

CRITICAL SUCCESS FACTORS AND PERFORMANCE OF PROJECT MANAGEMENT

Ecuador and Latin America



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1. Executive Summary

Although initially known as the accidental profession, Project Management has evolved positively both academically and professionally. This is evident in the many diverse research works and the existing best practices and methodologies, which focus mainly on marking the path for project leaders to follow and be successful in their management roles and for the results of their projects to generate value for their beneficiaries.

Current topics of interest include critical success factors and project performance criteria. However, in Latin America and particularly in Ecuador, there are no measurements to evaluate project performance or projects as such, nor the factors that drive the successful implementation of a project. This reality motivated the elaboration of this descriptive study of the perception of Latin American directors, coordinators, and other team members regarding the management of critical success factors and the corresponding performance of projects completed in the last two years. In addition, a comparative analysis of results between Ecuador and other Latin American countries is included, thanks to the collaboration of the PMI® chapters of Lima, Buenos Aires, Mexico, and Colombia. The most interesting findings at the Latin American level and the coincidences and differences between Ecuador and other countries in the region are highlighted below.

Latin America

From the 299 cases analyzed, it was found that, of the ten critical success factors of the projects, the *Mission* (6.08/7) was the best evaluated, that is, that overall the initial communication with the project team is being adequately managed, where the scope and objectives of the project are clarified and aligned with the organizational strategy. However, the *Personnel* factor obtained the lowest score (5.21/7) due to opportunities for improvement in the description and distribution of roles of the project team and the facilitation of technical and administrative training for team members. The projects focused on consulting and technology products/services were well evaluated in all critical success factors, unlike the projects associated with the industry that evidenced the need for urgent actions in *Plan/Schedule*, *Communication*, and *Personnel*.

When comparing the projects according to the use of the good practices of project management compiled in the PMBOK®-PMI®, those that did apply them obtained higher scores in all the critical success factors. Also, when establishing similarities by project management approach, predictive projects showed better results in *Plan/Schedule*, *Monitoring* and *Feedback*, and *Communication*, while hybrid projects were better in *Mission*, *Client Consultation*, *Personnel*, and *Trouble-shooting*.

When projects are classified by size according to their duration, those categorized as large (more extended than one-year) achieve the highest evaluations in all critical success factors, except for *Top Management Support*, *Technical Tasks*, and *Trouble-shooting*. In contrast, when the project budget criterion is used, those categorized as large (more than US\$500,000 budget) achieve the highest evaluations in all critical success factors, except for *Trouble-shooting*.

Overall project performance was rated 82.3 points, while project management and the project scored 80.4 and 83.4 points, respectively. Only 32.4% of the projects can be classified as high total performance, i.e., they obtained at least a score of 90 points.

Ecuador and other Latin American countries: Coincidences

- Of the critical success factors, both in Ecuador and in the other countries of the region, the *Mission* is the best-evaluated factor (6.05/7 vs. 6.18/7), whereas *Personnel* (5.20/7 vs. 5.24/7) is the worst-evaluated.
- The best ratings in the *Mission* factor are recorded in projects that generate technological products/services.
- Projects that generate products/services for public administration have high ratings in the *Plan/Schedule* and *Monitoring and Feedback* factors.
- Both in Ecuador and other countries in the region, the rating is given to project management performance (80.22 vs. 80.85) is lower than that of project performance (83.34 vs. 85.17).
- The lowest total performance and project performance ratings are for construction projects.
- Projects managed under PMBOK-PMI® best practices obtain higher evaluations in all critical success factors and their total performance (project management and project outcome).
- In projects with a predictive approach, the *Communication* factor is better evaluated than in projects with a hybrid approach.
- The *Client Consultation* factor scores better in hybrid approach projects than in predictive approach projects.
- Large projects by budget obtain the highest scores: *Top Management Support*, *Plan/Schedule*, *Client Consultation*, *Personnel*, *Technical Tasks*, *Client*

Acceptance, and Monitoring and Feedback.

Ecuador and other Latin American countries: Differences

- The rating for the *Client Consultation* factor in the other countries is higher than in Ecuador (5.36/7 vs. 5.79/7).
- Projects that generate industrial products/services in Ecuador have the lowest critical success factor ratings, while those focused on construction in other countries in the region do.
- In Ecuador, consulting projects achieve the best performance ratings. In contrast, in other countries, public administration projects stand out in total performance and project management performance, while industrial projects stand out in project performance.
- Projects with a predictive approach in Ecuador have higher ratings in the *Monitoring and Feedback* factor. In contrast, in other countries in the region, the best-evaluated factors are *Plan/Schedule* and *Personnel*.
- In Ecuador, projects with a hybrid approach have better ratings in the *Personnel* and *Trouble-shooting* factors. In other countries in the region, the best-rated factors are *Mission* and *Client Acceptance*.
- Those projects considered small in terms of duration received better evaluations in their critical success factors in Ecuador than in other countries.
- Medium and large projects by duration received better evaluations in their critical success factors in other countries in the region than in Ecuador.
- Performance evaluations of small projects by duration were higher in Ecuador, while medium and large projects by duration received better performance evaluations in other countries.
- In other countries in the region, performance evaluations were higher regardless of project size by budget.

2. Introduction

Papke-Shields et al. (2010) note that project management has evolved rapidly, and both academics and practitioners have worked to identify what factors lead to a project's success or failure. The literature on what defines project success or failure dates back to the late 1960s (Avots, 1969). It continues today, reflected in the publications in high-level academic databases such as Web of Science and Scopus (see Table 1). In the literature review, some authors have focused on identifying the critical success factors and their relationship with the project success criteria, distinguishing the criteria between project management success (meeting cost, time, quality, and other project management goals) and project success (achieving the planned business results using the project output, typically a new product or service) (Cooke-Davies, 2002).

Table 1
How to achieve successful projects? Literature Review

Variables	Authors
Critical success factors: Those elements of the project that can be influenced to increase its probability of success (Müller & Turner, 2010).	(Ayat et al., 2021; Belassi & Tukel, 1996; Belout & Gauvreau, 2004; Berssaneti & Carvalho, 2015; Cooke-Davies, 2002; de Carvalho et al., 2015; Fortune & White, 2006; Hughes et al., 2020; Ika, 2009; Iriarte & Bayona, 2020; Lamprou & Vagiona, 2022; Pinto, 1990; Pinto & Covin, 1989; Pinto & Prescott, 1988, 1990; Sanchez et al., 2017; Shenhar et al., 1997; Sinesilassie et al., 2019; Westerveld, 2003; Williams, 2016; Yasin et al., 2009; Yeo, 2002)
Project success criteria: The measures by which the project's success is judged (Müller & Turner, 2010).	(Albert et al., 2017; Baccarini, 1999; Dvir et al., 2006; Ika, 2009; Jitpaiboon et al., 2019; Lamprou & Vagiona, 2022; Müller & Turner, 2007; R. Müller & J. R. Turner, 2010; Pinto & Prescott, 1990; Pinto & Slevin, 1988; Pollack et al., 2018; Shenhar & Holzmann, 2017; Thomas & Fernández, 2008; Wateridge, 1998; Westerveld, 2003)

Source: WOS and Scopus databases.

For its part, the Project Management Institute (PMI®) has identified findings that lead to problems related to the success and/or failure of projects, such as:

- Organizations that focus on having a combination of technical expertise, leadership, strategy, and business management skills -PMI® Talent Triangle (PMI, 2017a), manage to have 40% more of their projects to be successful (PMI, 2016, 2018).
- The definition of project success has evolved, and it is no longer enough to

measure it based on compliance with the traditional metrics of scope, time, and cost. However, realizing benefits for those involved is also important (PMI, 2017c, 2018).

- By 2027, 87.7 million project management professionals will be required worldwide; however, there is a gap between this need and the supply of individuals who have the skill set of technical expertise, leadership, strategy, and business management to fill these positions, which could result in a potential loss of US\$207.9 billion (PMI, 2017b).

- 60% of the strategic initiatives related to projects achieve their objectives; there is a gap between the strategy formulation and its implementation (PMI, 2017c).

- 9.9% of every dollar is wasted due to poor performance in project management. Among the main causes are: a) the existing gap between the design of the organizational strategy and its results, b) that senior executives do not recognize that the strategy can be achieved through projects, and c) that project management is not completely considered as a driver of organizational strategy (PMI, 2018).

