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Integrating sustainability requirements at the organizational level: a framework to support the leadership in the decision-making process

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Introdução
Organizations increasingly recognize the need to establish sustainable project management; however, translating this awareness into actionable plans and initial steps often poses a challenge. Project management itself can serve to foster discussions about sustainability requirements. This study's distinctive contribution offers a strategic framework guideline that empowers organizations with a self-assessment mechanism to kick-start their sustainability journey. Such a framework can empower decision-makers with a holistic perspective.
Problema de Pesquisa e Objetivo
The core objective of this research is to define strategic actions that organizations must undertake to effectively integrate sustainability requirements within their business model and consequently support projects' development. By identifying these strategic actions, we developed a comprehensive framework guideline to facilitate the seamless integration of sustainability requirements in organizations.
Fundamentação Teórica
This literature review focuses on identifying the state of the art of integrating project management and using the sustainability tripod in decision-making, approvals, and project development to define the relevant measures to be taken and the leading players. Sustainability is not a recent concept, but it has been in the spotlight only in the last few years; therefore, the review encompassed a period beginning in 2014 to capture the most recent and updated publications.
Metodologia
The method used to support the investigation is the Complex Holographic Assessment of Paradoxical Problems (CHAP2), developed by Lins and Netto (2018), which proposes that the solving process is based on the problem and not on formal protocols based on the principle that one-size fits all. According to Lins et al. (2018), to solve complex paradoxical problems, it is necessary to interactively and iteratively cope with the various agents involved. Managing divergences, using multiple and distributed intelligence, and multi-methodologies is crucial to obtaining a more adherent view.
Análise dos Resultados
While organizations express a desire to board on the sustainability journey, they often struggle with the crucial question of how to take that initial step. This study's unique contribution addresses this paradox by presenting a strategic framework guideline that equips organizations with a robust self-assessment mechanism, propelling them confidently into sustainability. The broad objective is to empower organizations to perform a thorough self-assessment, pointing them toward the initial objective actions required to embark on their sustainability journey.
Conclusão
The findings of this study yield a comprehensive framework guideline designed to empower organizations on their path toward sustainability. This guideline comprises a well-structured list of objective actions clustered in strategic requirements under a critical sustainable success factor. Its primary purpose is to serve as an invaluable tool for organizations seeking to fortify their commitment to sustainability.
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Palavras Chave
sustainability requirements, sustainability and organizations , framework in sustainability

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Integrating sustainability requirements at the organizational level: a framework to support the leadership in the decision-making process

1 INTRODUCTION

Organizations increasingly recognize the need to establish sustainable project management; however, translating this awareness into actionable plans and initial steps often poses a challenge. Project management itself can serve to foster discussions about sustainability requirements.

In recent years, scholarly research by experts (Chawla et al., 2018; Daneshpour & Takala, 2017; Karunasena et al., 2016; Marcelino-Sádaba et al., 2015; Økland, 2015; Sánchez, 2015; Yu et al., 2018) has highlighted the integration of sustainability requirements with project management methodologies and the related aspects that play a significant role in their integration.

After analyzing prevalent project practices, a current dominant tendency emerges, where sustainability requirements are frequently perceived as burdensome additional costs within projects (B. G. Hwang et al., 2018; B. Hwang & Tan, 2012; Karunasena et al., 2016; Opoku et al., 2019; Ruparathna & Hewage, 2015; Xia et al., 2018; Yates & Asce, 2014). The economic dimension is the most cited barrier to integrating sustainability requirements in project development. One of the reasons this view perpetuates is that decision-makers use a short-term perspective for their analysis, which fails to encompass the comprehensive project life cycle and its long-term implications, precisely the concept of the total cost of ownership. Another relevant barrier is that the project team lacks sustainability knowledge to propose innovative approaches and to plan for them in the early stages of a project (Karunasena et al., 2016; Opoku et al., 2019; Pham et al., 2020; Yates & Asce, 2014).

We can address the economic relevance between construction projects and sustainability by verifying the Global GDP's percentage spent on projects. In the 2019 world estimate, Global GDP amounted to approximately $ 87.6 trillion, and the megaprojects consumed 8.0%, equivalent to $ 7.0 trillion (World, 2018). According to research, the world construction industry consumes 60% of raw material (Bribián et al., 2011), 40% of energy (B. Hwang & Tan, 2012), emits 40% of greenhouse gas (Son et al., 2011) and is responsible for 40% of total solid production waste globally (Shurrab et al., 2019). Projects employ millions of people and modify the status quo, being a critical vehicle to promote social sustainability.

The literature review and in-depth interviews with twenty-four experts revealed that overcoming those challenges hinges on transformative organizational leadership, poised to establish a strategic project blueprint and governance frameworks that seamlessly integrate sustainability requirements into their business model. However, this endeavor is not straightforward and needs maturity to drive self-organization effectively.

The experts interviewed are seasoned professionals in leadership roles such as Consultants, CEO, Head of Portfolio Management, Head of Sustainability Division/ESG, Project Managers, Controller, and Directors. The business sectors encompassed mining, O&G, heavy construction, energy, ESG Integrated Solutions Provider, rail and subway sectors, bank of investment, paper industry, and engineering services provider.

This study's distinctive contribution offers a strategic framework guideline that empowers organizations with a self-assessment mechanism to kick-start their sustainability journey. Such a framework can empower decision-makers with a holistic perspective, aiding them in selecting sustainability strategies tailored to the organization's unique context.

Concurrently, this strategic compass supports the project teams' sustainable solutions with organizational governance.

