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Understanding the underlying drivers shaping stakeholder perceptions of project success

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Abstract

Purpose – This study explores how stakeholder roles shape perceptions of project success and identifies key dimensions underlying these differences.

Design/methodology/approach – We employed a quantitative methodology, collected data through an online survey, and analyzed stakeholder perceptions using multidimensional scaling (MDS). By applying MDS, we analyzed survey data from 335 project professionals to map the perceptual variations among stakeholder groups. This approach allowed for a systematic visualization of how different roles conceptualize success.

Findings – The results revealed two critical dimensions influencing stakeholder perceptions: operational vs. strategic orientation and internal vs. external focus. Project managers and team members prioritized execution efficiency, while sponsors and executives emphasized long-term impacts. Clients and influencers positioned more peripherally demonstrated distinct success criteria. This study highlights how perceptual misalignment among stakeholders can impact project evaluation and decision-making.

Research limitations/implications – Snowball sampling limits statistical representativeness, making the findings exploratory rather than generalizable. We conducted the analysis using two-dimensional multidimensional scaling (MDS), while a three-dimensional approach could reveal deeper structural patterns in stakeholder perceptions. Moreover, the research captured stakeholder perceptions at a single point in time, overlooking potential shifts throughout the project lifecycle. Lastly, while the study covers multiple sectors, broader industry and international comparisons could enhance applicability.

Originality/value – This research advances the understanding of stakeholder perception dynamics by systematically visualizing their differences in project success evaluation. The findings offer practical insights for project managers seeking to align diverse success criteria, improve stakeholder communication, and proactively address perceptual misalignments to reduce conflicts and enhance decision-making processes.

Keywords Stakeholder perception, Project success, Multidimensional scaling, Success criteria, Project management

Paper type Research article

Introduction

In project management, different stakeholders do not universally agree upon the perception of success. Each role within a project, ranging from project managers to clients, team members, and executives, can provide a unique perspective that shapes how one determines success. Different perceptions can lead to conflicts and misalignments and even affect the project's overall outcome. Understanding why these perceptions differ can help improve project management and ensure that projects meet the expectations of all stakeholders.

While we may define project success in multiple ways depending on the chosen approach, each definition tends to capture the essence of success within its specific disciplinary or contextual lens (Sebestyen, 2017). This study adopts one of the widely accepted perspectives. Instead of relying on predefined success criteria, it focuses on assessing how individual project

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participants perceive success. This perspective allows for a deeper understanding of how differing viewpoints shape the projects' perceived outcomes, and it supports the development of a more inclusive and stakeholder-based framework.

Specific patterns and underlying factors explain the variations in how people perceive success. Examining these factors systematically allows for uncovering the reasons behind these divergent perceptions. For instance, some stakeholders prioritize operational efficiency, such as completing tasks on time and within budget. Others focus more on strategic impact and the long-term value a project creates. Recognizing these priorities helps project managers align their success criteria and address potential conflicts before they escalate.

This article aims to explain the perceptual differences by applying multidimensional scaling (MDS), a statistical technique that allows for the visualization of complex relationships between project roles based on their perceptions of success. We sought to identify the key dimensions that influence how different stakeholders perceive success.

Following the literature review, the next sections cover three main areas. First, the methodology used to collect and analyze data. Second, the application of MDS to map stakeholder perceptions. Third, the implications of the findings for project management practice. This study contributes to a deeper understanding of how people perceive success in project management and offers a framework for aligning these perceptions to ensure more successful project outcomes.

Literature review

We selected the literature using a systematic literature search process based on PRISMA (Preferred reporting items for systematic reviews and meta-analyses) principles (Page *et al.*, 2021). This procedure ensures that the research includes selected studies in a transparent, reproducible, and reliable manner to reduce the selection bias (Moher, 2019; Page *et al.*, 2021; Degefu, Verma, & Ranabhat, 2024).

The analysis process consisted of four main steps: identification, screening, eligibility, and inclusion (Moher, Liberati, Tetzlaff, & Altman, 2009; Salvius, Priya, & Kumar, 2023). In the identification phase, we applied a predefined search strategy, including the use of keywords ("stakeholder," "stakeholder analysis," "project success," "success criteria," "stakeholder perception," "stakeholder influence," "stakeholder evaluation," "Multidimensional Scaling," "MDS," "MDS visualization," "perceptual mapping.") These are the relevant keywords that reflect the central themes of the research, such as perceptions of project success, perceptions of stakeholders, and the methodology of multidimensional scaling used to explore these. As a result, we identified 49 relevant publications in Scopus and 52 in the Web of Science database, for 101 studies included in the initial review.

The first step in the screening phase was to remove duplicate studies, leaving 73 publications. We then excluded studies that were not closely related to our study by reviewing titles and abstracts. This step resulted in 55 publications remaining in the analysis. In the eligibility phase, we performed a further screening, which involved a full-text analysis. During this process, we assessed the research questions, methodology, databases, and publications' relevance. As a result of this analysis, we retained 44 publications. In the inclusion phase, the final screening aimed to identify the most relevant and highest-quality studies. To do this, we considered the impact factor, citation indicators, and the publications' scientific relevance. Finally, we selected 34 studies for detailed analysis.