- Organizations wasted nearly 12% of project investment spending due to poor performance, which has not changed in the past five years (PMI, 2019a).

- That the PMI® Talent Triangle ® (PMI, 2017a) should include digital skills for project management (PMI, 2019a).

- That organizations that underestimate project management as a strategic competence to promote change see, on average more than 67% of their projects fail (PMI, 2020).

- Organizations in Latin America waste an average of US\$122 million for every trillion dollars invested in projects due to poor performance in their management; in addition, the rate of failed projects is 21% higher than the global average percentage of 15% (PMI, 2019b).

- Although in Latin America, the performance indicators improved notably compared to the global indices, the rate of failed projects continues to be higher, 15% vs. 12% (PMI, 2021).

Although the PMI® has made an effort to incorporate the different regions of the world in its studies, Latin America has a representative rate of only 11% in the global sample (PMI, 2021). Therefore, results are available for the region but not for countries.

The evident importance of studying critical success factors and project performance criteria, in addition to the fact that there are no measurements that allow evaluating the performance of project management or projects as such in Latin America and particularly in Ecuador, motivated the preparation of this descriptive study of the perception of directors, coordinators, and other members of Latin American teams regarding the management of critical success factors and the corresponding performance of projects completed in the last two years. In addition, a comparative analysis of results between Ecuador and other Latin American countries is included, thanks to the collaboration of the PMI® chapters of Lima, Buenos Aires, Mexico, and Colombia.

3. Methodology

The *Project Implementation Profile* (PIP), an instrument created to evaluate project implementation, was used for this study. The original version of the PIP was developed by Slevin and Pinto (1986) and assessed ten critical success factors. Two years later, Pinto and Slevin (1988) added a project performance construct to the PIP, the version used to develop this quantitative, non-experimental, and descriptive research (see Table 2).

Table 2
Project Implementation Profile (PIP)

Success critical factors	Likert scale 7 points (Strongly disagree - Strongly agree)
Project mission: Initial clarity for the project team of the project objectives, alignment with the strategic goals, and general management.	4 items
Top management support: Willingness of top management to provide the necessary resources and authority/power for the project's success.	5 items
Project plan/schedule: Detailed specification of the individual actions required for the implementation of the project and management of resources, times, budget, and risks.	5 items
Client consultation: Communication, consultation, and active listening of all parties involved on the progress, value, limitations, and definitions of the project.	5 items
Personnel: Recruitment, selection, and training of the necessary personnel for the project team.	5 items
Technical tasks: Availability of technology and experience required to carry out specific technical activities.	5 items
Client acceptance: Selling the project to the intended end users and validating its usefulness with customers.	5 items
Monitoring and feedback: Timely delivery of comprehensive control information (compliance with the budget, schedule, use of personnel and equipment, etc.) at each stage of the implementation process.	6 items
Communication: All the key actors are provided with a network of good contacts and the necessary data to implement the project.	5 items
Trouble-shooting: Ability to handle unexpected crises and variations from the plan.	5 items
Project performance	Likert scale 7 points (Strongly disagree - Strongly agree)
Two subscales are included for evaluation: Project (project completion on time, on budget, and meeting expected performance) and Customer (use of project results by intended customers, satisfaction with the project implementation process, and effectiveness by generating a positive impact on those who used its effects).	11 items

The questionnaire consisted of four sections: characteristics of the interviewee (age, sex, level of education, years of project management experience, international project management certifications obtained, role in the project), characteristics of the selected project completed in the last two years (duration, budget, team size, use of best practices, approach and main result), evaluation of critical success factors and project performance described in Table 2.

The Question Pro Survey tool was used to design the online questionnaire, which was sent to the chapters PMI® Buenos Aires, PMI® Guayas, PMI® Lima, PMI® Mexico, PMI® Jalisco, PMI® Nuevo León, PMI® Caribe, and PMI® Bogota for distribution to their members. It was also shared on the social network LinkedIn. Between July and October 2022, 1186 views were registered, of which 490 responses were completed, and 303 were completed (62% completion rate). After the debugging process, there was a total sample of 299 cases, whose characterization is presented in Tables 3 and 4. 71% of the participants reside in Ecuador (71%). In contrast, the remaining 29% correspond to residents of other countries in the region, with the highest participation in Peru (47%) and Argentina (42%). In the profile of the respondents, there is a higher participation of men (71%) with graduate-level education (60%), directors/coordinators, and professionals (66%) with experience of 10 years or more (43%). A high proportion of the selected projects benefited organizations in the service sector (43%), private (75%), and large (60%). Descriptive statistics were applied for data analysis with the support of SPSS 28.0 software.

Table 3
Characteristics of project managers/team members

Variable	Frequency (%)
Country residence	
Ecuador	71
Other countries	29
Sex	
Men	71
Women	29
Generation	
Z (less than 30 years old)	16,7
Millennials (30 years old - less than 40 years old)	36,5
X (40 years old - less than 50 years old)	29,8
Baby boomers (50 years old or more)	17,1
Level education	
Incomplete university	1,3
Complete university	38,5
Master/Ph.D.	60,2
Years of experience	
Less than 3 years	26,1
3 to less than 10 years	31,1
10 years or more	42,8

Variable	Frequency (%)
Principal role in the project	
Portfolio/program/project director	35,8
Project coordinator	30,7
Team members	43,5
Project Management Certification	32,4

Table 4

Characteristics of the evaluated projects and their beneficiary organizations

Variable	Frequency (%)
Organization business sector	
Agriculture/mining	6,0
Industry	9,7
Construction	23,4
Commerce	4,7
Utility sector	4,7
Public administration	9,0
Services	42,5
Organization type	
Public	24,7
Private	74,9
Do not know	0,3
Organization size	
Natural person	1,3
SMEs	36,5
Large	60,2
Do not know	2,0
Organisation has PMO	32,4
Project duration	
Less than 6 months	18,0
6 months - less than 1 year	25,1
1 year - less than 2 years	30,8
2 years or more	26,1
Project budget	
Less than US\$ 20.000	16,4
US\$ 20.000 - less than US\$100.000	23,7
US\$ 100.000 - less than US\$1'000.000	28,4
US\$1'000.000 or more	31,4
Project team size	
Less than 10 people	35,1
10 - less than 20 people	35,1
20 people or more	29,8
Use of PMBOK® good practices	58,5
Project management approach	
Predictive	39,1
Agile	10,7
Hybrid	38,8
Do not know	11,4

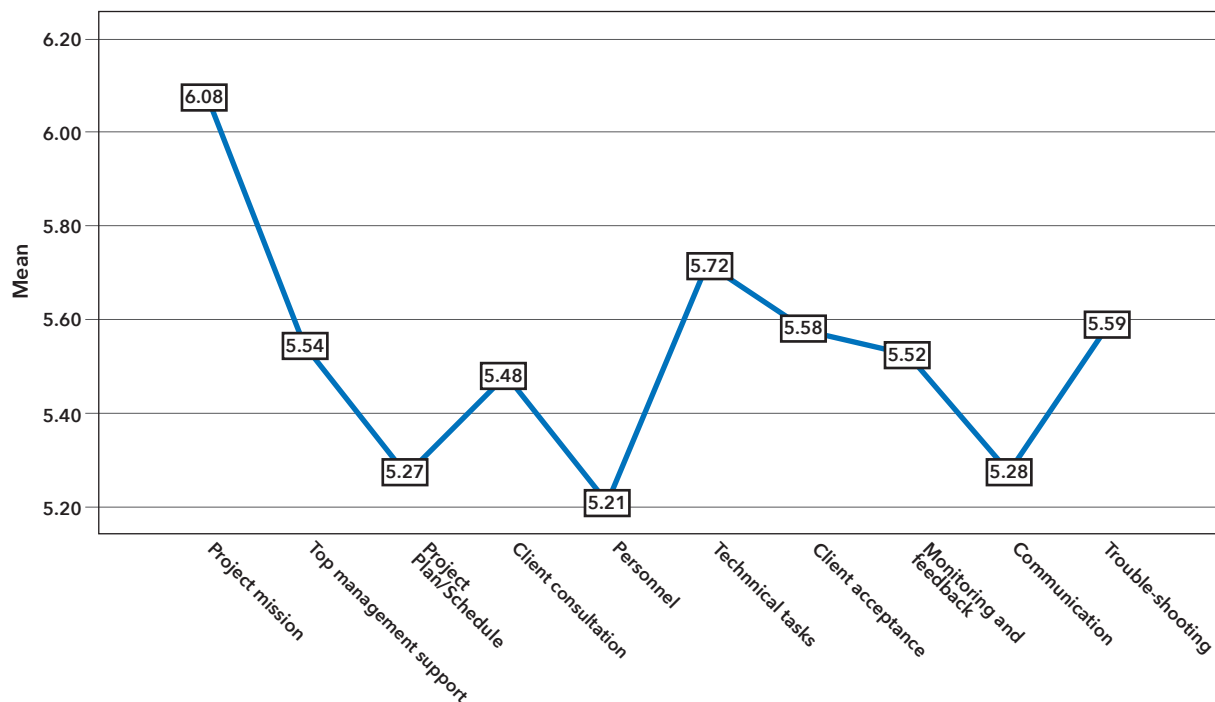
4. Findings

This section presents comparative analyses of critical success factors and project performance by region, product or service type, use of good PMBOK® practices, approach, duration, and budget.

