequacy is 0.851. This result acts as a suggestion that the correlations between the available data are sufficient.

TABLE 7 - MODEL SUMMARY

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.333 ^a	.111	.061	.787

a. Predictors: (Constant), SC6, SC1, SC2, SC3, SC4, SC5

Referring to Table 7, the Adjusted R *square* value of 0.061 indicates that 6.1% of the variation in 'project success' can be explained by the model containing the six factors.

TABLE 8 - COEFFICIENTS

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.250	.760		2.961	.004
	SC1	.130	.108	.119	1.198	.234
	SC2	-.021	.125	-.016	-.166	.869

SC3	-.137	.111	-.127	-1.240	.218
SC4	.201	.128	.166	1.568	.120
SC5	.057	.114	.066	.500	.618
SC6	.128	.140	.130	.917	.361

a. Dependent Variable: Project Success

With reference to Table 8:

Project success (y) = 2.250 + 0.13 (SC1) - 0.21 (SC2) - 0.137 (SC3) + 0.201 (SC4) + 0.57 (SC5) + 0.128 (SC6)

1. The above regression equation shows that if the SC1 factor is increased by 1 unit, project success will go up by 0.13 controlling the effect of other factors.
2. If SC2 is increased by 1 unit, project success will go down by 0.21 controlling for the effect of other factors.
3. If the SC3 is increased by 1 unit, project success will go down by 0.137 controlling for the effect of other factors.
4. If SC4 factor is increased by 1 unit, project success will go up by 0.201 controlling for the effect of other factors.
5. If SC5 factor is increased by 1 unit, project success will go up by 0.57 controlling for the effect of other factors.
6. If the SC6 factor is increased by 1 unit, project success will go up by 0.128 controlling for the effect of other factors.

Ranking of Methods

Based on the data analysis in this paper, the top three methods were:

1. The project achieves its purpose
2. It meets its pre-stated objectives
3. It satisfies the needs of the project team.

Proposed framework:

This is our proposed framework for project managers and organisations working projectized environment:

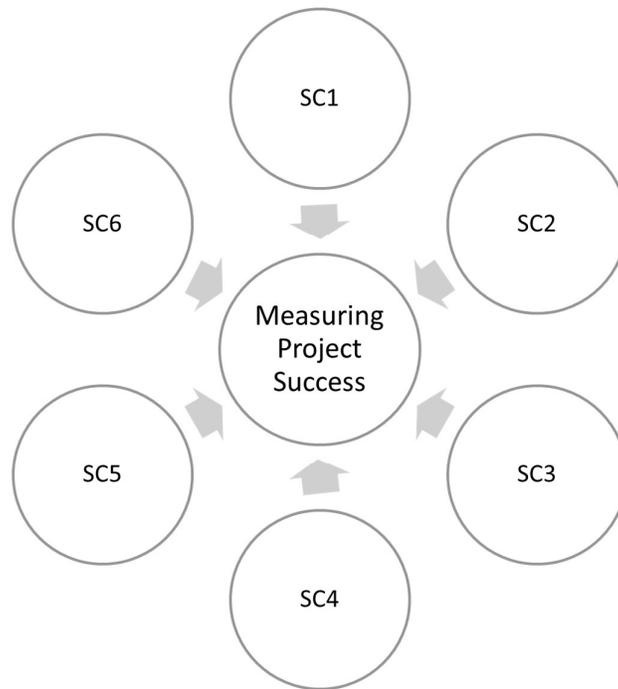


FIGURE 2 PROPOSED FRAMEWORK

Research limitations and future scope of the study:

To design a generic model for Project Success Factors, more fields can be explored and assessed. The sample is not comprehensive in the context of any other industry.

6. Conclusion

To enhance competitiveness, organisations should focus on ensuring that they have higher chances of their projects being successful. Managers need to be aware of different project success measuring methods to ensure that they can run the project smoothly. This will help project managers to focus on achieving the targets of the project. Understanding these methods will be a roadmap for project managers to ensure that their projects are smooth. Based on the data analysis in this paper, the top three methods were “The project achieves its purpose”, “It meets its pre-stated objectives” and “It satisfies the needs of the project team”.