Stakeholder perceptions of project management success

The key factors for project success may vary depending on the context, but in all cases, the perception of success by the different stakeholders is crucial. Therefore, it is essential to understand the different perspectives of stakeholders (Zarzycka, Krasodomska, & Dobija, 2021). Amoatey and Hayibor (2017) identify effective communication, clear goals, and

conflict management in municipal projects. Similarly, Babatunde, Perera, Zhou, and Udeaja (2016) emphasize transparency, financial stability, and resource management as success factors in PPP projects. Conversely, Haleem, Khan, and Khan (2021), in an industry-specific context of Halal logistics, highlight the role of logistics service providers and consumer demand as the key to success. Our research took a different approach from these, as we did not identify predefined success factors in a specific industry or project context but instead examined success perceptions retrospectively. Rajablu, Marthandan, and Yusoff (2014) also do not focus on a specific sector, as they identify industry-independent success factors and six stakeholder attributes (e.g. power, interest, network of relationships) for project success. Moreover, taking a broader approach, Shaukat, Latif, Sajjad, and Eweje (2021) identify sustainable project management (SPM) as a critical factor but show that the direct effect of team building and stakeholder involvement is not always significant. Wang and Huang (2006) emphasize the importance of guanxi (network-based relationships) in evaluating project success. This contrasts with the traditional dimensions of cost, time, and quality. Compared to these approaches, we sought to identify the individual success factors and used them for further analysis, as we looked for causes and correlations.

Examining different stakeholder perceptions of project success is also a central theme in project management research, as different stakeholder groups have different perceptions of success. These differences may also depend on industry specificities and project complexities (Skrzek-Lubasińska & Malik, 2023). By implementing a management information system, Fowler and Walsh (1999) analyzed how management, developers, and end-users perceived success differently. While management considered time and cost as key, end users focused on the application's functionality. Hackman, Pollack, and Baker (2024) investigated this further and showed that the mental models of different stakeholder groups fundamentally influence the perception of project success.

While these studies provide a comprehensive overview of success-related factors, they do not explore the underlying causes or find direct connections between these causes and stakeholder groups. In contrast, we employed structured analysis to uncover the causal relationships between stakeholder perceptions and their underlying drivers. Scheepers, McLoughlin, and Wijesinghe (2022), in a project of a Fortune 500 company, Przetacznik (2022) from an enterprise risk management (ERM) perspective, and Machiels, Compernolle, and Coppens (2023), in an analysis of an infrastructure project investigated how different stakeholder groups evaluate project performance and uncertainty management differently. However, these studies mainly focus on specific industry projects, limiting the findings' generalizability. They do not provide a broad-spectrum analysis that would capture stakeholder perceptions across various project contexts, which was the focus of our research.

Researchers use different methodological approaches to model stakeholder perceptions. Cenek and Částek (2016) review stakeholder visualization methods, highlighting their advantages and disadvantages. Most research uses dimensional analysis (the method we have chosen), clustering, and other structured modeling techniques to explore differences in perceptions. Davis (2017, 2014) investigated stakeholder-specific success criteria in models structured using thematic coding, demonstrating that they are not universal. Based on the success dimensions of Pinto and Slevin (1987), the use of a thematic matrix allowed for the analysis of different perceptions along dimensions. Our research also reflects the analysis of the dimensions but with a very different approach. Furthermore, we chose a practical approach, using questionnaire data collection. Statistical methods play a prominent role in the analysis of project success criteria, especially in the analysis of stakeholder relations and differences. In their research, Węgrzyn (2016) and Ifinedo and Nahar (2007) used cluster analysis to examine project success criteria and stakeholder groups. The former found differences depending on project life cycle and stakeholder role, while the latter found differences in quality perceptions of suppliers and consultants. Thus, statistical analyses are great methods for exploring and evaluating success criteria. However, in our view, multidimensional scaling provides a much deeper insight into their background.

Application of multidimensional scaling

Multidimensional scaling (MDS) is a statistical method that visually represents similarities or differences between objects in a low-dimensional space (Borg and Groenen, 2003). The technique aims to visualize data patterns intuitively and meaningfully, helping to identify hidden structures (Mead, 1992). MDS can be particularly beneficial in simplifying large data sets by converting similarities into distances placed in geometric space (Giguère, 2006). The method can handle both metric and non-metric data. It does not assume a multivariate normal distribution, thus offering an alternative to other statistical methods, such as factor analysis (Johnston, 1995). The visual results of MDS are intuitive and can serve to explore relationships that would not be obvious using traditional methods of analysis (Mugavin, 2008).