4.1 Critical success factors and project performance by region

Figure 1 shows the average rating given by the interviewees to the critical success factors of their projects, with *Mission* being the best-rated factor and *Personnel* the worst. A comparative analysis of the results for Ecuador and the other Latin American countries (see Figure 2) shows similar results: the best-rated factor was *Mission* (6.05/7 vs. 6.18/7), and the worst-rated was *Personnel* (5.20/7 vs. 5.24/7). The other factors show very similar evaluations between regions, except for *Client Consultation*, where the other countries' rating is higher than that of Ecuador (5.36/7 vs. 5.79/7).

Figure 1
Latin America: Critical Success Factors of the Projects



As explained in the Methodology section, Pinto and Slevin (1988) considered two sub-scales for evaluating the overall performance of the project: one focused on visible criteria at the end of the project (compliance with time, budget, and performance), that is, project management; and the other focused on the client (their opinion on the use, satisfaction, and effectiveness of the deliverables/results of the project in the organization). Consequently, total project performance comprises project management performance and project performance, respectively. At the Latin American level, the total performance of the project was rated with 82.3 points,

while the management of the project and the project obtained 80.4 and 83.4, respectively.

Figure 2
Critical Success Factors by region

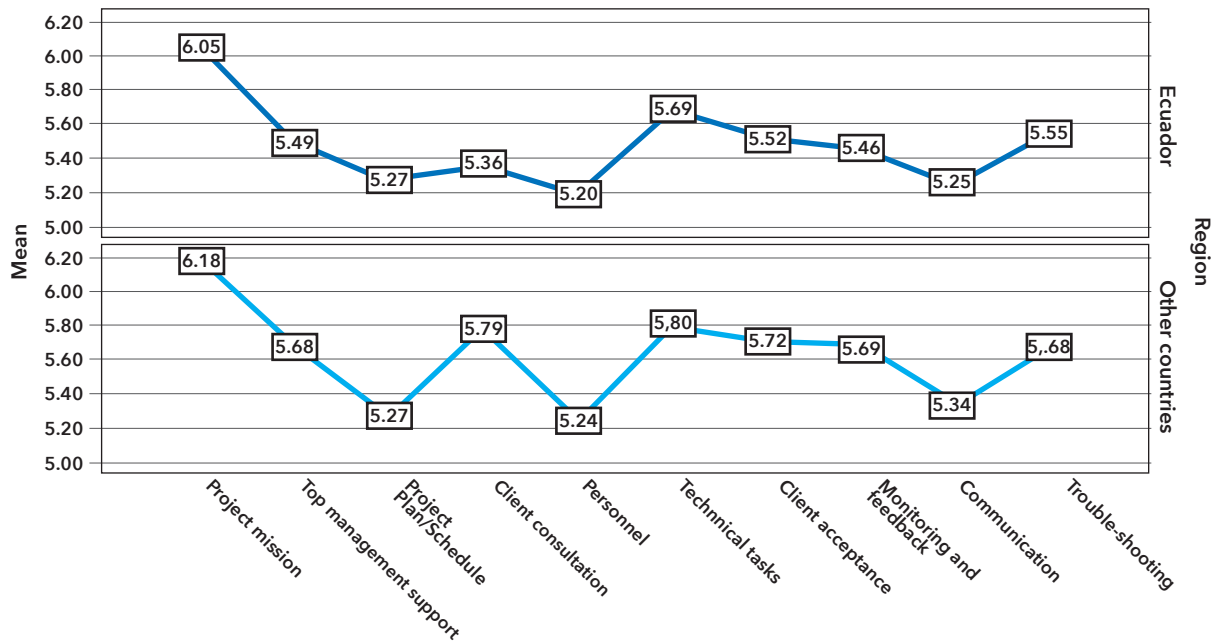
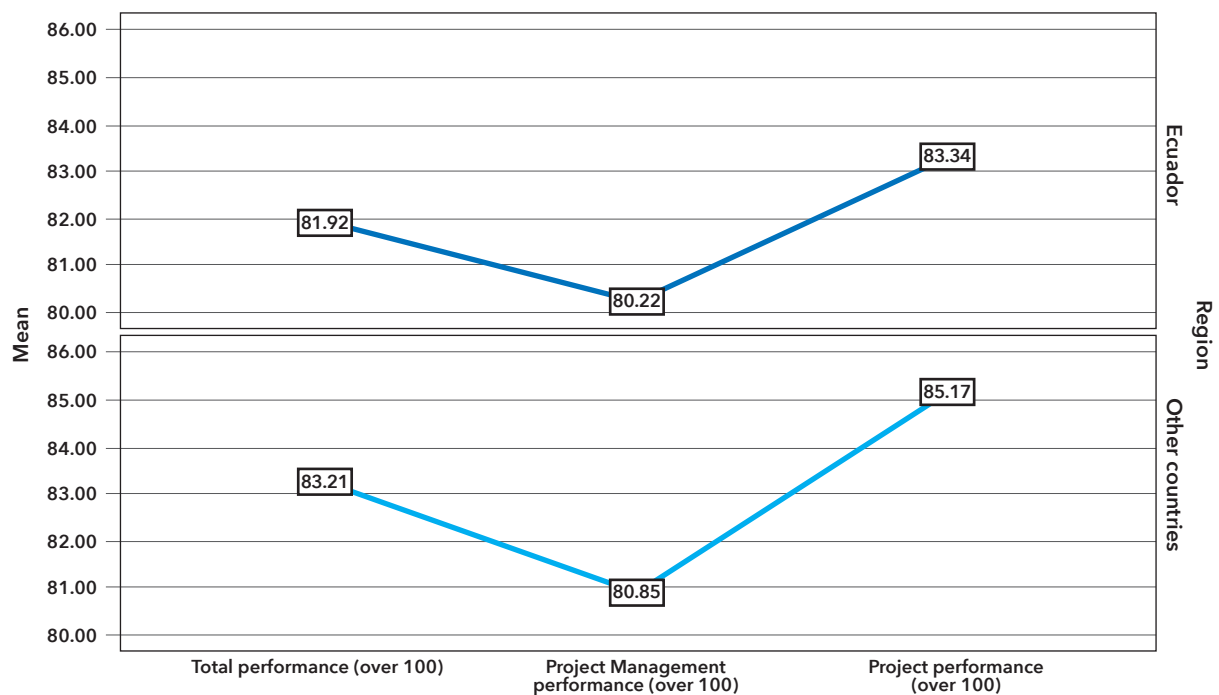


Figure 3 shows that, in Ecuador and other Latin American countries, the rating given to project management performance (80.22 vs. 80.85) is lower than that of project performance (83.34 vs. 85.17), being the lowest average score in Ecuador.

Figure 3
Project Performance by Region



4.2 Critical success factors and project performance by project outcome

The most frequently mentioned categories of project results were products or services: technological (26.1%), construction (21.1%), industrial (12.7%), consulting (11%), and public administration (7.7%). Table 5 shows the average ratings of the critical success factors according to the type of product/service resulting from the project. In the Consulting typology, some of the highest scores stand out regarding *Top Management Support*, *Client Acceptance*, *Client Consultation*, and *Personnel*, while the Technological ones stand out in the *Mission*, *Technical Tasks*, *Trouble-shooting*, and *Communication* factors. On the contrary, in the Industrial category, some of the worst scores are registered in factors such as *Plan/Schedule*, *Personnel*, and *Communication*, among others.

