

Individual Intrapreneurial Behavior Effect on Project Success: Profiles and Distinct Outcomes

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ABSTRACT

This study sought to investigate the effect of intrapreneurial behavior on project success dimensions. Although extant literature examines diverse aspects of influence on project success, it is silent on assessing intrapreneurial effects, even though companies target and foster such behavior. We found that the more the intrapreneurial behavior and profile increase, the greater the possibility of project success in a broad sense, regarding clients, project teams, strategies for the company's future, commercial success, and efficiency. Latent class analysis reached three heterogeneous profiles in terms of intrapreneurship. These findings bring evidence of the importance of fostering intrapreneurial behavior on project teams, considering that members will develop it differently, leading to distinct project success outcomes in the middle and long term. Data from 411 project management participants were analyzed through exploratory factorial analysis, PLS-SEM, and latent class analysis. Finally, theoretical and managerial implications are discussed, along with the study's limitations, and further proposed studies.



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INTRODUCTION

Projects are activities increasingly performed by organizations for more than half a century (Foote & Halawi, 2016), and have been used as an important strategy to face business challenges and opportunities (Barbosa et al., 2021; Julio & Piscopo, 2013; Kerzner, 2018; Shekhar et al., 2001; Svejvig, 2021). Even with the growth of research on project management, only 17% of organizations report having a high level of maturity (Musawir et al., 2017). Inefficiency in project management can generate losses for the industrial sector, contributing to the weakening of a country's economy and reinforcing the concept that organizations need to play a more active role to remain active, given the dynamism of the market (Shekhar et al., 2001), making it evident that surviving without projects will be increasingly tricky (Shenhar, 2015), and to deal with uncertainty and difficult realities (Russo et al., 2017). On the other hand, project success is significant for business and the economy (Serra & Kunc, 2015).

Besides discussion of project management efficiency, success in projects involves customer satisfaction, owner satisfaction, the satisfaction of the team involved in the project, and strategic objectives, among other factors (Wu et al., 2018). Although it is a much-studied topic, many projects do not reach a satisfactory level of success, and some are not even finished. Several aspects were studied to challenge increasing project success and project management success.

Project success was first linked to the iron triangle and its focus on time, quality, and cost. The reasoning for project success evolved to a more broad landscape, contemplating governance (Musawir et al., 2017), leadership (Aga et al., 2016; Imam & Zaheer, 2021), planning (Dvir et al., 2003), and several other aspects that evolved through the last decades, from stakeholder and customer satisfaction, effective communication, leaders support, clarity in objectives, among others (Tam et al., 2020).

Recent studies have linked project success to individual resilience and mindfulness (Mubarak et al., 2022), corroborating the effects of human aspects on project success. For Radujković and Sjekavica (2017), project management success depends significantly on the project manager, organizational structure, project management tools, and techniques, but on aspects of the team members, such as their skills, knowledge, and emotional intelligence applied to the project management. Although project success is based on several technical aspects, like innovation, researchers have increased their attention, especially to human aspects, such as individual traits, as criti-

cal success factors for projects. Individuals' characteristics and the ability to identify opportunities and lead the project team have been gaining prominence. For Vrchota et al. (2021), leadership and flexibility are relevant characteristics for project success. Other studies suggest entrepreneurial features as influencing factors for project success (Kock & Gemünden, 2021; Sajid et al., 2021).

It is highlighted the relevance of entrepreneurial characteristics in organizations, including in project management, as a way to face the challenges of the competitive environment in which companies are inserted (Martens et al., 2015; Martens et al., 2018). Within the context of projects, the intrapreneur, or corporate entrepreneur, has not received enough attention in existing research, despite its relevant role in the strategy and management of organizations (Gawke et al., 2017).

The intrapreneur possesses characteristics that can be considered desirable to any project participant, such as motivation and energy to accomplish goals, self-management, and interest in looking beyond in search of opportunities (Russo & Sbragia, 2007). The intrapreneur may emerge as an alternative for organizations that do not have a satisfactory maturity rate in project management for having these characteristics. Technical, leadership, strategic management, and business management skills are intrapreneurs' aspects that contribute to project success (Gawke et al., 2017).

The intrapreneur is a versatile agent representing a competitive advantage to an organization (Pinchot, 1989). This professional possesses characteristics that favor the management (Guerrero & Peña-Legazkue, 2013) and creation of innovative ideas (Belousova & Gailly, 2013), and the success of their ventures (Fatma et al., 2021).

Previous studies have addressed various aspects resulting from intrapreneurship, such as its influence on the performance of companies (Dung & Giang, 2021; Felício et al., 2012), psychological mechanisms underlying intrapreneurial behavior, and its functioning in groups (Chakrabarty, 2020). Therefore, considering the organizational scenario described above and the lack of studies on the relationship between intrapreneurship and project success, this study sought to answer the following research question to fill this gap: Does intrapreneurial behavior of project stakeholders contribute to better results in projects? This study's objective was to investigate the effect of intrapreneurial behavior on project success dimensions and observe the latent profiles of those involved with projects in terms of intrapreneurship, their differences from each other and in terms of project success, and their impact.

THEORETICAL FOUNDATION AND HYPOTHESES

Project success

Project success is a fundamental element of the success of any business and the economy in general (Serra & Kunc, 2015). It is a somewhat controversial topic, with no consensus on which criteria should be used to measure it. Controlling the level of success of a project can help the organization in the management, contributing to establishing strategic priorities and defining action plans for future projects (Vezzoni et al, 2013). Success in projects is a concept that should also meet the business results (Shenhar & Dvir, 2007). It should not be treated as binary, varying only between success and failure (Musawir et al., 2017).

For decades, many researchers and practitioners have used metrics such as time, budget, and scope (iron triangle) to measure the success of a project (Martens et al., 2018; Shenhar & Holzmann, 2017). Using the iron triangle is not enough to measure project success (Musawir et al., 2017; Vezzoni et al, 2013). The iron triangle, even if checked in its entirety, can only measure project management (Wit, 1988) and cannot be confused with project success (Vezzoni et al, 2013), as they are distinct concepts (Mir & Pinnington, 2014). The idea of project success directly relates to project outcomes (Martens et al., 2018; Wit, 1988).