MDS has proven effective in many areas, especially management and decision support, where complex data and different perspectives require analysis. Mineo and Plaia (1999) applied the method to optimize inventory allocation, which facilitated a more efficient allocation of resources. Nevo, Nevo, and Ein-Dor (2010) used information technology classification to identify three key dimensions that supported the alignment of technology strategies, demonstrating the role of MDS in operational and strategic decision-making. In a study of human factors, Baddoo, Hall, and O'Keeffe (2007) used MDS to explore motivating and demotivating factors in software development. Yang, Liu, Rassokhin, and Agrafiotis (2011) demonstrated the importance of the method in fine-tuning marketing strategies by analyzing customer satisfaction patterns. These results confirm that MDS is an excellent tool for data analysis and a deeper understanding of behavioral patterns and preferences. The present research adapts the MDS method to project management to investigate stakeholder perceptions of success and their underlying dimensions. The applications presented in previous research provide direction in the use of the technique, particularly about the visual representation of perspectives.

Therefore, the MDS method can also be an effective tool for analyzing perceptions. To date, research has not typically examined the methodology's applicability in the complex context of project management. Consequently, exploring the dimensions of success perceptions in this area still represents a significant research gap. In their pioneering work, DeSarbo, Oliver, and De Soete (1986) applied MDS to perception analysis based on pairwise comparisons, showing how one can map the different perspectives of stakeholders into a common-dimensional space. This approach has laid the foundation for the application of MDS to explore latent dimensions that provide a deeper understanding of differences between stakeholders. The work of DeSarbo and Cho (1989) has further developed this direction, using a stochastic MDS model that can also serve to analyze binary choice data. This allowed for a more precise exploration of the hidden structures behind preferences and provided a statistically sound tool for analyzing decision patterns, significantly extending the scope of MDS. While the previous research focused on binary choice data, our research adapted MDS to project management to explore the dimensions and structural relationships of perceptions. While the former approach resulted in accurate and reproducible analyses, the visual interpretability of the results was limited. Therefore, Heiser and Meulman (1983) added intuitive geometric visualization to the model.

They used the MDS methodology to graphically represent the relationships between perceptions, particularly useful in the practical analysis and understanding of complex relationships. To further develop the MDS, Wu and DeSarbo (2005a) developed a latent structure model that allowed for a more detailed examination of the latent dimensions and preferences of customer groups. This gave the MDS broader application potential, particularly in a better understanding of stakeholder perceptions. Their subsequent article (Wu & DeSarbo, 2005b) extended the practical application of MDS as they further analyzed customer segmentation and fine-tuned the model, facilitating a better understanding of stakeholder perceptions. Latent structure models provide a more detailed analysis, but their complexity makes them more challenging to interpret and apply in practice. Therefore, we used the traditional MDS, which, through its simplicity and visual comprehensibility, supports the exploration of perceptions more effectively. Scott and DeSarbo (2011) further deepened

the methodology by analyzing perceptions of managerial effectiveness, highlighting how the priorities and perspectives of different stakeholders influence organizational decision-making. Building on these findings, we adapted the MDS methodology to project management, specifically to analyze stakeholder perceptions of success.

Research methodology

We adopted a quantitative research approach to investigate the diverse perceptions of project success among different stakeholder roles. We gathered the data through an online survey, excluding inconsistent or incomplete responses. Data collection employed snowball (convenience) sampling. We selected snowball sampling, because no comprehensive data on project-management professionals exists, with information on their perception.

Leveraging professional formal and informal networks enabled access to otherwise hard-to-reach stakeholder roles. This non-probability approach is consistent with prior research on stakeholder perceptions (e.g. Davis, 2017; Scheepers *et al.*, 2022). Although statistically non-representative, the method produced a data set suitable for the multivariate techniques. We applied exploratory data analysis (EDA), using MDS to reveal latent perceptual structures among stakeholder roles.

The descriptive statistical analysis of the responses indicated that we reached a broad and diverse sample. It includes projects from small and medium-sized enterprises to large corporations, and project sizes ranging from teams of 1–9 people to those involving more than 250 participants. The sample also covered a wide spectrum of industries, from services to manufacturing, and from healthcare to finance. However, due to the nature of the applied sampling method, we expected that a large proportion of the analyzed projects (74.1%) were implemented in Hungary, while the remaining 25.9% were international or multi-country projects. Although we conducted the study primarily in Central Europe, project management practices in this region generally aligned with EU and international project management standards, supporting the broader relevance of the findings.

Respondents ranged from project managers and team leaders to stakeholders such as sponsors, clients, and project champions, providing their diverse perspectives of project success for the analysis. We designed the survey used in this study to capture the perceptions of success among different project stakeholders. It consisted of a comprehensive set of questions to explore how various roles within a project evaluate project success. During the survey, respondents evaluated on a 1–5 Likert scale how successful each stakeholder perceived the given project to be. The data collected through this survey served as the foundation for the subsequent MDS analysis that visualizes the complex relationships between the causes and perceptions.

We employed an analysis to explain the data. One can identify key dimensions influencing the perception of success across roles by mapping these roles into a multidimensional space. The method provides a deeper understanding of the underlying factors that drive the success criteria among stakeholders.

Data collection

We collected the data through an online survey between November 2019 and August 2022. This period included approximately a one-year hiatus due to the COVID-19 pandemic. A total of 372 participants completed the study, of which, we considered 335 valid for analysis. We excluded some responses from the study. On the one hand, 18 respondents indicated “no” or “I don’t know” to the initial question about differing perceptions of project success among stakeholders. On the other hand, 19 respondents, despite answering “yes” to this initial question, later rated all stakeholders’ perceptions the same.