Table 5

Latin America: Critical success factors of projects by type of product or service

	Industrial	Construction	Technological	Public Administration	Consulting
	Mean	Mean	Mean	Mean	Mean
Mission	6,12	6,01	6,30	6,24	6,27
Top management support	5,53	5,68	5,65	5,37	5,87
Plan/Schedule	5,02	5,40	5,34	5,67	5,32
Client consultation	5,38	5,49	5,72	5,37	5,75
Personnel	5,15	5,23	5,26	5,33	5,45
Technical tasks	5,94	5,58	5,96	5,75	5,85
Client acceptance	5,56	5,69	5,78	5,58	5,82
Monitoring and feedback	5,38	5,69	5,63	5,85	5,71
Communication	5,14	5,33	5,53	5,50	5,28
Trouble-shooting	5,54	5,60	5,79	5,68	5,74

In Ecuador, the results of industrial projects are the worst evaluated. Of the seven factors with problems, the most worrisome are: *Communication*, *Plan/schedule*, and *Personnel* (see Table 6). On the other hand, technological projects present the best ratings in the factors of *Mission*, *Client Consultation*, *Technical Tasks*, and *Trouble-shooting*. Notably, the results of public administration projects are the best evaluated in *Plan/Schedule* and *Monitoring and Feedback*.

Table 6

Ecuador: Critical success factors of projects by type of product or service

	Industrial	Construction	Technological	Public Administration	Consulting
	Mean	Mean	Mean	Mean	Mean
Mission	6,02	5,95	6,20	6,19	6,33
Top management support	5,42	5,66	5,61	5,29	5,89
Plan/Schedule	4,98	5,50	5,27	5,70	5,45
Client consultation	5,18	5,49	5,54	5,28	5,53
Personnel	5,07	5,31	5,20	5,26	5,58
Technical tasks	5,89	5,62	5,92	5,78	5,83
Client acceptance	5,35	5,80	5,70	5,57	5,68
Monitoring and feedback	5,18	5,77	5,54	5,80	5,66
Communication	4,96	5,53	5,44	5,41	5,38
Trouble-shooting	5,45	5,68	5,78	5,64	5,54

In other Latin American countries (see Table 7), a different evaluation behavior is found, with the results of construction projects having the lowest ratings in eight of the ten factors consulted. Likewise, the results of industrial projects show the most favorable scores in the factors of *Client Acceptance*, *Technical Tasks*, and *Top Management Support*. It should be noted that the results of public administration projects are well evaluated in the factors of *Monitoring and Feedback*, *Communication*, *Personnel*, and *Plan/Schedule*.

Table 7

Other countries: Critical success factors of projects by type of product or service

	Industrial	Construction	Technological	Public Administration	Consulting
	Mean	Mean	Mean	Mean	Mean
Mission	6,43	6,14	6,47	6,40	6,19
Top management support	5,84	5,71	5,70	5,68	5,83
Plan/Schedule	5,12	5,22	5,47	5,56	5,12
Client consultation	5,94	5,49	6,01	5,72	6,09
Personnel	5,36	5,07	5,37	5,60	5,26
Technical tasks	6,08	5,51	6,03	5,64	5,89
Client acceptance	6,16	5,47	5,92	5,64	6,05
Monitoring and feedback	5,93	5,52	5,78	6,03	5,78
Communication	5,62	4,93	5,69	5,80	5,14
Trouble-shooting	5,78	5,46	5,79	5,80	6,05

In Figure 4, regardless of the product or service type, the total performance evaluation falls between the project and management evaluations. Construction products or services register the lowest evaluations, while technological ones are rated best in all three aspects.

Figure 4

Latin America: Project Performance by type of product or service

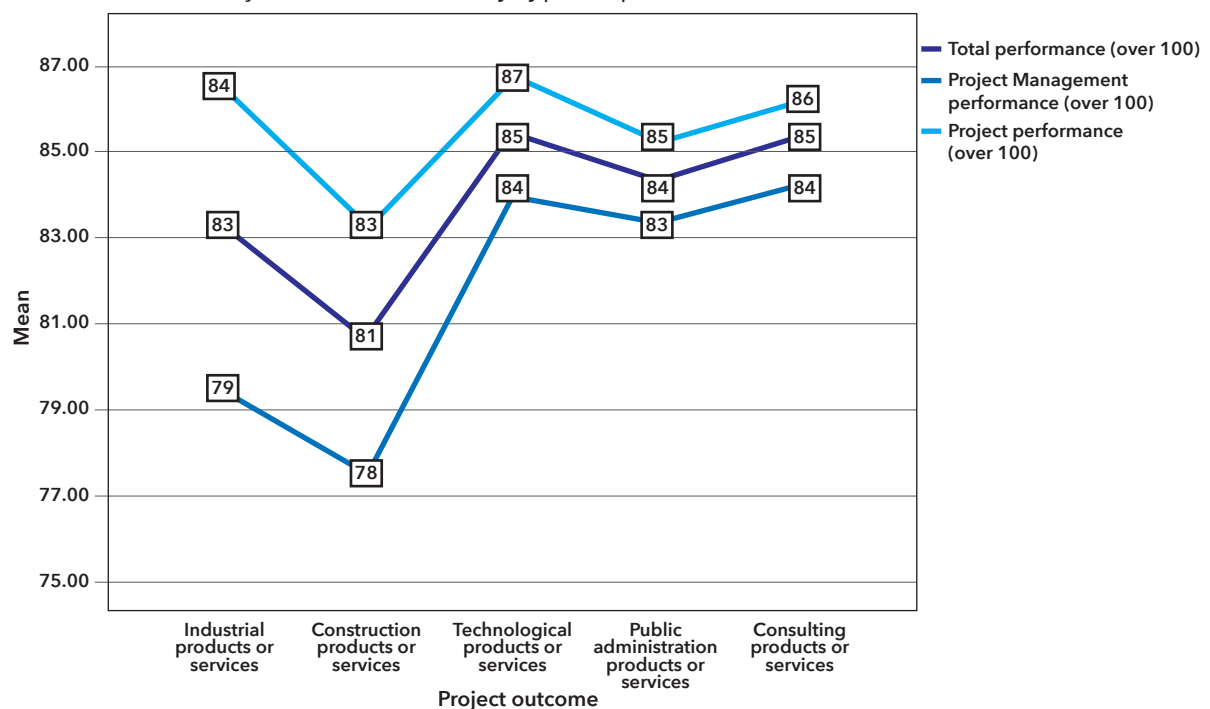


Table 8 shows that the results of Construction and Consulting projects in Ecuador receive better performance evaluations than those in other Latin American countries. In contrast, the results of Industrial, Technological, and Public Administration projects show superior performance.

Table 8

Performance of Projects by type of product or service according to region

	Industrial		Construction		Technological		Public Administration		Consulting	
	Ecuador	Others	Ecuador	Others	Ecuador	Others	Ecuador	Others	Ecuador	Others
Total performance (over 100)	81,77	87,66	81,42	79,16	85,05	86,12	83,33	88,05	86,23	84,12
Project Management performance (over 100)	77,96	83,71	78,16	76,33	83,91	83,84	82,70	85,71	85,57	82,64
Project performance (over 100)	84,95	90,95	84,13	81,52	86,01	88,01	83,86	90,00	86,79	85,35

4.3 Critical success factors and project performance according to the use of PMBOK®-PMI® good practices

Figure 5 shows that the ratings of the critical success factors of the projects in which the good practices of the PMI®-PMBOK® were applied are higher than the ones of those projects that did not use good practices in their management. This result is confirmed by region, as presented in Table 9.