Further studies can be conducted to identify more methods of measuring project success so that it is clear to the project managers and team members how to evaluate the projects. Furthermore, the responses from other domains can be considered to generalize the outcomes. Also, secondary data can be evaluated to evaluate project success. These results demonstrate that the success measured discussed in this paper cannot be ignored by the project managers if they want to maximize the overall success.

It is recommended to investigate project success measurement methods further.

Lastly, we believe that this framework would be of value for project managers and team members in evaluating their projects and it will improve the way project success is perceived, especially over the long term.

7. References

1. Ahsan, K., & Gunawan, I. (2010). Analysis of cost and schedule performance of international development projects. *International Journal of Project Management*, 28(1), 68–78. <https://doi.org/10.1016/j.ijproman.2009.03.005>
2. Andersen, E. S., Birchall, D., Arne Jessen, S., & Money, A. H. (2006). Exploring project success. *Baltic Journal of Management*, 1(2), 127–147. <https://doi.org/10.1108/17465260610663854>
3. Atkinson, R. (1999). Project management: cost, time and quality, two best guesses and a phenomenon, its time to accept other success criteria. *International Journal of Project Management*, 17(6), 337–342. [https://doi.org/10.1016/s0263-7863\(98\)00069-6](https://doi.org/10.1016/s0263-7863(98)00069-6)
4. Avots, I. (1969). Why Does Project Management Fail? *California Management Review*, 12(1), 77–82. <https://doi.org/10.2307/41164208>
5. Baccarini, D. (1999). The Logical Framework Method for Defining Project Success. *Project Management Journal*, 30(4), 25–32. <https://doi.org/10.1177/875697289903000405>
6. Baker, B. N., Murphy, D. C., & Fisher, D. (2008). Factors Affecting Project Success. *Project Management Handbook*, 902–919. <https://doi.org/10.1002/9780470172353.ch35>
7. Balaji, S., & Murugaiyan, S. (2012). WATEERFALLVs V-MODEL Vs AGILE: A COMPARATIVE STUDY ON SDLC. *International Journal of Information Technology and Business Management*, 2(1).
8. Bannerman, P. L. (2008). Defining project success: A multilevel framework. *In Proceedings of the Project Management Institute Research Conference, PMI*, 13–16.
9. Bartlett, M. S. (1950). TESTS OF SIGNIFICANCE IN FACTOR ANALYSIS. *British Journal of Statistical Psychology*, 3(2), 77–85. <https://doi.org/10.1111/j.2044-8317.1950.tb00285.x>
10. Belassi, W., & Tukel, O. I. (1996). A new framework for determining critical success/failure factors in projects. *International Journal of Project Management*, 14(3), 141–151. [https://doi.org/10.1016/0263-7863\(95\)00064-x](https://doi.org/10.1016/0263-7863(95)00064-x)
11. Blaskovics, B. (2016). The impact of project manager on project success — The case of ICT sector. *Society and Economy*, 38(2), 261–281. <https://doi.org/10.1556/204.2016.38.2.7>
12. Cao, Q., & Hoffman, J. J. (2011). A case study approach for developing a project performance evaluation system. *International Journal of Project Management*, 29(2), 155–164. <https://doi.org/10.1016/j.ijproman.2010.02.010>
13. Chandra, P., & Sastry, T. (1998). Competitiveness of Indian Manufacturing. *Vikalpa: The Journal for Decision Makers*, 23(3), 25–36. <https://doi.org/10.1177/0256090919980304>
14. *CHAOS MANIFESTO*. (2012). <https://www.standishgroup.com/>
15. Collins, A., & Baccarini, D. (2004). PROJECT SUCCESS — A SURVEY. *Journal of Construction Research*, 05(02), 211–231. <https://doi.org/10.1142/s1609945104000152>
16. Cooke-Davies, T. (2002). The “real” success factors on projects. *International Journal of Project Management*, 20(3), 185–190. [https://doi.org/10.1016/s0263-7863\(01\)00067-9](https://doi.org/10.1016/s0263-7863(01)00067-9)