Moreover, we employed a non-probability technique, the snowball sampling suited to hard-to-reach populations to capture the broadest possible range of stakeholder perspectives and

place their subjective success evaluations in context. The survey reached a wide range of participants. This breadth of participation suggests that the sample was adequate for analyzing the research question and exploring the phenomenon of perceptual overwrite.

Collaboration with professional organizations, such as the local chapter of the Project Management Institute, as the primary data source and a leading regional university's MBA program, facilitated data dissemination.

Respondents primarily worked in the business sector (60.8%), with additional representation from the public (24.1%) and civil (15.1%) sectors. Respondents' roles varied, with 40.3% in management positions (e.g. project managers or team leaders) and 39.7% as team members.

The projects involved had an average budget of approximately $20 million, with two-thirds ending with a profit. The distribution of projects by sector was similar between the business and public sectors. However, only one-third of civil sector projects ended profitably, which is in line with the non-profit nature of these organizations.

We conducted an item analysis to ensure the reliability of the collected subjective opinions. The Cronbach's alpha for the responses was 0.875, indicating a high level of internal consistency within the measurement scale. Furthermore, most of the examined projects were implemented in Hungary, with the remainder being foreign or multinational projects.

Table 1 lists the project roles identified in our study and their corresponding codes used for analysis. Pádár, Pataki, and Sebestyén (2017) classified and entirely defined these roles based on several relevant studies. In this research, each code represents a specific role within the project, ranging from high-level positions like the sponsor/owner to more involved roles such as project team members and influencers. The codes help categorize and analyze the perceptions of different stakeholders regarding project success, making it easier to interpret the data and draw conclusions.

The interval plot displayed in Figure 1 provides a visual representation of the mean scores of various stakeholder roles. In the figure, the dots represent the average scores, while the segments indicate the 95% confidence interval limits. We labeled the stakeholders on the *x*-axis according to the codes in Table 1. The overall average is also displayed in the figure. Interestingly, the owners were the most satisfied with the projects, with an average score of 3.93, while the influencers were the least satisfied, scoring 3.60. The owners' opinions differ significantly from those of all other stakeholders except for the team and project managers. There are distinct differences in views between project and team managers and the influencers, project team members, and even project management team members, despite their management roles.

The descriptive statistics in Table 2 offer a detailed summary of the data underlying the interval plot in Figure 1. This table includes metrics such as the mean and standard deviation

Table 1. Project roles and corresponding codes

Code	Role
K22	Sponsor/Owner
K23	Client/User
K24	Executing Organization
K25	Project Manager
K26	Team Manager
K27	Project Management Team Members
K28	Project Team Members
K29	Project Committee/Portfolio Manager
K30	Influencers
K31	Project Champion

Source(s): Tables were created by the authors

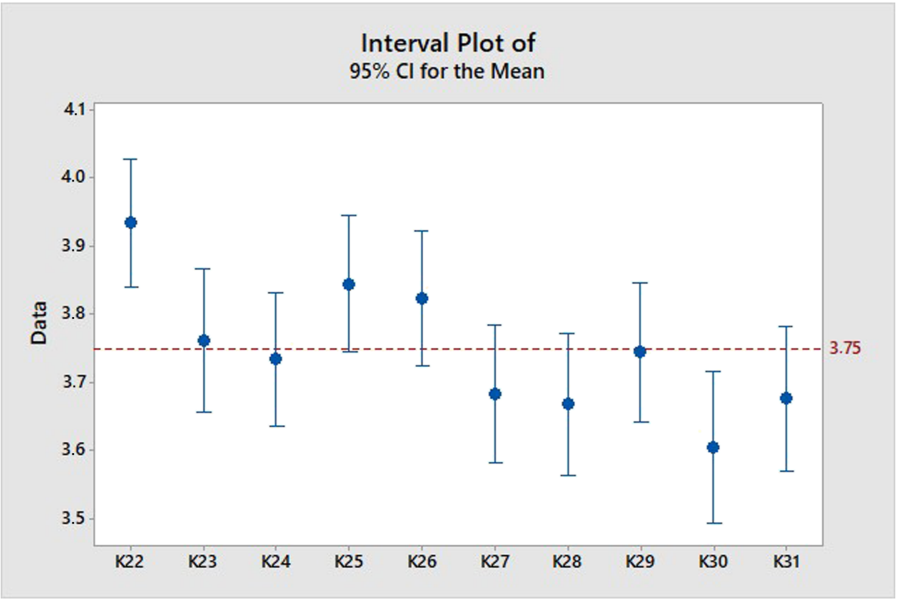

Figure 1. Interval plot of stakeholder mean scores with confidence intervals. Source: Own elaboration