Figure 5

America: Critical success factors of projects according to the use of PMBOK® good practices

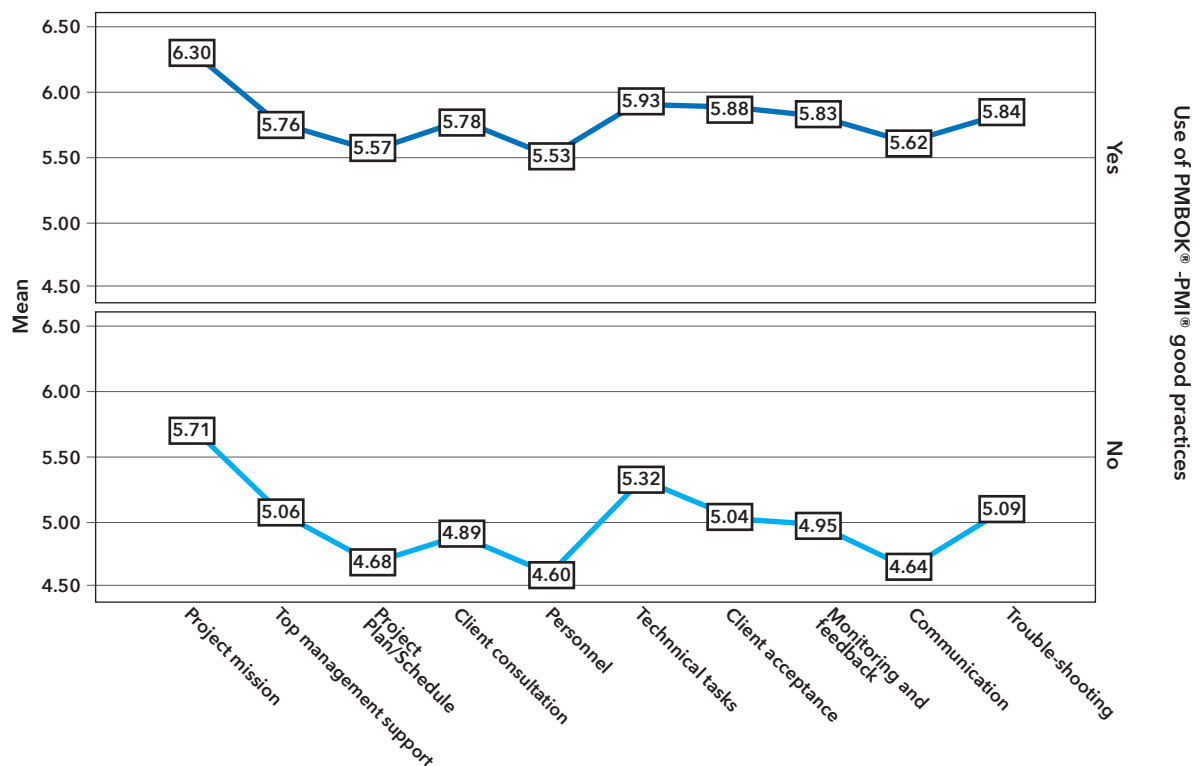


Table 9

Critical success factors of the projects according to the use of good practices of the PMBOK®-PMI® by region

	Applies good practices		Does not apply good practices	
	Ecuador	Other countries	Ecuador	Other countries
Mission	6,28	6,34	5,71	5,67
Top management support	5,72	5,84	5,07	5,02
Plan/Schedule	5,59	5,56	4,80	4,10
Client consultation	5,69	5,93	4,81	5,33
Personnel	5,53	5,52	4,68	4,19
Technical tasks	5,92	5,96	5,33	5,28
Client acceptance	5,87	5,89	5,02	5,15
Monitoring and feedback	5,78	5,91	4,96	4,95
Communication	5,65	5,57	4,66	4,51
Trouble-shooting	5,85	5,83	5,08	5,10

Figure 6 presents the total performance, project management, and project ratings, evidencing that these are higher for those projects managed with the support of PMI® good practices. Table 10 confirms the same pattern of behavior, both in Ecuador and other Latin American countries.

Figure 6
Latin America: Project Performance according to the use of PMBOK®-PMI® good practices

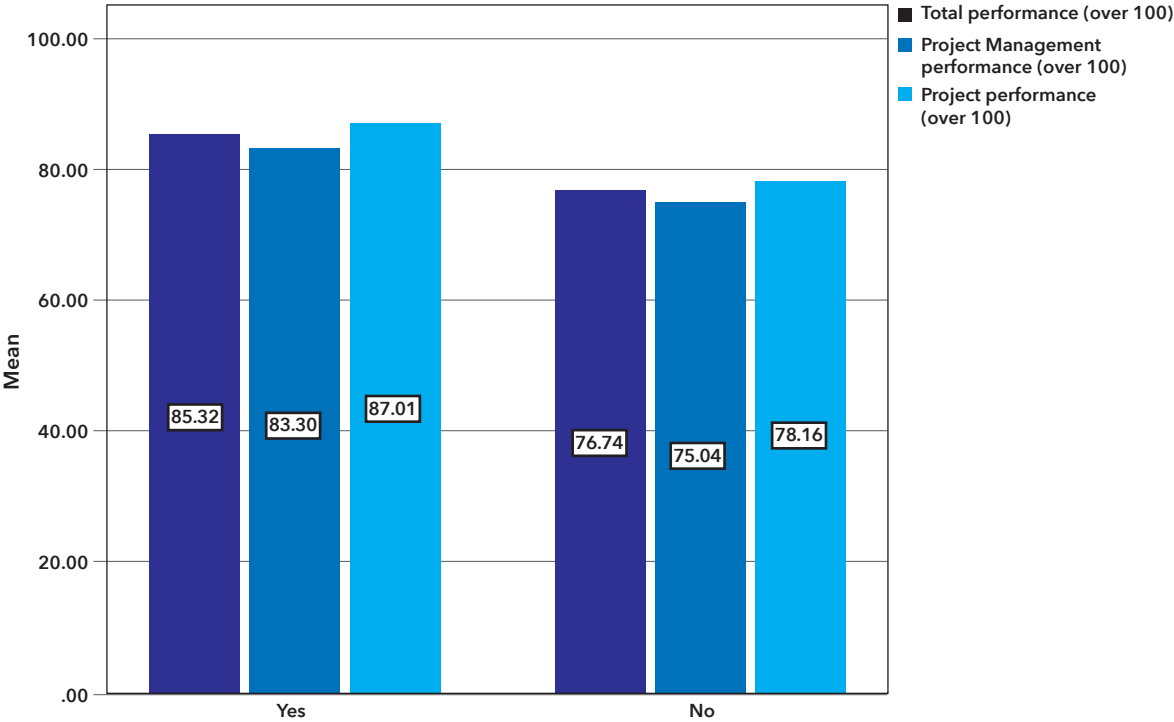


Table 10
Performance of the Projects according to the use of the good practices of the PMBOK®-PMI® and region

	Applies good practices		Does not apply good practices	
	Ecuador	Other countries	Ecuador	Other countries
Total performance (over 100)	85,58	84,90	76,61	77,44
Project Management performance (over100)	83,78	82,52	75,09	74,82
Project performance (over 100)	87,08	86,89	77,87	79,61

4.4 Critical success factors and project performance by project management approach

When categorizing the projects by type of management approach, most were classified as predictive or hybrid (78%); hence the analysis of the evaluation given to critical success factors and performance only refers to the two categories mentioned. When comparing the ratings given to the critical success factors of the projects (see Table 11), those carried out under a hybrid approach achieve better scores in the *Mission*, *Client Consultation*, *Personnel*, and *Trouble-shooting* factors. While in the case of projects under a predictive direction, the *Plan/Schedule*, *Monitoring and Feedback*, and *Communication* factors are the most prominent.

Table 11

Latin America: Critical success factors of projects according to the type of project management approach

	Predictive	Hybrid
	Mean	Mean
Mission	6,07	6,14
Top management support	5,58	5,56
Plan/Schedule	5,40	5,34
Client consultation	5,50	5,58
Personnel	5,24	5,31
Technical tasks	5,75	5,74
Client acceptance	5,65	5,68
Monitoring and feedback	5,66	5,60
Communication	5,43	5,33
Trouble-shooting	5,61	5,69

In Table 12, when disaggregating the previous analysis by region, in other Latin American countries, the best-rated factors under the hybrid approach are *Mission*, *Client Consultation*, and *Client Acceptance*. Under the predictive method, *Communication*, *Plan/Schedule*, and *Personnel* are the best rated. For Ecuador, under the hybrid approach, the best-rated factors are *Trouble-shooting*, *Client Consultation*, and *Personnel*, and under the predictive approach, *Monitoring and Feedback*, and *Communication*.

Figure 7 shows that the total and project performance ratings are higher for projects managed under the predictive approach, while the project management rating is higher for those managed under the hybrid approach; however, the differences are minimal.