17. Creasy, T., & Anantatmula, V. S. (2013). From Every Direction—How Personality Traits and Dimensions of Project Managers Can Conceptually Affect Project Success. *Project Management Journal*, 44(6), 36–51. <https://doi.org/10.1002/pmj.21372>
18. Crosetto, P., & Regner, T. (2018). It's never too late: Funding dynamics and self pledges in reward-based crowdfunding. *Research Policy*, 47(8), 1463–1477. <https://doi.org/10.1016/j.respol.2018.04.020>
19. Davis, K. (2014). Different stakeholder groups and their perceptions of project success. *International Journal of Project Management*, 32(2), 189–201. <https://doi.org/10.1016/j.ijproman.2013.02.006>
20. Davis, K. (2016). A method to measure success dimensions relating to individual stakeholder groups. *International Journal of Project Management*, 34(3), 480–493. <https://doi.org/10.1016/j.ijproman.2015.12.009>
21. de Wit, A. (1988). Measurement of project success. *International Journal of Project Management*, 6(3), 164–170. [https://doi.org/10.1016/0263-7863\(88\)90043-9](https://doi.org/10.1016/0263-7863(88)90043-9)
22. DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. *Journal of Management Information Systems*, 19(4), 9–30. <https://doi.org/10.1080/07421222.2003.11045748>
23. Dvir, D., Raz, T., & Shenhar, A. J. (2003). An empirical analysis of the relationship between project planning and project success. *International Journal of Project Management*, 21(2), 89–95. [https://doi.org/10.1016/s0263-7863\(02\)00012-1](https://doi.org/10.1016/s0263-7863(02)00012-1)
24. Freeman, M., & Beale, P. (1992). Measuring project success. *Project Management Journal*, 23(1), 8–18.
25. Gehring, D. R. (2007). Applying Traits Theory of Leadership to Project Management. *Project Management Journal*, 38(1), 44–54. <https://doi.org/10.1177/875697280703800105>
26. Gil, N., & Pinto, J. K. (2018). Polycentric organizing and performance: A contingency model and evidence from megaproject planning in the UK. *Research Policy*, 47(4), 717–734. <https://doi.org/10.1016/j.respol.2018.02.001>
27. Hair, J. F., Black, W. C., & Babin, B. J. (2010). *Multivariate Data Analysis: A Global Perspective* (7th ed.). Pearson Education.
28. Icmeli Tukul, O., & Rom, W. O. (2001). An empirical investigation of project evaluation criteria. *International Journal of Operations & Production Management*, 21(3), 400–416. <https://doi.org/10.1108/01443570110364704>
29. Ika, L. A. (2009). Project Success as a Topic in Project Management Journals. *Project Management Journal*, 40(4), 6–19. <https://doi.org/10.1002/pmj.20137>
30. Jonas, D., Kock, A., & Gemünden, H. G. (2013). Predicting Project Portfolio Success by Measuring Management Quality—A Longitudinal Study. *IEEE Transactions on Engineering Management*, 60(2), 215–226. <https://doi.org/10.1109/tem.2012.2200041>
31. Jugdev, K., & Müller, R. (2005). A Retrospective look at our Evolving Understanding of Project Success. *Project Management Journal*, 36(4), 19–31. <https://doi.org/10.1177/875697280503600403>
32. Lim, C. S., & Mohamed, M. Zain. (1999). Criteria of project success: an exploratory re-examination. *International Journal of Project Management*, 17(4), 243–248.