Table 2. Descriptive statistics of the data set

Variable	*N*	*N**	Mean	St dev
K22	335	0	3.9343	0.8798
K23	335	0	3.7612	0.9771
K24	335	0	3.7343	0.9178
K25	335	0	3.8448	0.9317
K26	335	0	3.8239	0.9133
K27	335	0	3.6836	0.9325
K28	335	0	3.6687	0.9699
K29	286	49	3.7448	0.8713
K30	266	69	3.6053	0.9307
K31	263	72	3.6768	0.8770

Note(s): The minimum is 1 everywhere, the maximum 5 and the median 4. The Project Committee/Portfolio Manager (K29), Influencer (K30) and Project Champion (K31) were less likely to be identified/interpreted. Missing data are marked with *N**

Source(s): Tables were created by the authors

for each stakeholder role, providing a comprehensive overview of the central tendencies and variability within the data. The mean scores reflect the average perception of project success for each role, while the standard error indicates the accuracy of these means.

The correlation matrix in Table 3 serves as a basis for the subsequent MDS analysis. This matrix quantifies the relationships between various project roles and measures how closely the perceptions of different stakeholders are related. Each cell in the matrix represents the correlation coefficient between two roles, indicating the degree of similarity in their views on project success. A high positive correlation suggests that the roles perceived similarly project success, while a low or negative correlation implies divergent perceptions. This correlation

Table 3. Correlation matrix of the stakeholders

	K22	K23	K24	K25	K26	K27	K28	K29	K30	K31
K22	1.000									
K23	0.313	1.000								
K24	0.442	0.373	1.000							
K25	0.371	0.239	0.487	1.000						
K26	0.433	0.288	0.440	0.566	1.000					
K27	0.453	0.305	0.433	0.539	0.574	1.000				
K28	0.241	0.475	0.422	0.331	0.475	0.493	1.000			
K29	0.486	0.291	0.422	0.464	0.393	0.442	0.275	1.000		
K30	0.458	0.414	0.338	0.274	0.297	0.298	0.229	0.395	1.000	
K31	0.466	0.383	0.433	0.446	0.480	0.490	0.415	0.492	0.450	1.000

Source(s): Tables were created by the authors

data allowed us to transform the stakeholder relationships into a more interpretable visual format using MDS. Thus, Table 3 is not merely a summary of relationships but serves as an input to a deeper analysis.

Hidden layers of project success

We conducted a multidimensional scaling analysis to explore the relationships among the roles (Figure 2). In this analysis, the distances between points represent the similarities among roles according to specific dimensions. The roles positioned close to each other within a given dimension contain similar characteristics in one aspect, while they may differ in other aspects.

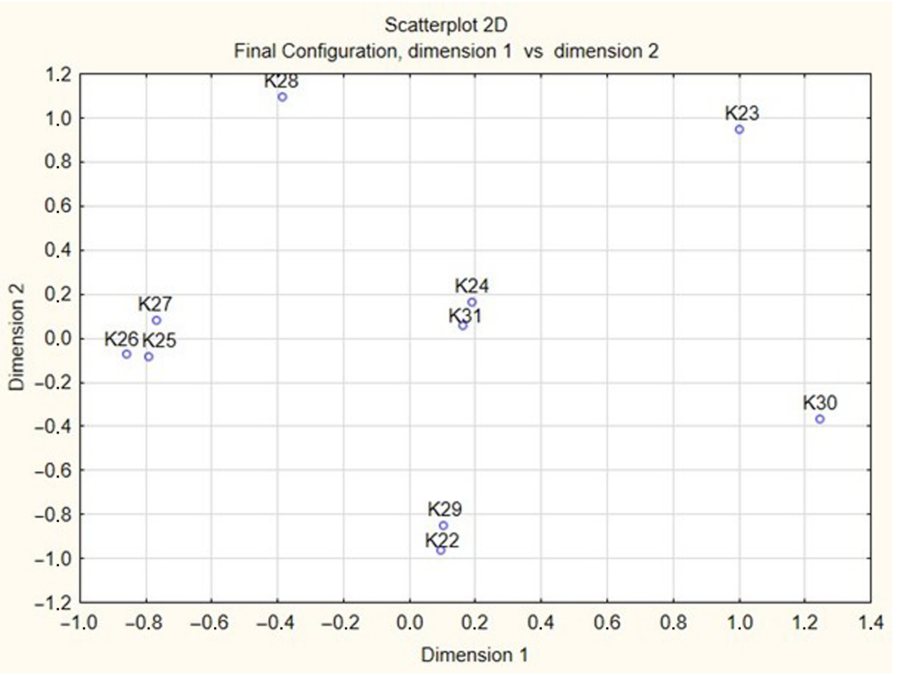

Figure 2. MDS visualization in 2D. Source: Own elaboration

The MDS analysis visually represents these distances. However, for a complete understanding of the underlying factors, the quantitative analysis requires extending with a qualitative one, interpreting the positions in Figure 2. This process will identify the characteristics responsible for the differences in stakeholder perceptions.

We generated the scatter plot as part of the MDS analysis. This case illustrates the relationships among project roles in two dimensions. These dimensions are the underlying factors that influence the similarity in how a participant in a role perceives project success. This is what this research is intended to determine.