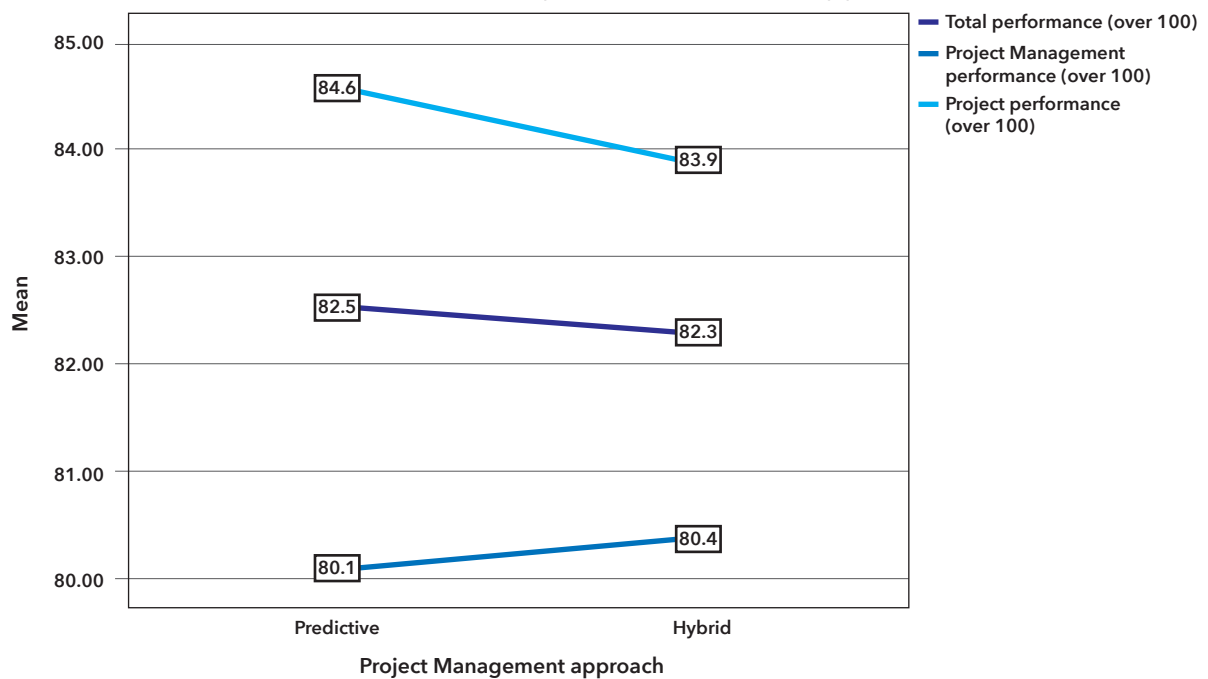
Table 12

Critical success factors of projects according to the type of project management approach by region

	Predictive		Hybrid	
	Ecuador	Other countries	Ecuador	Other countries
Mission	6,01	6,16	6,07	6,28
Top management support	5,48	5,73	5,50	5,70
Plan/Schedule	5,39	5,41	5,38	5,25
Client consultation	5,33	5,79	5,45	5,86
Personnel	5,18	5,34	5,33	5,26
Technical tasks	5,71	5,83	5,69	5,84
Client acceptance	5,61	5,72	5,63	5,80
Monitoring and feedback	5,59	5,78	5,53	5,74
Communication	5,42	5,45	5,32	5,36
Trouble-shooting	5,54	5,72	5,66	5,76

Figure 7

Latin America: Project Performance by Type of Management Approach



4.5 Critical success factors and project performance by project size (duration)

To classify the participating projects by size using the criterion of their duration, the Burgan and Burgan (2014) proposal was used, which proposes that small projects are those that last less than six months, medium-sized projects less than one year, and large projects more than a year.

Regarding the rating of the critical success factors of the projects, Table 13 shows that the large ones register the best scores, except for *Top Management Support*, *Technical Tasks*, and *Trouble-shooting*. At the same time, small projects had the lowest scores in *Plan/Schedule*, *Monitoring and Feedback*, and *Communication*.

Table 13

Latin America: Critical success factors of projects according to project size (duration)

	Project size (duration)		
	Small Mean	Medium Mean	Large Mean
Mission	6,04	6,03	6,12
Top management support	5,65	5,48	5,54
Plan/Schedule	5,08	5,26	5,34
Client consultation	5,35	5,40	5,56
Personnel	5,15	5,19	5,24
Technical tasks	5,76	5,78	5,68
Client acceptance	5,50	5,43	5,67
Monitoring and feedback	5,28	5,56	5,59
Communication	5,07	5,21	5,38
Trouble-shooting	5,50	5,70	5,57

Breaking down the previous analysis by region (see Table 14) intensifies the results observed in Table 13, particularly in the other Latin American countries, where their small projects were ranked poorly in nine critical success factors. In contrast, their large projects were given the highest ratings, except for *Mission*, which scored highest for small projects in Ecuador.

Although large projects showed the highest scores on critical success factors, their performance assessment (total, management, and project) is lower than small projects by a slight difference. Project management performance registers the lowest scores, regardless of the project size (see Figure 8).

When breaking down project performance results by region (see Figure 9) by size (duration), it is striking that small projects in other Latin American countries obtain the lowest evaluations, while in Ecuador, they are the highest. Regarding medium and large projects, the performance results in the other Latin American countries are higher than in Ecuador.

Table 14

Critical success factors of projects according to project size (duration) by region

	Small		Medium		Large	
	Ecuador	Other countries	Ecuador	Other countries	Ecuador	Other countries
Mission	6,10	5,64	6,06	5,96	6,02	6,31
Top management support	5,72	5,17	5,41	5,64	5,42	5,76
Plan/Schedule	5,16	4,57	5,26	5,26	5,32	5,36
Client consultation	5,36	5,29	5,22	5,85	5,42	5,83
Personnel	5,19	4,89	5,19	5,20	5,21	5,30
Technical tasks	5,85	5,17	5,74	5,87	5,59	5,84
Client acceptance	5,54	5,20	5,36	5,63	5,60	5,81
Monitoring and feedback	5,36	4,76	5,47	5,77	5,49	5,77
Communication	5,15	4,51	5,19	5,27	5,32	5,47
Trouble-shooting	5,57	5,03	5,61	5,91	5,52	5,67

Figure 8

Latin America: Project Performance according to project size (duration)