Intrapreneurial behavior

Pinchot first used the term 'intrapreneur' in 1985, when he published the book 'Intrapreneuring' (Burström & Wilson, 2015; Smith et al., 2016), in which he explains the possibility of an individual being an entrepreneur in

an established organization, i.e., an intrapreneur (Kühn et al., 2016; Kuratko & Audretsch, 2013; Pinchot, 1989). The intrapreneur is an individual who seeks to initiate a process of change within an organization that does not belong to him. He is a professional who has ease adapting to the environment and proposing innovative ideas (Kearney et al., 2013).

Intrapreneurs are agents who possess an entrepreneurial mindset (Guerrero & Peña-Legazkue, 2013), even while acting in an organization that does not belong to them (Douglas & Fitzsimmons, 2013). They are employees who can both perform tasks stimulated and encouraged by the organization itself (Guerrero & Peña-Legazkue, 2013) and accept a certain amount of risk (Di Fabio, 2014), performing tasks autonomously always on the premise of the organization's growth (Gawke et al., 2017; Rigtering & Weitzel, 2013). The intrapreneur can contribute to the generation of profitability in the company where it operates through new ideas or new processes, enabling the creation of a competitive advantage in the organization (Pinchot, 1989).

The intrapreneur or corporate entrepreneur (Rigtering & Weitzel, 2013) are people with the ability to generate ideas (Baruah & Ward, 2014; Belousova & Gailly, 2013; Valsania et al., 2016; Rigtering & Weitzel, 2013; Stam, 2013), who take the initiative (Baruah & Ward, 2014; Belousova & Gailly, 2013; Rigtering & Weitzel, 2013), who possess the ability to turn a problem into a business opportunity, ease to identify opportunities (Belousova & Gailly, 2013), among other characteristics. Many researchers have identified several factors and behaviors of the intrapreneur. Table 1 presents some of these characteristics.

Table 1. Intrapreneur characteristics.

Characteristics	Studies
Creativity	Baruah & Ward, 2014; Knörr et al., 2013; Kuratko & Audretsch, 2013; Ma et al., 2016)
Effectiveness	Douglas & Fitzsimmons, 2013; Valsania et al., 2016; Gawke et al., 2017
Personal initiative	Baruah & Ward, 2014; Belousova & Gailly, 2013; Gawke et al., 2017; Rigtering & Weitzel, 2013
Innovation	Baruah & Ward, 2014; Belousova & Gailly, 2013; Burström & Wilson, 2015; Valsania et al., 2016; Gawke et al., 2017; Kühn et al., 2016; Kuratko & Audretsch, 2013; Rigtering & Weitzel, 2013
Persistence	Di Fabio, 2014; Rigtering & Weitzel, 2013
Self-esteem	Di Fabio, 2014; Gawke et al., 2017
Proactivity	Valsania et al., 2016; Gawke et al., 2017; Kühn et al., 2016; Rigtering & Weitzel, 2013
Resilience	Di Fabio, 2014; Gawke et al., 2017; Ma et al., 2016
Optimism	Gawke et al., 2017
Cautious	Di Fabio, 2014
Visionaries	Ma et al., 2016
Autonomous	Valsania et al., 2016; Rigtering & Weitzel, 2013
Tenacity	Di Fabio, 2014
Engaged	Gawke et al., 2017
Persevering	Ma et al., 2016
Self-development	Di Fabio, 2014; Gawke et al., 2017
Motivation	Ma et al., 2016
Self-educated	Gawke et al., 2017

For this research, the concept of intrapreneurial behavior by [Gawke et al. \(2017\)](#) is considered, generating two critical outcomes, new venture creation and strategic renewal. The first is related to creating new businesses and the ability to integrate this into the companies' current products and portfolios. The last is related to activities that encompass the corporate power to face competition, elaborate on risks, and adequately react to market and internal advancements. Based on the discussion established, the first hypothesis of the study is presented:

H1: The higher the intrapreneurial behavior of the project management stakeholder, the higher the degree of project success.

The conceptual model 1 of this research can then be seen in Figure 1, with the constructs involved in the study and their dimensions. This first model represents the general relation between intrapreneurship and project success.

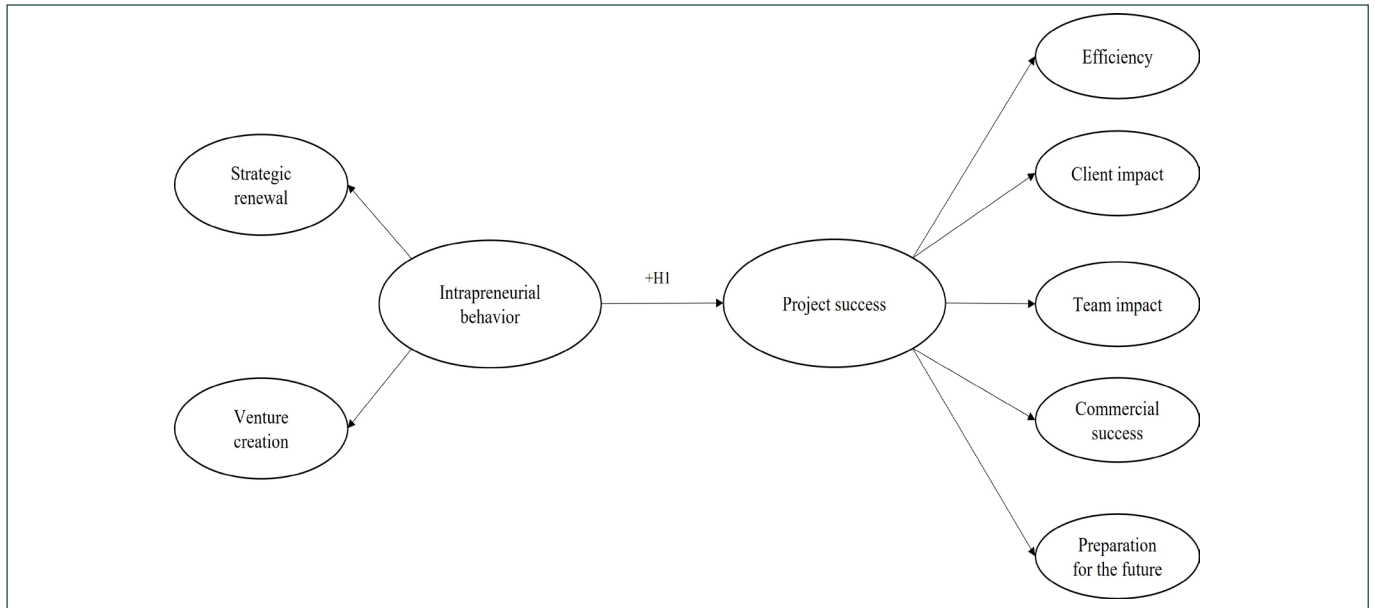


Figure 1. General conceptual model 1

This conceptual model was designed to address the study's objective, initially allowing testing the hypothesis proposed, then validating the constructs for the following phase of profiling the sample. This model discusses the role of those involved in project management and the fostering of innovation, new business ventures, and ideas as an essential task, and skills required for project management ([Sundarbabu & Venkatachalam, 2021](#)). This will be depicted in more detail in the following section.