Identifying stakeholder groups

First, we identified different stakeholder groups based on their perceptions of project success. The analysis defines and describes three main sets.

Group 1: project management and team roles. These roles are grouped closely together on the left side of the scatter plot. This indicates a high level of similarity in how the participants perceived project success: K25 (project manager), K26 (team manager), and K27 (project management team members).

The roles in this group are likely similar in the operational and execution aspects of the project. Project managers, team managers, and project management team members are typically more involved in the daily routine tasks, operations management, and project coordination. Their perceptions of success may relate to factors such as meeting deadlines, staying within budget, and achieving milestones (technical as well).

Group 2: executive and strategic roles. This group is in the lower left quadrant and differs from Group 1: K22 (sponsor/owner) and K29 (project committee/portfolio manager).

These roles relate to strategic objectives and align with higher organizational goals. The perception of success from these roles can be more aligned with the overall impact on the company's business value, return on investment, and long-term organizational benefits than operational-level achievements.

Isolated roles. These roles are spread relatively far apart in the scatter plot: K23 (client/user), K24 (executing organization), K30 (influencers), K28 (project team members), K31 (project champion).

(1) K23 (client/user): The client or end-user typically focuses on the final deliverable and concentrates purely on their needs and expectations. Thus, the drivers behind their perception of success may be usability, functionality, and overall satisfaction with the project's outcome.

(2) K24 (executing organization): This role represents the broader organization implementing the project, which prioritizes, e.g. operational efficiency and resource utilization.

(3) K28 (project team members): Project team members typically focus on task completion and immediate project deliverables. Their perception of success centers around the tangible outputs of their work and the project's immediate outcomes.

(4) K30 (influencers): Influencers might not be directly involved in project execution, but can significantly impact perceptions based on their influence on decision-making and any stakeholder's opinions.

(5) K31 (project champion): The project champion, often a high-level advocate, may focus on the project's strategic importance and potential to drive innovation or change.

While K24 and K31 might form a small group, their unique success criteria still keep them somewhat isolated. The executing organization's perspective focuses more on resource allocation, alignment with organizational goals across various projects, and maintaining overall operational efficiency. The project champion is typically an advocate for the project,

often pushing for its initiation and ensuring it receives the necessary support and visibility within the organization. However, their role is more visionary, focusing on the long-term benefits and the overall success of the project in achieving broader organizational goals. This is a more comprehensive and sometimes more idealistic perspective. These two roles must be evaluated from entirely different perspectives. Therefore, grouping them would be misleading even if they appear close in location.

Hypothesizing the dimensions

We can see that the analysis of the stakeholder groups has led to some results. While it is worth carrying out this exercise, a deeper analysis makes sense and promises further results. The analysis of the dimensions certainly answers the questions about their drivers.

In the analysis of Figure 2, we could hypothesize two dimensions. The roles are arranged based on these dimensions according to how the participants perceive project success. These dimensions are proposed as "Operational vs. Strategic Focus" and "Internal vs. External Stakeholder Perspective." Let us explore each dimension, examining the underlying characteristics. These characteristics may influence perceptions of success. Identifying dimensions provides the basis for explaining the connections between the factors and perceptions of success.

Dimension 1: operational and strategic focus

This dimension appears to differentiate between roles primarily on the operational–strategic spectrum.

(1) "Operational focus:" Roles on the left side of Figure 2 are likely to be closely involved in the day-to-day management and project execution. These roles include project managers (K25), team managers (K26), and project management team members (K27). They are typically responsible for ensuring the project adheres to its schedule, stays within budget, and meets technical requirements. The success of these roles is often defined by how efficiently and effectively the project performs at the operational level.

(2) "Strategic focus:" On the right of Figure 2 are roles like sponsors/owners (K22) and clients/users (K23). They evaluate the project based on its long-term value and alignment with organizational goals. For these roles, success is less about the process and the outcomes (e.g. whether the project delivers the intended benefits or meets the end users' needs).

The distinction between operational and strategic focus is fundamental in project management. This dimension is rooted in the different priorities and responsibilities of each role. The individuals in operational roles often evaluate their performance based on tangible, measurable outcomes during the project. For instance, a project manager might judge whether the project is delivered on time and within budget. These criteria are straightforward and measurable, which naturally leads participants in these roles to perceive project success in terms of adherence to the project plan and efficiency in execution. Their close involvement in the project's daily activities means that their understanding of success is closely tied to the successful management of resources, tasks, and timelines. Conversely, strategic roles, such as sponsors or clients, typically look beyond the project's immediate outputs to consider its broader impact. For these stakeholders, a project is only truly successful if it achieves the desired strategic outcomes, such as increasing market share, improving customer satisfaction, or completing a significant return on investment. These roles are less concerned with the details of project execution and more focused on the project's ability to deliver long-term value. Therefore, their perception of success is often more abstract, focused on the alignment with organizational objectives and the benefits realized from the project.

Dimension 2: internal and external stakeholder perspective
The second dimension appears to separate roles based on an inward-outward focus spectrum.