- [https://doi.org/10.1016/s0263-7863\(98\)00040-4](https://doi.org/10.1016/s0263-7863(98)00040-4)
33. Lipovetsky, S., Tishler, A., Dvir, D., & Shenhar, A. (1997). The relative importance of project success dimensions. *R and D Management*, 27(2), 97–106. <https://doi.org/10.1111/1467-9310.00047>
 34. Love, P. E. D., Edwards, D. J., & Irani, Z. (2012). Moving Beyond Optimism Bias and Strategic Misrepresentation: An Explanation for Social Infrastructure Project Cost Overruns. *IEEE Transactions on Engineering Management*, 59(4), 560–571. <https://doi.org/10.1109/tem.2011.2163628>
 35. Lyytinen, K., & Hirschheim, R. (1987). Information Systems Failures—A Survey and Classification of the Empirical Literature. *Oxford Surveys in Information Technology*, 4(1), 257–309.
 36. MCCA. (2019). www.mcciapune.com. <https://www.mcciapune.com/>
 37. McLeod, L., Doolin, B., & MacDonell, S. G. (2012). A Perspective-Based Understanding of Project Success. *Project Management Journal*, 43(5), 68–86. <https://doi.org/10.1002/pmj.21290>
 38. Meredith, J., & Zwikael, O. (2019). When is a Project Successful? *IEEE Engineering Management Review*, 47(3), 127–134. <https://doi.org/10.1109/emr.2019.2928961>
 39. Morris, P. W. G., & Hough, G. H. (1993). *The anatomy of major projects: a study of the reality of project management*. Chichester Wiley.
 40. Müller, R., & Turner, R. (2010). Leadership competency profiles of successful project managers. *International Journal of Project Management*, 28(5), 437–448. <https://doi.org/10.1016/j.ijproman.2009.09.003>
 41. Munns, A., & Bjeirmi, B. (1996). The role of project management in achieving project success. *International Journal of Project Management*, 14(2), 81–87. [https://doi.org/10.1016/0263-7863\(95\)00057-7](https://doi.org/10.1016/0263-7863(95)00057-7)
 42. Petter, S., DeLone, W., & McLean, E. R. (2013). Information Systems Success: The Quest for the Independent Variables. *Journal of Management Information Systems*, 29(4), 7–62. <https://doi.org/10.2753/mis0742-1222290401>
 43. Pinto, J. K., & Slevin, D. P. (1987). Critical factors in successful project implementation. *IEEE Transactions on Engineering Management*, EM-34(1), 22–27. <https://doi.org/10.1109/tem.1987.6498856>
 44. Project Management Institute. (2021). *A guide to the project management body of knowledge : (PMBOK® guide)*. Project Management Institute.
 45. Rogers, T. M. (2019). Project Success and Project Team Individuals. *European Project Management Journal*, 9(1), 27–33. <https://doi.org/10.18485/epmj.2019.9.1.4>
 46. Serrador, P., & Turner, R. (2015). The Relationship between Project Success and Project Efficiency. *Project Management Journal*, 46(1), 30–39. <https://doi.org/10.1002/pmj.21468>
 47. Shaaby A, A., & A, A. (2018). How Do We Measure Project Success? A Survey. *Journal of Information Technology & Software Engineering*, 08(02). <https://doi.org/10.4172/2175-7866.1000229>
 48. Shamim, D. Md. M. I. (2022). Exploring the Success Factors of Project Management. *AMERICAN JOURNAL of ECONOMICS and BUSINESS MANAGEMENT*, 5(7).
 49. Shenhar, A. J., Dvir, D., Levy, O., & Maltz, A. C. (2001). Project Success: A