Intrapreneurial behavior influences project success dimensions

To better comprehend the nuances of the influences of intrapreneurship effects on project outcomes, we also broadened this model by testing the relationship with project success' dimensions. As project success is achieved through a composite of several factors, each one providing a specific subject matter regarding project results and outcomes, it may be helpful to devise a detailed analysis of these points of view of success.

Efficiency is a positive outcome related to project goals. It is documented in the literature with as achievement, objectives accomplished, and results that lend a

better result for the project. However, there is evidence of failure in efficiency even though the financial results are reached ([Musawir et al., 2017](#); [Yim et al., 2015](#)). This leads us to further explore for more evidence of efficiency as a positive result of projects, following in particular the effects of members of the team on project outcomes, already evidenced in the existing literature ([Juras, 2019](#); [Tam et al., 2020](#)). We propose that intrapreneurial individuals conduct project activities more efficiently to reach a far better result for the company and the project, based on innovation principles of the intrapreneur ([Atari & Prause, 2019](#)).

H2: Intrapreneurial behavior will positively influence efficiency.

The same may happen with intrapreneurship behavior on project customers and its centrality in project-oriented-based organizations ([Haverila & Haverila, 2019](#)). Economics, marketing, and project management areas have documented the importance of innovation for customers ([Fuentes et al., 2019](#)). From customers' perspective, value has allowed them to participate, interact with the project team, and build it. The interplay of cus-

customer-oriented practices and intrapreneurship-oriented practices has been studied in the literature (Uygun & Akin, 2017), positing that both actions share the innovation as a principle for the relationship between companies and customers. We expect that innovation is the concept that reconciles intrapreneurship and project success.

H3: Intrapreneurial behavior will positively influence client impact.

Studies also revealed that intrapreneurial behavior positively impacts individual actions and groups in management (Fellnhöfer et al., 2017; Kollmann, 2017) and is also related to the leader's role and organization climate to foster intrapreneurship mission of innovation creation (Farrukh, 2021). Its conditional effect improves team empowerment (Mahmoud et al., 2021). The intrapreneurial individual depends on the team to support its ideas and engage it in actions planned to implement innovative practices. Thus, it is expected that the same may happen to project teams.

H4: Intrapreneurial behavior will positively influence team impact.

The project's purpose is diverse, depending on the stakeholders, such as clients (Voss, 2012), the organization (Martinsuo, 2020), and other stakeholders. Some researchers posit the financial value of a project and the contrast with different non-financial dimensions as the key aspects to understanding the value of a project (Khurum et al., 2014). From a project-based company's standpoint, the commercial impact of a project must always be considered, due to its transitory aspect and the management of discontinuity when managing project products and customers (Cova & Salle, 2005) to generate value in com-

mercial terms for the company. The intrapreneur's focus on developing commercial success is due to its intent to nurture opportunities for product performance and process efficiency, which ultimately generate and transform project value and outcomes into revenue.

H5: Intrapreneurial behavior will positively influence commercial success.

Intrapreneurship is linked to competitive advantage and better market positions to improve company success when facing business environment challenges (Klofsten et al., 2021) and future development models (Dung & Giang, 2021). The innovation-seeking behavior of intrapreneurs can help better position companies to understand the future that unfolds and then foster new ideas, products, and other aspects that can render the company the skills to take advantage of the market opportunities (Morais et al., 2021) through a systematic planning behavior over time (Honig & Samuelsson, 2021). These aspects lead us to the argument that the intrapreneur is an individual that relies on routine planning activities to foresee the impacts of environmental changes and search for business opportunities for the company.

H6: Intrapreneurial behavior will positively influence preparation for the future.

In view of these aspects, we recognize that accumulated evidence proposes the effect of intrapreneurial behavior on project success, depicted by different dimensions. As these dimensions represent such other aspects, this will bring promising opportunities to comprehend the intrapreneurial relationship with project success. These hypotheses are described in Figure 2 as the second model of the study.