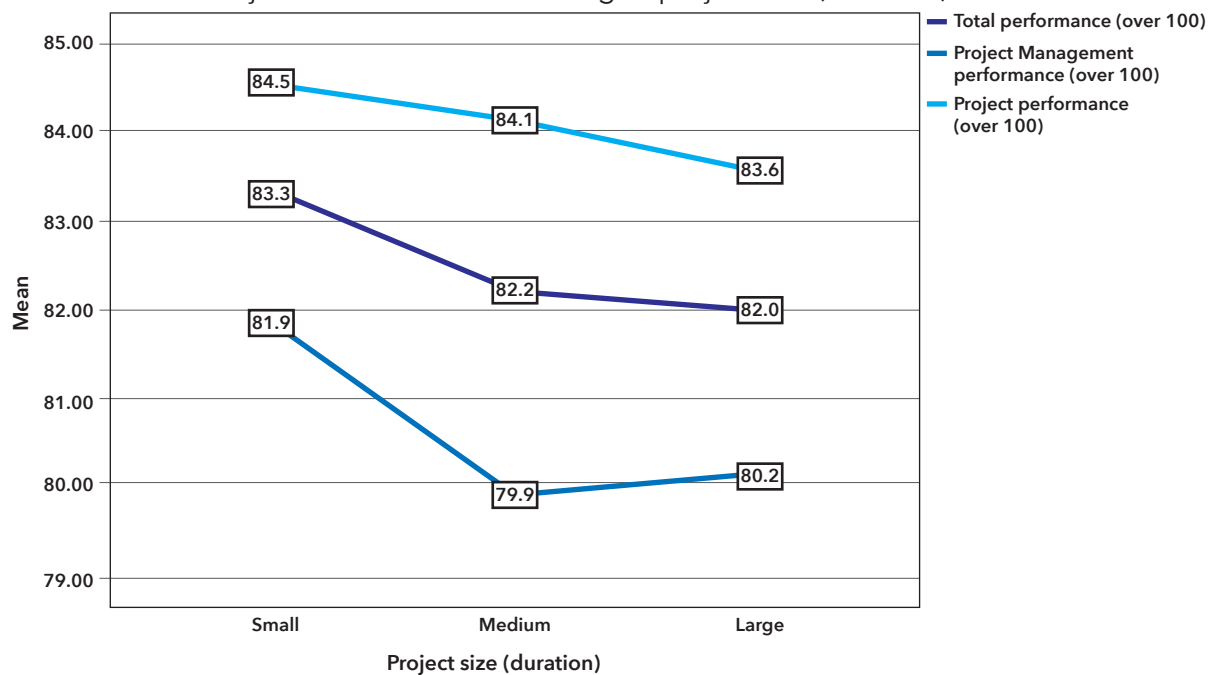
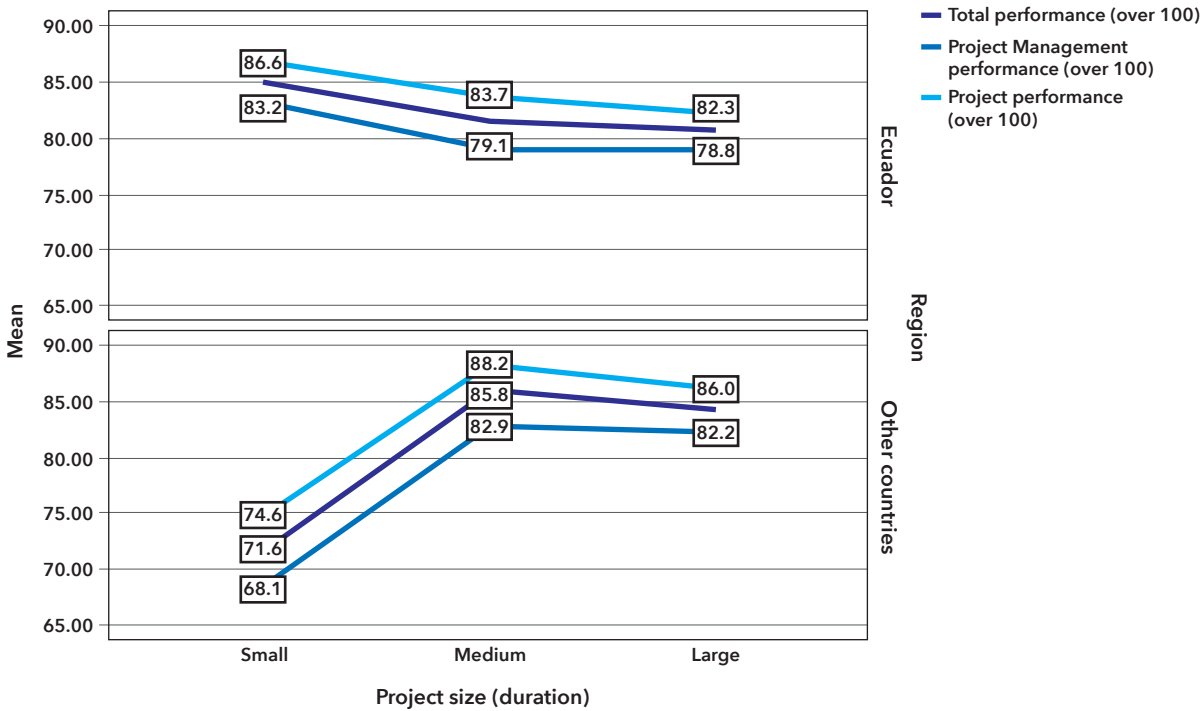


Figure 9

Project Performance according to project size (duration) by region



4.6 Critical success factors and project performance by project size (budget)

To classify the participating projects by size using the criteria of their budget, the Burgan and Burgan (2014) proposal was used, in which small projects cost less than US\$100,000, medium ones between US\$100,000 and US\$500,000, and large ones are over US\$500,000.

Table 15 presents the ratings of the critical success factors of the projects, and there is a repetition of the previous pattern (see Table 13); large projects register the best scores, except in *Trouble-shooting*, whereas small-sized projects were the worst evaluated, less in *Client Consultation* and *Personnel*.

Table 15

Latin America: Critical success factors of projects according to project size (budget)

	Project size (budget)		
	Small Mean	Medium Mean	Large Mean
Mission	5,93	6,14	6,21
Top management support	5,36	5,60	5,71
Plan/Schedule	5,00	5,34	5,50
Client consultation	5,36	5,35	5,68
Personnel	5,13	5,06	5,37
Technical tasks	5,63	5,67	5,83
Client acceptance	5,37	5,37	5,89
Monitoring and feedback	5,27	5,42	5,83
Communication	5,05	5,34	5,48
Trouble-shooting	5,41	5,74	5,69

In Table 16, large projects maintain the best ratings, and in Ecuador, the *Plan/Schedule*, *Client Acceptance*, and *Monitoring and Feedback* factors are highlighted. The low ratings for small-sized projects are also reiterated in Ecuador and other countries in different factors. Medium-sized projects show high Mission and Trouble-shooting scores.

Figure 10 shows that the projects with the largest budget achieved the highest performance ratings in the three aspects evaluated, while those with the lowest budget obtained the lowest ratings.

Figure 11, when classifying the results of project performance by size (budget), it can be seen that in the other Latin American countries, large projects obtain the highest evaluations, as well as small projects the lowest, except in the case of medium-sized projects in other Latin American countries where the project management rating is slightly higher than that registered by large projects.

Table 16

Critical success factors of projects according to project size (budget) by region

	Small		Medium		Large	
	Ecuador	Other countries	Ecuador	Other countries	Ecuador	Other countries
Mission	5,98	5,73	6,07	6,53	6,12	6,33
Top management support	5,37	5,31	5,58	5,72	5,59	5,87
Plan/Schedule	5,04	4,86	5,36	5,28	5,52	5,47
Client consultation	5,23	5,81	5,29	5,62	5,57	5,82
Personnel	5,16	5,00	5,02	5,26	5,37	5,36
Technical tasks	5,61	5,68	5,67	5,70	5,80	5,87
Client acceptance	5,34	5,48	5,29	5,76	5,93	5,83
Monitoring and feedback	5,18	5,59	5,40	5,50	5,87	5,77
Communication	5,03	5,10	5,31	5,50	5,50	5,44
Trouble-shooting	5,36	5,61	5,76	5,64	5,67	5,73

Figure 10

Latin America: Project performance by project size (budget)