(1) "Internal stakeholder perspective:" These roles are located on the lower side of Figure 2. They include project committee/portfolio managers (K29) and executing organizations (K24), who typically focus on internal project management processes and performance metrics. These roles likely focus on how well the project aligns with internal policies, standards, and operational efficiency. Thus, from their viewpoint, one might measure success in terms of adherence to internal performance benchmarks.

(2) "External stakeholder perspective:" Roles positioned on the upper side, such as clients/users (K23) and influencers (K30), are likely more concerned with the project's external outcomes and the satisfaction of external stakeholders. These roles focus on how the project meets the needs and expectations of customers, users, or other external parties. In their case, success is determined by the degree to which it meets user needs, enhances customer satisfaction, or positively influences public perception.

The split between internal and external stakeholder perspectives is an essential aspect of project management that reflects the different priorities and success' perceptions. For those involved in the internal execution of a project, success is often defined by the functioning of the project. This includes efficient use of resources, adherence to timelines, and compliance with internal standards. Their perception of success is closely tied to internal project metrics, such as resource utilization rates, adherence to schedule, and internal team performance. On the other hand, External stakeholder roles, such as clients or influencers, often perceive the success of a project based on expectations and needs outside the organization. These stakeholders are primarily concerned with the project's deliverables and impact on the broader environment. Thus, they measure success by the degree of user satisfaction, the project's alignment with market needs, and its ability to influence public opinion or customer behavior.

To sum up, the detailed exploration of these two dimensions – "operational vs. strategic focus" and "internal vs. external stakeholder perspective"– reveals the complex relationship between participants in different project roles and their perceptions of success. By understanding these dimensions, project managers can better meet the challenges of aligning diverse perspectives and ensuring that all aspects of project success are considered.

Recognizing that different roles prioritize different success criteria can help develop more holistic project management strategies that address both operational efficiency and strategic value, as well as internal performance and external satisfaction. This comprehensive understanding is important for a shared perception of success across all project stakeholders.

Future research opportunities

This study has provided significant progress by applying multidimensional scaling in two dimensions. However, we could deepen our knowledge of success perceptions among project roles by considering an additional dimension. The analysis presented in Figure 3 clearly explains how various roles are grouped based on the perception of success along two key dimensions. It discovered two elementary spectrums of factors that influence perceptions. The introduction of a third dimension offers the opportunity to uncover additional latent structures that may enrich the interpretation of stakeholder perceptions. While two-dimensional MDS already provides valuable insights into the underlying patterns, a three-dimensional solution could potentially reveal more perceptual distinctions and deeper relationships that are not immediately visible in 2D space. This extension may enhance the practical relevance of the findings in complex project environments.

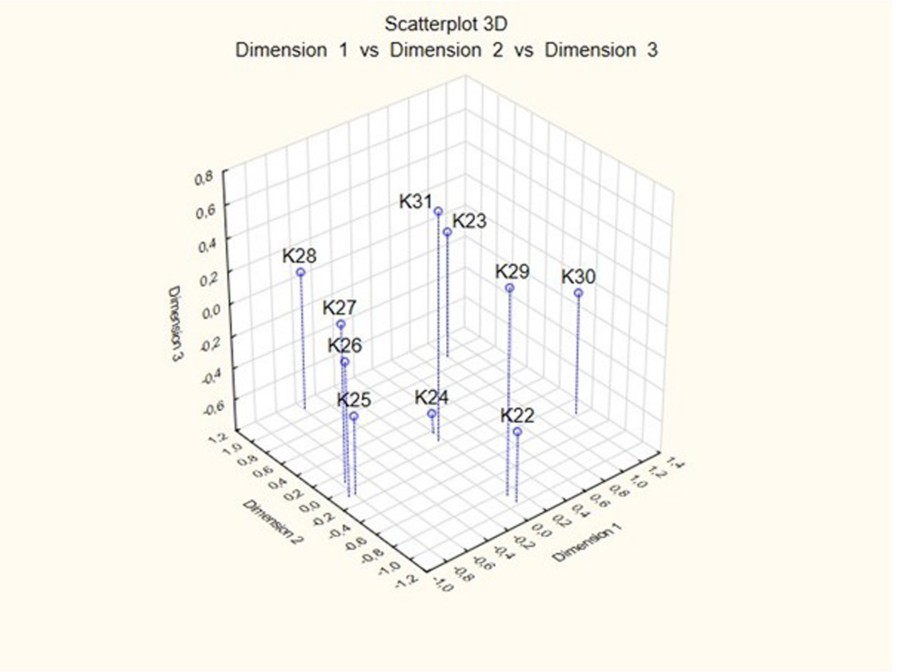

Figure 3. MDS visualization in 3D. Source: Own elaboration

Incorporating a third dimension into the MDS analysis could reveal additional layers of differentiation among project perception drivers by the roles. It may uncover hidden drivers that are not captured in a two-dimensional framework. This third dimension might correspond to factors currently being conflated or oversimplified when viewed in just two dimensions. By expanding the analysis with a third or even more dimensions, future research would analyze more deeply why roles perceive project success similarly or differently. This approach may help identify new patterns or correlations previously hidden, offering a more comprehensive understanding of the factors that drive these perceptions (for instance, the degree of stakeholder involvement, the complexity of decision-making authority, or the balance between innovation and risk aversion). Consequently, the findings from such a study could contribute to a more tailored project management. This endeavor lies beyond the scope of the current study.