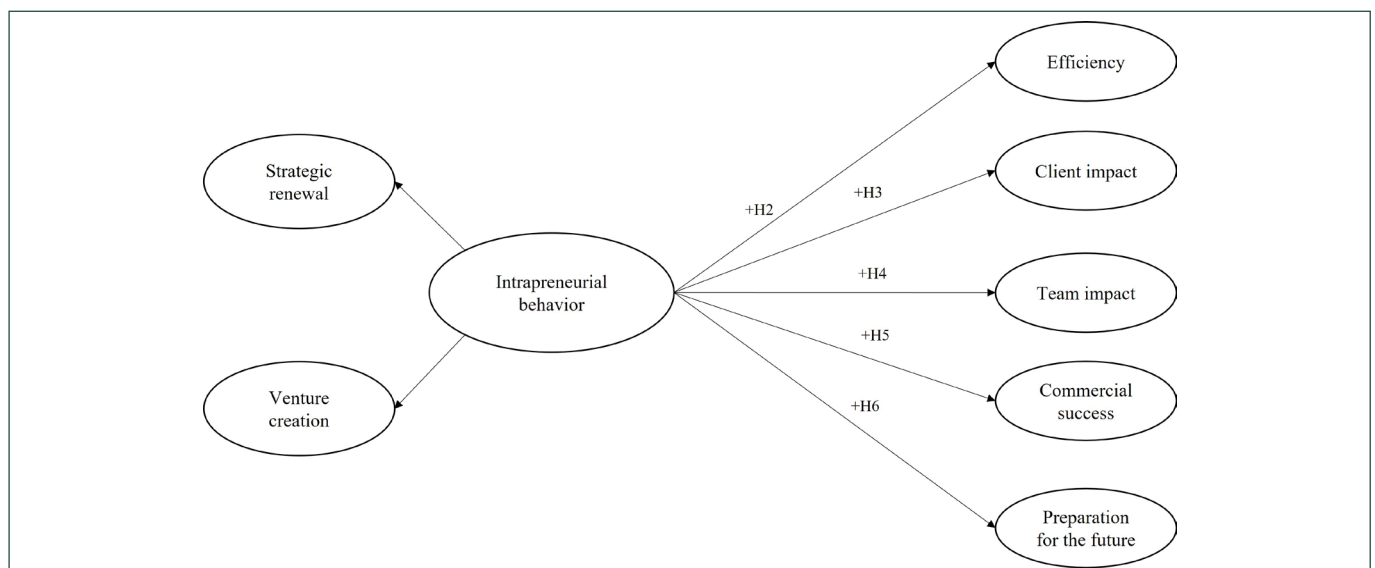


Figure 2. Intrapreneurial behavior influences on project success dimensions.

METHOD

This research was conducted using a survey involving the creation of the research instrument, the pre-testing of this research instrument, the collection of data with participants in project management in the automotive industry, the organization of the responses and treatment of the data, the statistical analyses (descriptive and multivariate) for hypothesis testing, and, finally, the description of the results.

Measures

The project's success was measured by the project success assessment (PSA) scale (Shenhar & Dvir, 2007). The PSA is a questionnaire with closed questions and the possibility of response through a Likert scale of five points: strongly disagree, disagree, agree, strongly agree, and not applicable. Precisely for this research, adaptation in the response options was used, removing the possibility of answering 'not applicable.' Thus, the questionnaire sent to respondents had the options: strongly disagree, disagree, neither agree nor disagree, agree, and strongly agree. Shenhar and Dvir (2007) explore ASP's five dimensions of project success (Shenhar & Dvir, 2007): project efficiency, customer impact, team impact, business success, and future readiness.

The instrument used to measure GP intrapreneurial behavior was the employee intrapreneurship scale (EIS) (Gawke et al., 2017). This questionnaire consists of 15 questions to identify the employee's intrapreneurial behavior. The EIS has closed-ended queries and uses a five-point semantic scale as a response possibility, from 'never' to 'always.' The EIS was developed using the concept of an intrapreneur as the individual who creates new ventures for the organization and improves the strategic renewal capacity of the organization. As the target audience of the research has Portuguese as its mother language, and the scale was in English, it was necessary to carry out the process of reverse translation or back-translation (Behling & Law, 2000). The questionnaire was sent by email to employees of a global automotive industry with a branch in Brazil who work or have worked on project management. A total of 411 valid responses were received as correct responses.

Analysis procedures

Initially, data were explored and then used to perform an exploratory factor analysis (EFA) using the SPSS v. 27 software to identify model scales and dimensions (Hair et al., 2009). The reliability and internal consistency of the scale of this model were confirmed through Cronbach's alpha coefficient and composite reliability. Then a structural equation model (SEM) was performed

on another sample distinct from the one used in the EFA. This procedure aimed to evaluate the factors obtained in the EFA and to test a nomological network of the proposed conceptual model. The SEM sought to verify the relationship between intrapreneurial behavior and project success dimensions after confirming index adjustments, as well as discriminant and convergent validities following procedures offered by Hair et al. (2009).

Based on the predictive model results, and to further explore the intrapreneur profile of the sample in greater detail, a latent class analysis (LCA) was performed to observe the different heterogeneity and profiles regarding intrapreneurial behavior, following the procedures proposed by Weller et al. (2020).

RESULTS

Sample

The sample was composed of 411 respondents, of which 351 were male (85.4%) and 60 were female (14.6%). Of the respondents, 212 are undergraduate (51.6%), 187 (45.4%) have some kind of graduate course, and 12 respondents (2.9%) have no college degree. Regarding the professional experience, 310 respondents have more than ten years of experience (75.4%), 76 respondents (18.5%) have between five and ten years of experience, and 25 respondents (6.1%) have less than five years of professional experience.

It was observed that 301 project managers (73.2%) have already had at least one training in project management, 110 respondents (26.8%) said they did not have any type of training in project management, and 326 respondents (79.3%) said they used some project management methodology usually.

Model fit

Project success scale obtained discriminated factor loading in five dimensions, validated as proposed in the original study by Shenhar and Dvir (2007), with adequate fit indices (KMO = 0.853, 60.04% of variance explained, $\chi^2 = 1875.251$, $p < 0.001$). Exploratory factor analysis was also performed for the intrapreneurial behavior scale, which achieved indicators considered adequate (KMO = 0.894, 70.28% of variance explained, $\chi^2 = 1551.998$, $p < 0.001$) and consistent with the model proposed by Gawke et al. (2017).

PLS-SEM analysis revealed a fit of the data to the model. All items showed VIF below five, not constituting multicollinearity. Convergent validity was observed, with all AVEs above 50%, item factor loadings were all with loadings above 0.708, and the square root of the AVEs remained above the construct's correlation with the others, as shown in Table 2.

Table 2. Convergent and discriminant validity.

Variable	Internal consistency				Correlations between the variables							
	AVE	Composite reliability	R ²	Cronbach alpha	1	2	3	4	5	6	7	
1	0.715	0.908	0.628	0.862	0.846*							
2	0.700	0.942	0.893	0.929	0.550	0.837*						
3	0.664	0.797	0.217	0.504	0.268	0.373	0.815*					
4	0.599	0.882	0.598	0.831	0.163	0.310	0.379	0.774*				
5	0.612	0.863	0.533	0.787	0.153	0.329	0.319	0.456	0.782*			
6	0.538	0.874	0.575	0.827	0.380	0.423	0.238	0.434	0.376	0.733*		
7	0.584	0.874	0.597	0.819	0.283	0.315	0.221	0.435	0.489	0.464	0.764*	

Note. (1) Venture creation; (2) Strategic renewal; (3) Efficiency; (4) Team impact; (5) Client impact; (6) Preparation for the future; (7) Commercial success; * square root of AVE.