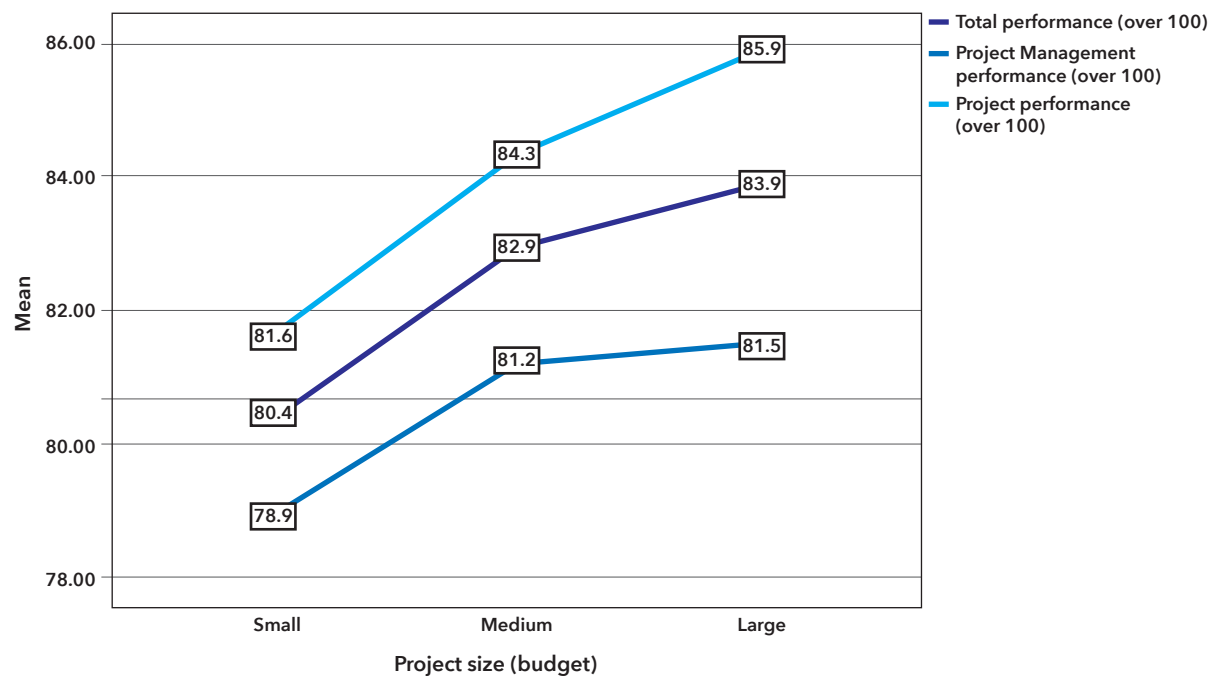
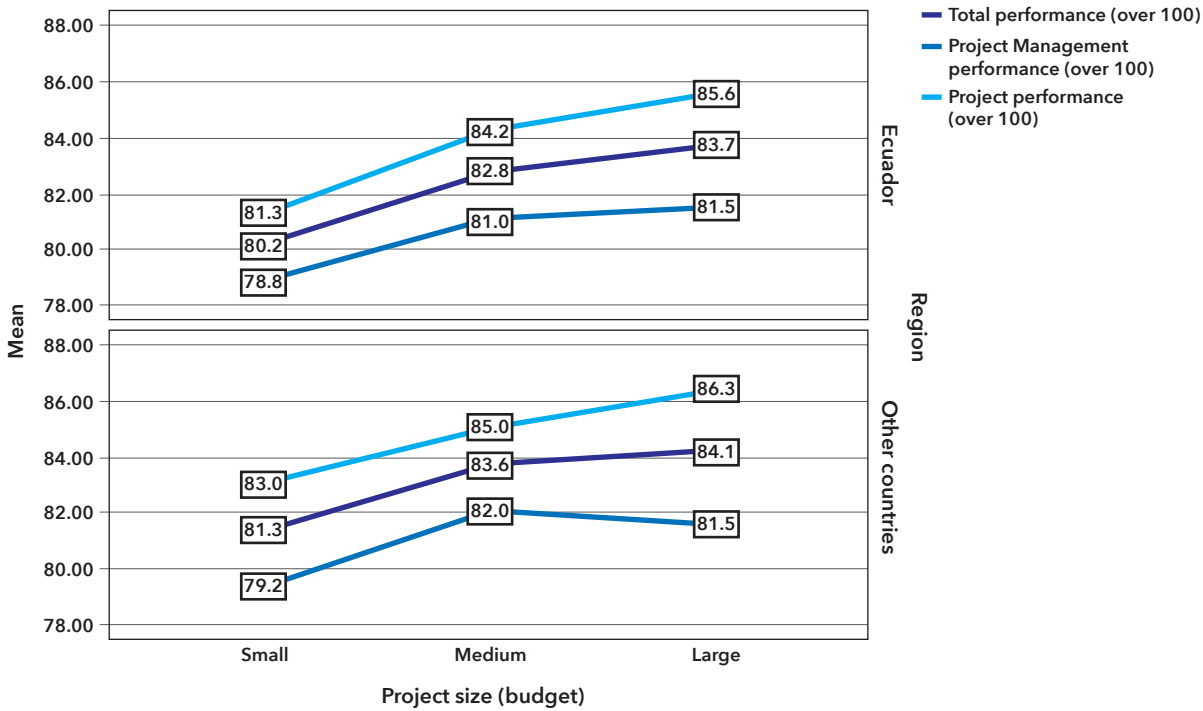


Figure 11

Project Performance according to project size (budget) by region



4.7 Project Management and High-Performance Projects by Region

The overall project performance evaluation is calculated from the sum of the project management performance rating and the project performance rating. Using a measurement scale of 100 points, it is established that those projects evaluated with at least 90 points are considered high-performance projects. At the Latin American level, of the 299 cases evaluated, only 97 (32.4%) are of high overall performance. When disaggregating the cases by the performance evaluation of the project management and the project as such (see Table 17), it is observed that 79 projects (26.4%) register high performance in their management and their result.

Table 17

Latin America: Project performance level

				High-performance Project		
				No	Yes	Total
High-performance Project Management	No	Projects total %		164 54,8%	44 14,7%	208 69,6%
	Yes	Projects total %		12 4,0%	79 26,4%	91 30,4%
Total		Projects total %		176 58,9%	123 41,1%	299 100,0%

In Ecuador, 71 projects (33.5%), and 26 (29.9%) in other Latin American countries have high overall performance. When disaggregating the cases by the performance evaluation of the project management and of the project as such (see Table 18), it is observed that 57 projects in Ecuador (26.9%) and 22 projects in other countries in the region (25.3%) register a high performance both in their management and in their results.

Table 18

Project performance level by region

				High-performance Project		
Región				No	Yes	Total
Ecuador	High-performance Project Management	No	Projects total %	112 52,8%	33 15,6%	145 68,4%
		Yes	Projects total %	10 4,7%	57 26,9%	67 31,6%
	Total	Projects total %	122 57,5%	90 42,5%	212 100,0%	
Other countries	High-performance Project Management	No	Projects total %	52 59,8%	11 12,6%	63 72,4%
		Yes	Projects total %	2 2,3%	22 25,3%	24 27,6%
	Total	Projects total %	54 62,1%	33 37,9%	87 100,0%	

5. Discussion

This exploratory research allows a first inquiry into the perception of those involved in project management, either as leaders or as part of the work team, regarding the evaluation of project performance and its critical success factors, highlighting the existing coincidences between the professionals of Ecuador and other countries of the Latin American region, although they operate in different environments.

About the critical success factors of the project...

Although the measurements of all critical success factors indicate that they can be improved, it is worrying that the *Personnel* factor is the most critical, considering that the project team under the leadership of the project manager is in charge of carrying out all the tasks necessary to achieve the required results. In their study carried out in Peru and Ecuador for the Information Technology sector, Padilla et al. (2021) concluded that *Personnel* is one of the significant factors in explaining the success of a project.

The fact that the public administration projects register the best ratings in the *Plan/Schedule* and *Monitoring* and *Feedback* factors motivates a more focused and comprehensive investigation since the cases of this sector represent a low rate of the sample of study (9%).

It is excellent news to see that those projects managed under the good practice described in the PMBOK® (PMI, 2017a) stand out for their best evaluations in all critical success factors, regardless of their country of origin. This result motivates the PMI® chapters, educational institutions, and training centers to continue training professionals in project management in good practices and methodologies.

About Project performance...

Regardless of the project ranking factor, the pattern of project management performance being rated lower than project performance was consistent. This means that compliance with time, budget, and scope, which are traditional measures of project success (Iriarte & Bayona, 2020; Kerzner, 2009), must be improved. It should be noted that the interviewee was asked to evaluate the last project completed in the last two years, that is, in the 2019-2021 period, which was a time full of adversities due to the COVID-19 pandemic and an uncertain environment that could have potentially affected the actions of the project manager. It would be interesting to compare performance before and after the pandemic.

One of the economic sectors with the highest participation in the study was Construction (23.4%), and its projects registered the lowest total performance and project performance ratings. These projects are usually managed under a predictive approach and respond to a stable environment, which could have been affected by the COVID-19 pandemic that caused work to halt for several months, making it impossible to meet the planned metrics.

Large projects (budget over US\$500,000) scored highly on *Top Management Support, Plan/Schedule, Client Consultation, Personnel, Technical Tasks, Client Acceptance, and Monitoring and Feedback*. Likely, the fact that large beneficiary organizations have sponsored almost 70% of large projects impacts this result because large companies may have standardized processes for project management and better strategic and tactical conditions to face unforeseen events such as the COVID-19 pandemic.

Limitations of the study

The study's sample size of fewer than 300 projects does not allow the results to be generalized or considered conclusive. Therefore it is essential to achieve greater participation of professionals involved in projects.

The COVID-19 pandemic, whose harmful effect began at the end of 2019 and was officially declared a pandemic in March 2020 and has not been considered fully overcome to date, coincides with the development and completion time of many of the projects evaluated since the participant is asked to select the last project that has been completed in the last two years, which may cause some of the evaluations obtained to be low. It would be advisable to carry out a comparative analysis of the evaluation of critical factors of success and performance of the projects before versus after the pandemic.

Due to the low rate of projects with an agile approach, only the predictive and hybrid approaches were considered for the comparative analysis of the behavior of the critical success factors according to the project management approach. Moreover, finally, the low representativeness in the study of some economic sectors of interest, such as Agriculture, Industry, Commerce, and Public Administration, prevents the establishment of sectoral behavior patterns for critical success factors and project performance indicators.

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