- Multidimensional Strategic Concept. *Long Range Planning*, 34(6), 699–725. [https://doi.org/10.1016/s0024-6301\(01\)00097-8](https://doi.org/10.1016/s0024-6301(01)00097-8)
50. Shenhar, A. J., Levy, O., & Dvir, D. (1997). Mapping the dimensions of project success. *Project Management Journal*, 28(2), 5–13.
51. Shenhar, A., & Dvir, D. (2007). *Reinventing project management : the diamond approach to successful growth and innovation*. Harvard Business School Press.
52. Shenhar, A., & Holzmann, V. (2017). The Three Secrets of Megaproject Success: Clear Strategic Vision, Total Alignment, and Adapting to Complexity. *Project Management Journal*, 48(6), 29–46. <https://doi.org/10.1177/875697281704800604>
53. Smith-Doerr, L., Manev, I. M., & Rizova, P. (2004). The meaning of success: network position and the social construction of project outcomes in an R&D lab. *Journal of Engineering and Technology Management*, 21(1-2), 51–81. <https://doi.org/10.1016/j.jengtecman.2003.12.004>
54. Sudhakar, G. P. (2016). Understanding the Meaning of “Project Success.” *Binus Business Review*, 7(2), 163. <https://doi.org/10.21512/bbr.v7i2.1586>
55. Tahri, H., & Drissi-Kaitouni, O. (2015). New Design for Calculating Project Management Maturity (PMM). *Procedia - Social and Behavioral Sciences*, 181, 171–177. <https://doi.org/10.1016/j.sbspro.2015.04.878>
56. Thomas, G., & Fernández, W. (2008). Success in IT projects: A matter of definition? *International Journal of Project Management*, 26(7), 733–742. <https://doi.org/10.1016/j.ijproman.2008.06.003>
57. Tishler, A., Dvir, D., Shenhar, A., & Lipovetsky, S. (1996). Identifying critical success factors in defense development projects: A multivariate analysis. *Technological Forecasting and Social Change*, 51(2), 151–171. [https://doi.org/10.1016/0040-1625\(95\)00197-2](https://doi.org/10.1016/0040-1625(95)00197-2)
58. Toor, S.-R., & Ogunlana, S. O. (2010). Beyond the “iron triangle”: Stakeholder perception of key performance indicators (KPIs) for large-scale public sector development projects. *International Journal of Project Management*, 28(3), 228–236. <https://doi.org/10.1016/j.ijproman.2009.05.005>
59. Tripathi, P., Shahi, V. K., Singh, G., Singh, A. P., & Mishra, M. (2023). ORGANIZATIONAL COMMITMENT AS A MEDIATER OF ORGANIZATIONAL PRODUCTIVITY AND JOB SATISFACTION : THE CASE OF MANUFACTURING ORGANIZATION. *Business, Management and Economics Engineering*, 21(1).
60. Tuman, G. J. (1983). *Development and implementation of effective project management information and control systems*. New York: Van Nostrand Reinhold Co.
61. Turner, J. Rodney., & Müller, R. (2003). On the nature of the project as a temporary organization. *International Journal of Project Management*, 21(1), 1–8. [https://doi.org/10.1016/s0263-7863\(02\)00020-0](https://doi.org/10.1016/s0263-7863(02)00020-0)
62. Turner, R., & Zolin, R. (2012). Forecasting Success on Large Projects: Developing Reliable Scales to Predict Multiple Perspectives by Multiple Stakeholders over Multiple Time Frames. *Project Management Journal*, 43(5), 87–99. <https://doi.org/10.1002/pmj.21289>

63. Venczel, T. B., Berényi, L., & Hriczó, K. (2021). Project Management Success Factors. *Journal of Physics: Conference Series*, 1935(1), 012005. <https://doi.org/10.1088/1742-6596/1935/1/012005>
64. Wang, X., & Huang, J. (2006). The relationships between key stakeholders' project performance and project success: Perceptions of Chinese construction supervising engineers. *International Journal of Project Management*, 24(3), 253–260. <https://doi.org/10.1016/j.ijproman.2005.11.006>
65. Wateridge, J. (1998). How can IS/IT projects be measured for success? *International Journal of Project Management*, 16(1), 59–63. [https://doi.org/10.1016/s0263-7863\(97\)00022-7](https://doi.org/10.1016/s0263-7863(97)00022-7)
66. *What's MSME | Ministry of Micro, Small & Medium Enterprises*. (2019). Msme.gov.in. <https://msme.gov.in/know-about-msme>
67. Zwikael, O., & Meredith, J. R. (2018). Who's who in the project zoo? The ten core project roles. *International Journal of Operations & Production Management*, 38(2), 474–492. <https://doi.org/10.1108/ijopm-05-2017-0274>