These indicators suggest an excellent initial fit of the constructs to the proposed model. The discriminant analysis was further observed by the extent to which items measure their respective constructs. That is, when item loadings are higher on the constructs, they measure more than their loadings on the other constructs. The quality of fit of the model and its validation, which allows us to evaluate the hypothesis and establish a complete analysis, are given by the model's explanatory power, its accuracy, and the effect size of the constructs in the total model, respectively the coefficients R², Q², and f², which were all adequate.

The model demonstrated the ability to explain 23% of the variance of project success. The main variable in the model, evidenced by the effect size (f²), was the antecedent intrapreneurial behavior with a coefficient of 0.478. These indicators allow us to conclude that the data proved to fit the proposed model, allowing us to perform the tests of the study hypotheses.

Data fit

To minimize the effects of bias common to the method, procedures were adopted from the formulation of the survey instrument, with randomization of the questions, and data collection procedures, randomiz-

ing the distribution of the directional link to the survey instrument. In addition to this procedure, we analyzed Harman's single factor and bivariate correlation of variables controlled for an item not related to the survey (MacKenzie & Podsakoff, 2012). The single factor test achieved an expected fit of the data matrix for the EFA, with KMO = 0.880, $\chi^2 = 37.773$, 215, $p < 0.001$, and only 9.758% variance explained all items, indicating no bias common to the method.

Hypothesis testing

The hypothesis and significance tests of the relationships were performed by observing Student's t-value and p-value on the path coefficients between the constructs, through a bootstrapping procedure with 5,000 resamples, based on the recommendation of Davidson and MacKinnon (2000) to use more than 400 samples for 5% p-value at least. Due to parsimonious concerns that our results could generated p-values less than 5%, we adopted a large number of resamples. Hypothesis 1 proposes that the relationship between intrapreneurial behavior and is positive and project success is positive and statistically significant: the greater the intrapreneurial behavior, the greater the success in projects. Table 3 presents these indicators, confirming H1.

Table 3. Hypothesis testing of model 1.

Hypothesis	Structural relationship	Gama	Subsamples	SD	t-test	Sig.	Status
H1+	Intrapreneurial behavior → Project success	0.481	0.484	0.053	9.051	0.001	Supported
-	Intrapreneurial behavior → Venture creation	0.793	0.792	0.031	25.901	0.001	-
-	Intrapreneurial behavior → Strategic renewal	0.945	0.945	0.006	159.551	0.001	-
-	Project success → Efficiency	0.466	0.467	0.060	7.828	0.001	-
-	Project success → Impact on the team	0.773	0.775	0.029	26.451	0.001	-
-	Project success → Impact on the client	0.730	0.728	0.061	12.054	0.001	-
-	Project success → Preparation for the future	0.758	0.762	0.038	19.748	0.001	-
-	Project success → Commercial success	0.772	0.776	0.030	25.958	0.001	-

It is observed that hypothesis 1 was confirmed ($\Gamma = 0.481$, $t_{(203)} = 9.051$, $p < 0.001$), and the structural relationships proved significant of the constructs with their dimensions. These results together, from the EFA

to the SEM step and then the hypothesis testing, suggest the confirmation of the intrapreneurship scale, and its validity in a network of meanings, with project success as the resulting variable. In addition to these

confirmations, the study suggests the effect of intrapreneurial behavior as an antecedent of project suc-

cess. These indicators of model 1 can be summarized in Figure 3.

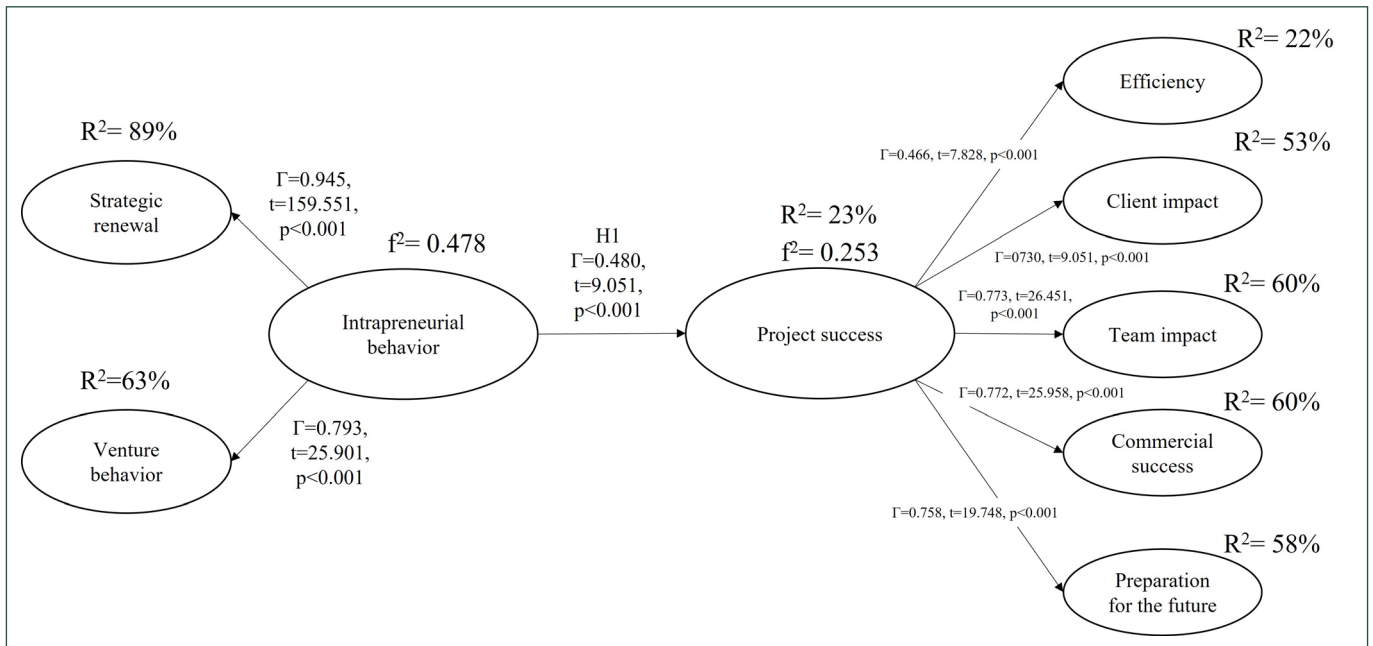


Figure 3. Structural results of model 3.