Discussion

It can be beneficial to understand the drivers of success perceptions among different stakeholders in project management. Let us list some possible benefits of a deeper analysis of stakeholder perceptions.

(1) Better stakeholder alignment by the project manager: Understanding the dimensions influencing success perceptions helps project managers understand stakeholders' expectations. Project managers can tailor communication and objectives to meet the needs of all involved parties better, reducing the conflict risk.

(2) Improved decision-making process: Project teams can make more informed decisions by considering factors classified on an operational–strategic spectrum. This may lead

to better resource allocation and risk management. The decisions will be aligned with the better-understood success criteria of all stakeholders.

(3) Targeted process improvements: Identifying the underlying dimensions allows organizations to determine specific areas where perceptions diverge. This can result in more efficient workflows.

(4) Enhanced stakeholder engagement and communication: Categorizing stakeholders based on their roles and perceptual orientations allows project managers to tailor communication strategies. Operational stakeholders (e.g. project managers and team members) require detailed execution-focused communication, while strategic stakeholders (e.g. sponsors and clients) benefit from high-level progress updates and long-term impact analyses.

(5) Conflict prevention and expectation management: Recognizing perceptual differences helps handle misalignment-related conflicts. For example, miscommunication can arise if project managers prioritize efficiency while clients focus on usability and strategic value.

(6) Long-term organizational learning: Analyzing the dimensions of success perceptions may contribute to long-term organizational learning. It helps organizations understand why specific projects succeed or fail from multiple perspectives. This can lead to a more adaptable and resilient project management framework in project planning and execution in the future.

These reasons are some potential practical benefits of dimension-based analysis to understand stakeholder perceptions of success.

Research limitations

While this study provides insights into stakeholder perceptions of project success, we should note its several limitations.

First, the research relied on snowball sampling, a non-probability method that, while effective for reaching a diverse range of project professionals, does not ensure statistical representativeness. Consequently, we should interpret the findings as exploratory.

Second, we applied multidimensional scaling (MDS) to map perceptual differences among stakeholder roles in a two-dimensional space. While this method effectively visualizes relationships, a three-dimensional MDS approach could provide deeper structural insights, potentially uncovering additional dimensions of stakeholder perception that remain latent in the current analysis.

Third, the research employed a cross-sectional design, capturing stakeholder perceptions at a single point in time. However, success perceptions sometimes evolve throughout a project's lifecycle, influenced by shifting priorities, project performance, and stakeholder engagement.

Finally, while the study includes business, public, and civil sector professionals, it does not focus on industry-specific variations in stakeholder success criteria. Expanding the research to sector-specific contexts could enhance the finding's applicability.

Despite these limitations, this study offers a systematic framework for understanding stakeholder perception dynamics. Identifying key dimensions of success evaluation provides a foundation for future research to refine stakeholder management strategies and improve project alignment across diverse roles and contexts.

Conclusions

The analysis of Figure 2 reveals how different project roles perceive success, influenced by their positions along two key dimensions: Operational Focus vs. Strategic Impact and Internal

Execution vs. External Stakeholder Perspective. These dimensions highlight the varying priorities and responsibilities of the roles, shaping their definitions of success.

For roles centered on operational focus, such as project managers and team managers, success is often tied to the efficient execution of tasks, adherence to timelines, and staying within budget. These roles prioritize projects' smooth operation and immediate outcomes, reflecting their hands-on involvement in day-to-day activities. Conversely, roles emphasizing Strategic Impact, like sponsors and clients, are more concerned with long-term value and alignment with organizational goals. Their perception of success hinges on whether the project delivers substantial benefits and achieves its broader objectives, even if there are problems with operations.

Similarly, the dimension of Internal Execution vs. External Stakeholder Perspective illustrates another layer of complexity in success perceptions. Roles focused on Internal Execution, such as executing organizations and project committees, define success based on internal metrics, efficiency, and compliance with organizational standards. Their inward-looking perspective concentrates on how well the project adheres to internal expectations and processes. On the other hand, roles with an external stakeholder perspective, like clients and influencers, measure success by the project's impact on external parties. These roles prioritize user satisfaction, market alignment, and the project's influence on public perception, often considering these factors as the ultimate indicators of success.

Understanding these dimensions and the diverse success criteria associated with different roles is essential for project managers. It enables them to address potential misalignments in perceptions of success. Moreover, it ensures a holistic evaluation of the project, considering both operational performance and strategic outcomes, as well as internal and external perspectives. This comprehensive approach is crucial for fostering a shared understanding of success among all stakeholders, ultimately leading to more effective and successful project management.

While this analysis using two-dimensional MDS has provided valuable insights, future research should consider incorporating a third dimension, as suggested in Figure 3. This expansion could reveal deeper complexities in how different roles perceive project success, offering a more nuanced understanding that could further refine project management practices.

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