The dimensions of intrapreneurial behavior have strong and significant relationships with its construct, the strategic renewal dimension being greater ($\Gamma = 0.945$, $t_{(203)} = 159.551$, $p < 0.001$) than the relationship with the venture creation dimension ($\Gamma = 0.793$, $t_{(203)} = 25.901$, $p < 0.001$). As for project success, the dimensions achieved more balanced relationships. The strongest relationships with the main construct, of first-order project success, were impact on the team ($\Gamma = 0.773$, $t_{(203)} = 236.451$, $p < 0.001$), commercial success ($\Gamma = 0.772$, $t_{(203)} = 25.958$, $p < 0.001$), preparation for the future ($\Gamma = 0.758$, $t_{(203)} = 19.748$, p

< 0.001), impact on the client ($\Gamma = 0.730$, $t_{(203)} = 9.051$, $p < 0.001$), and efficiency ($\Gamma = 0.466$, $t_{(203)} = 7.828$, $p < 0.001$). After model fitting and hypothesis testing, we proceed to explore the results by determining profiles of intrapreneurial behavior and the implications of these differences.

Following the more detailed model discussion, hypotheses in model 2 were tested for the proposed structural relations. First, we observed the correlations between all constructs and adjustment indicators for model fit, evidencing convergent and discriminant validity, in Table 4.

Table 4. Correlations, convergent, and discriminant validity of model 2.

Construct	AVE	CR	R ²	CA	1	2	3	4	5	6	7
1. Client impact	0.608	0.861	0.097	0.787	0.78						
2. Commercial success	0.581	0.873	0.120	0.819	0.484	0.76					
3. Efficiency	0.577	0.708	0.139	0.501	0.313	0.217	0.76				
4. Team impact	0.587	0.876	0.100	0.831	0.467	0.436	0.377	0.77			
5. Preparation for the future	0.539	0.874	0.210	0.827	0.366	0.468	0.232	0.44	0.73		
6. Strategic renewal	0.700	0.942	0.899	0.928	0.337	0.322	0.369	0.33	0.42	0.84	
7. Venture creation	0.714	0.908	0.619	0.862	0.161	0.289	0.265	0.18	0.39	0.55	0.84

Note. In bold letters, AVE square root; CR = Composite reliability; CA = Cronbach's alpha.

We also analyzed the cross-loading of each item in its corresponding construct to complement Table 4 indi-

cators of discriminant validity. This allowed us to test hypotheses 2 to 6. These results are shown in Table 5.

Table 5. Hypotheses testing of model 2.

Hypothesis	Structural relationships	Γ	SD	t-test	Sig.	Status
H2+	Intrapreneurial behavior → Efficiency	0.373	0.061	61.134	0.001	Supported
H3+	Intrapreneurial behavior → Client impact	0.311	0.064	48.717	0.001	Supported
H4+	Intrapreneurial behavior → Team impact	0.317	0.058	54.266	0.001	Supported
H5+	Intrapreneurial behavior → Commercial success	0.347	0.054	63.495	0.001	Supported
H6+	Intrapreneurial behavior → Preparation for the future	0.459	0.046	98.499	0.001	Supported
-	Intrapreneurial behavior → Strategic renewal	0.948	0.005	1,662.3	0.001	-
-	Intrapreneurial behavior → Venture creation	0.786	0.033	237.214	0.001	-

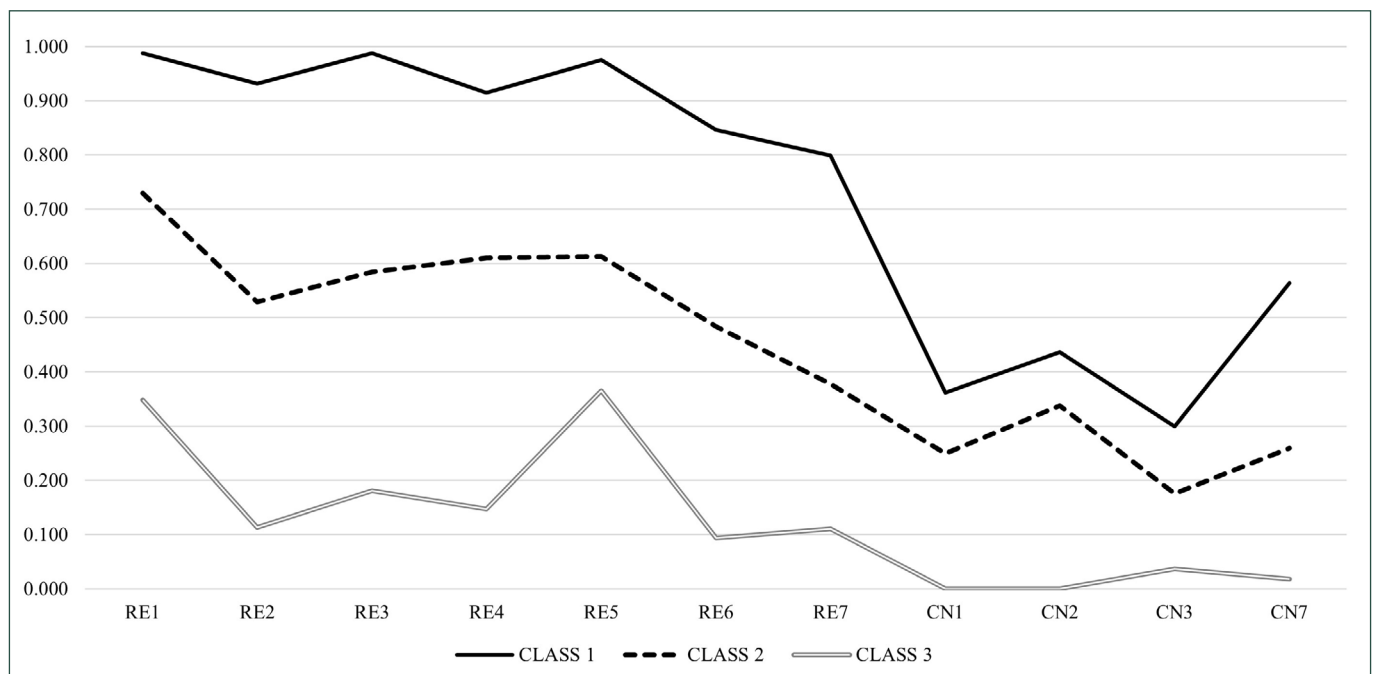
All hypotheses were supported for model 2, confirming our expectations that intrapreneurial behavior leads to positive impacts in all diverse dimensions of project success. It can be considered that the search for innovation and new opportunities is a predictor of positive outcomes in the context of project management, for the efficiency of the project ($\Gamma = 0.373$, $p < 0.001$), the team ($\Gamma = 0.317$, $p < 0.001$), the client ($\Gamma = 0.311$, $p < 0.001$), the commercial success ($\Gamma = 0.347$, $p < 0.001$), and the preparation for the future ($\Gamma = 0.459$, $p < 0.001$).

Taken together, models 1 and 2 sign the multiple points of view needed to understand project success. When predicted by intrapreneurial behavior, distinct

aspects of project success depend partially on the mentality of innovation and market orientation of the intrapreneur. As intrapreneurship may vary across people and teams, as a function of different interactions and incentives (Chakrabarty, 2020), we estimate that other impacts in project success are expected.

Intrapreneurship profiles

The latent class analysis (LCA) indicated three classes for intrapreneurial behavior. Figure 4 presents these profiles. It can be seen how individuals have different levels of agreement with the statements that define intrapreneurial behavior.

**Figure 4.** Profiles of the three latent classes reached.

The three classes obtained present different profiles regarding their intrapreneurial profile. In general, the classes suggest a downward trend regarding the strategic renewal characteristic and even less regarding the business-related behavior. The strategic renewal offers

the actions developed in the company, and the venture creation suggests the search for the conception of new ideas. In this sense, we define the classes as class 1, 'Visionaries seeking creation'; class 2, 'Potential, but no creation'; class 3, 'Non-intrapreneurs.' A post hoc analy-

sis of the comparison of means of the classes obtained was also carried out to observe the different responses of each profile.

The constructs differed from each other in all multiple comparisons performed. The visionary intrapreneurs profile achieved higher scores in both project success ($M = 4.08$) and intrapreneurial behavior ($M = 5.22$) than the other profiles, such as potentials ($M_{\text{project success}} = 3.89$, $M_{\text{intrap. behavior}} = 4.18$) and non-intrapreneurs ($M_{\text{project success}} = 3.60$, $M_{\text{intrap. behavior}} = 2.74$), with statistically significant difference ($p < 5\%$). This suggests that a higher intrapreneur profile should result in higher engagement in the pursuit of project success. A simple regression was performed with class profiles on project success as the dependent

variable, indicating an inverse relationship ($\beta = -0.240$, $t = -6.656$, $p < 5\%$). The higher the class (closer to 'non-intrapreneurs'), the smaller the effect on project success, confirming the indication of the need for a higher intrapreneur profile for project success, corroborating, otherwise, the study's first hypothesis (with the measurement of intrapreneur profile).

We then split further the structural equation modeling analysis to understand the relationship between intrapreneurial behavior and project success dimensions, along the three classes found before. This analysis revealed that intrapreneurial behavior is an effective predictor of project success dimensions at high levels. The results are shown in Table 6.

Table 6. Effects of intrapreneurial behavior dimensions on project success dimensions, through classes.

Structural relations	Class 1	Class 2	Class 3
Strategic renewal → Client impact	0.345*	0.226	0.223
Strategic renewal → Commercial success	0.179	0.302	-0.333
Strategic renewal → Efficiency	0.317*	0.135*	-0.150
Strategic renewal → Preparation for the future	0.236*	0.407*	0.221
Strategic renewal → Team impact	0.518*	0.252	0.366
Venture creation → Client impact	0.040	0.015	-0.261
Venture creation → Commercial success	0.167	-0.136	0.017
Venture creation → Efficiency	0.017	0.378	-0.393
Venture creation → Preparation for the future	0.297*	0.047	-0.309
Venture creation → Team impact	0.041	0.035	0.118

Note. * significant at 5%.

These results of unknown structures for group profiles presented different impacts. Table 6 shows the structural model that links intrapreneurial dimensions to project success dimensions, with the latent classes as a moderator of the relationships. The type of intrapreneurship profile only plays a role in some relationships. In class 1, the greater its scores, the greater its effect on project success and its diverse dimensions. In most cases, these effects were more prominent for venture creation, the dimension associated with the creation of new products that can be integrated into company portfolio. For the first class, the visionaries, the search for new ideas, the strategic renewal, predicted efficiency ($\Gamma = 0.317$, $p < 0.05$), client impact ($\Gamma = 0.345$, $p < 0.05$), team impact ($\Gamma = 0.518$, $p < 0.05$), and preparation for the future ($\Gamma = 0.236$, $p < 0.05$), but not commercial success ($\Gamma = 0.179$, $p > 0.05$). On the other hand, still considering class 1, venture creation predicted only preparation for the future ($\Gamma = 0.297$, $p < 0.05$).

As the classes decrease, the influence of venture creation and strategic renewal also decreases. It suggests the importance of high levels of intrapreneurial behavior related to new business creation for project

success in general and for its particular dimensions. This aspect is consistent with previous evidence that innovation leads to project success and competitive advantage (Kessler & Bierly, 2002; Gemünden et al., 2018; Salomo et al., 2003). This study advances this reasoning of innovation influence by proposing that intrapreneurship is a characteristic of employees that can foster project success in many aspects. Our results sign that intrapreneurial behavior is an aspect that must be seen conjointly, as its dimension may have different impacts on project aspects. The study also brings evidence that intrapreneurial behavior, an operant factor in project management, must be at high levels in individuals' mindsets to produce more positive impacts on project success, as it is heterogeneous in project teams.

CLOSING REMARKS AND DISCUSSION

A survey was applied as a research method to explore the relationship between intrapreneurial behavior and project success, with data analyzed by multivariate statistical techniques, such as exploratory factorial analysis, structural equation modeling, and latent class analysis. Current literature on project success has explored

several human-based antecedents, such as emotional intelligence, planning skills, soft and hard skills, time of experience in projects, and several other aspects. However, visionary and innovative team members' characteristics are understudied. This is the case of individual intrapreneurship behavior, pioneered studied is this work.

The results of this study provide evidence that the higher the intrapreneurial behavior, the higher the project success tends to be, corroborating previous research, where project management personnel behavior and traces are directly related to project success in organizations, being coherent with the theoretical evidence that positive individual characteristics improve project success (Bond-Barnard et al., 2018; Joslin & Müller, 2016; Nawaz et al., 2020). The study is inserted in a broader discussion and complements it on the effects of entrepreneurship on project success, such as the study by Martens et al. (2018). The survey obtained 411 valid responses from project management individuals in the Brazilian automotive industry. The hypothesis presented was confirmed by the statistical tests performed (H1: $\Gamma = 0.481$, $t_{(203)} = 9.051$, $p < 0.001$), and the research question was answered.

We broadened the model because the perspectives for project success are ample so that we could understand the phenomenon in more detail and hypothesized that the greater the intrapreneurial behavior, the greater are the project success dimensions. The hypotheses proposed that intrapreneurial behavior positively increases efficiency (H2), client impact (H3), team impact (H4), commercial success (H5), and preparation for the future (H6). All hypotheses were confirmed, suggesting the importance of team members' innovative behavior to predict project success, in a broad sense, considering the medium- and long-term outcomes. When the employee is motivated to undertake new ventures and ideas, project impact benefits the organization.

We then suggested that intrapreneurship may not be a trace equally distributed among the team components, and we explored the heterogeneity of intrapreneurship in the sample. We advanced extant literature by doing this, as it is the first study, to the best of our knowledge, to explore intrapreneurship variation and its different outcomes. Although companies strive to foster visionary behavior in their team members, one can expect that this aspect is not well distributed among individuals, and so it is not their consequence. We also advance previous studies when comparing different profiles, as it was not done before. Most studies consider human traces as constant and homogeneous, leading to different conclusions.

We found three distinct groups of intrapreneurs: the 'visionaries,' the 'potentials,' and the 'non-intrapreneurs.' These profiles have distinct characteristics among themselves and their responses in terms of intrapreneurial profile and impact on project success. In general, these three groups have features more directed to strategic renewal and less directed to venture creation; that is, they are more propositional and strategic in the search for business opportunities and less executors of new businesses for the organization. By identifying that there is not a homogeneous state of the intrapreneurial behavior of individuals, this study points out that this trait should be treated as latent and diverse in the participants of organizations and project teams. One must consider teams as diverse and composed of multiple profiles that must lead to distinct accomplishments accordingly. Once these profiles are considered, the team performance management must be improved, leading to better results and performance of the project as a whole.

The justification for this work is ratified in the need to understand and leverage new conditions that favor an increase the number of successful projects in companies, considering the direct relationship between intrapreneurial behavior and project success, guided by different levels of intrapreneurial behavior. Exploring the two constructs allowed us to prove the existence of a possible relationship between these aspects and the urge for entrepreneur orientation at the organizational and individual levels. Many of the competencies of a successful project manager are addressed in the literature, such as personality traits and habits of individuals with intrapreneurial behavior. Further studies can advance by testing intervening variables in the relationship hypothesized in this study, such as the experience and background of the project team. For organizations, this study contributes by signaling that intrapreneurial behavior collaborates with project success and should be treated as a heterogeneous characteristic in groups. The study has limitations such as not observing the type of project management orientation of the participants, nor predictive or agile approach, which may be a possible moderator aspect in the model. Although we focused solely on the relationship between intrapreneurial behavior and project success to shed light on this understudied aspect of the extant literature, more constructs could help better understand the phenomenon. More recently, some studies have proposed antecedents of project success on individual and group levels, adding more nuanced perspectives to the comprehension of drivers of project success. Imam and Zaheer (2021) proposed the influence of knowledge sharing, the cohesion of and trust in the team, assuring

that these aspects amplify the success of a project in IT teams. This aspect considers the role of groups and individual interactions on project success. Nauman et al., (2021) also identified a particular characteristic, transformational leadership, in project success. Following this vein of research, more individual constructs can propose a more nuanced perspective to understand how intrapreneurship influences project success.

The study has some limitations. One of them is its focus on the automotive industry's respondents due to our convenience to access the sample. Although the sample was qualitatively representative of project management, certainly only one industry imposes restrictions on our conclusions. We do not know what impacts our study design would have on the services industry. As projects are services in nature, there may be some synergies that could bring different conclusions. Another important restriction is that we did not control the project type – from the project approach, as agile, traditional, or hybrid, to the level of complexity, from megaprojects to small ones, from private to public projects, and also from project-oriented to project-driven organizations. All these comparisons could bring distinct results, particularly when splitting the model, or as moderator variables.

In this aspect resides the next limitation of our study. We concentrated on direct effects. Conditional tests could advance the understanding of the phenomena. Contextual aspects could serve as moderation to explain in what conditions the effect could be distinct. In a different kind of organizational setting, would the results be different? If the company triggers innovation, would it potentialize the effects? Do small companies differ from medium-sized or big ones in the effect they can produce? All these intervenient aspects remain without an answer, as they were not addressed in the study.

To further studies, we suggest exploring more psychological mechanisms to mediate the relationship between intrapreneurial behavior and project success dimensions. It could also be considered a different mechanism, for distinct variables, as they differ in nature. Client impact, preparation for the future, and commercial success are more marketing-oriented. On the other hand, efficiency and team impact are more managerial aspects of project success. Therefore, besides representing different aspects of success, they differ in nature from each other, in terms of meaning, time, and implication. In this way, different variables and mechanisms could be used to hypothesize mediation.

As the scale was validated in its psychometric aspects, more studies could improve its external validity, and benefit from its results. Reality-like approach, like

experiments, could bring an interesting discussion. One could also explore other superstructures' influence, like the country's developing conditions and country's cultural aspects. Another important aspect concerns improving similarity with day-to-day conditions, and the ecological validity, through more realistic data collection when approaching the sample. Finally, future studies could combine quantitative and qualitative techniques, such as in-depth interviews, or case studies, to deeply explore the study's hypothesized relations.

Although this study represents an advancement in theory and practice, by analyzing the role of intrapreneurial behavior on project success, there remain many open questions to be addressed in new studies.

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