The strategic framework guideline catalyzes the seamless integration of sustainability requirements into project management methodologies and disseminates essential sustainability knowledge within organizations and professionals. In an era where behavioral evolution is necessary, this framework operates as a link, nudging the transformation from a compliance-driven, top-down approach (hierarchic regulation) to one fueled by intrinsic motivation. While hierarchic regulations drive organizations to sustainable practices solely by legal mandates and industry standards, intrinsic motivation propels professionals to champion novel approaches, engendering a system-thinking approach. This paradigm shift encapsulates the essence of progress, where organizations morph from passive adherents to active sustainability advocates.

2 RESEARCH OBJECTIVE

The scenario above shows that it is a big challenge to introduce sustainability requirements into project development. The project team alone will not handle this situation, and it will depend on the organization's strategy to support them. This research seeks to identify the objective actions the organizations should carry out to implement sustainability requirements in the project development and offer a framework guideline to be used.

The depicted scenario underscores the challenge of integrating sustainability requirements into project development. Recognizing that the onus cannot solely bear on the project team, the successful strategy to overcome this challenge hinges upon the organization's will to start the sustainability journey.

The core objective of this research is to define strategic actions that organizations must undertake to effectively integrate sustainability requirements within their business model and consequently support projects' development. By identifying these strategic actions, we developed a comprehensive framework guideline to facilitate the seamless integration of sustainability requirements in organizations.

3 LITERATURE REVIEW METHODOLOGY

A literature review aims to assess what exists and specify the question that the research wants to answer (Tranfield et al., 2003). The literature review methodology included identifying research keywords, selecting studies, assessing study quality, data extraction, and data synthesis (Tranfield et al., 2003).

This literature review focuses on identifying the state of the art of integrating project management and using the sustainability tripod in decision-making, approvals, and project development to define the relevant measures to be taken and the leading players.

Sustainability is not a recent concept, but it has been in the spotlight only in the last few years; therefore, the review encompassed a period beginning in 2014 to capture the most recent and updated publications.

Table 1 - Literature review resume

Search ID	Keywords	Interval	Refining topics	Res
1	Sustainability and Project Management	2014-2020	Engineering + Sustainability +Sustainable development	55
2	Sustainability Indicators and Project Management	2014-2018	Engineering + sustainable development+ sustainability+ project management	8
3	Sustainable Projects and Project Management	2019-2020	Not applied	6
4	Sustainability and Project Management	2018-2020	Journal of Cleaner Production	11
5	Sustainability and Brazilian (both in the title)	2014-2020	Not applied	20
6	Sustainable Project Management and Review	2018-2020	Sustainability	1
7	Suggested articles while performing searches from 1 to 6	**Any year**	Not applied	2
8	Selected articles from the reference list of the final articles	**Any year**	Not applied	5
9	Sustainability and Construction	2018-2021	International Journal of Construction Management	2
	Total			11

4 LITERATURE REVIEW

The comprehensive literature review highlights the relevance of life cycle assessment techniques and stakeholder management processes in integrating sustainability requirements and project management (Marcelino-Sádaba et al., 2015).

However, a notable disparity exists between these scholarly insights and practical implementation, as organizations fail to acquire the knowledge and neglect the integration of sustainability requirements in their decision-making processes (Marcelino-Sádaba et al., 2015). Integrating sustainability requirements into projects is relevant, particularly during the portfolio management and conceptualization phases (Karunasena et al., 2016; Sánchez, 2015). In this regard, it is worth highlighting that among the trinity of coercive, mimic, and normative pressures driving the assimilation of sustainability requirements into project management, it is the weight of "government intervention, industry standards, stakeholder norms, and societal expectations" that exerts the most pronounced influence (Horak et al., 2018).

Integrating sustainability requirements and project management is a non-paved road with many barriers and challenges. Among the diverse barriers highlighted in the articles, the economic dimension and the project team's lack of knowledge are the most cited (B. G. Hwang et al., 2018; Karunasena et al., 2016; Opoku et al., 2019; Ruparathna & Hewage, 2015; Yates & Asce, 2014).

"It is necessary to support the organizations to take a step toward sustainability" (Chofreh et al., 2019), and "the current state of science lacks an objective and universal methodology to properly assess the sustainability of a particular infrastructure design" (Navarro et al., 2019). These assertions unequivocally underscore the need to develop a comprehensive framework to guide organizations into sustainability.

In light of the cumulative findings, it is essential to consider project sustainability requirements in the projects. However, a clear gap remains between the theory and practical implementation by the organizations. Assessing project practices is crucial to understanding the challenges and barriers and proposing solutions. The pivotal role of open dialogues during portfolio management and early-phase planning emerges as crucial for aligning projects with the social and regulatory sustainability demands. Leveraging lifecycle analysis techniques during project viability assessments enables organizations to consider the project's long-term perspective in project evaluations, thereby contributing to a robust evaluation of sustainability benefits. This approach harmonizes effectively with the recurring challenges posed by economic considerations and the knowledge limitations of project teams. The comprehensive information about the literature review is in another article, under peer review in Helyion Journal.

5 CHAP2 METHOD

The method used to support the investigation is the Complex Holographic Assessment of Paradoxical Problems (CHAP2), developed by Lins and Netto (2018), which proposes that the solving process is based on the problem and not on formal protocols based on the principle that one-size fits all.

According to Lins et al. (2018), to solve complex paradoxical problems, it is necessary to interactively and iteratively cope with the various agents involved. In this context, agents are the professionals who will participate in the interviews. Additionally, managing divergences, using multiple and distributed intelligence, and multi-methodologies is crucial to obtain a more adherent view of reality to solve problems through different perceptions of metacognition

explanation. The CHAP2 method facilitates uninhibited communication with the agents, encouraging them to express their perspectives without imposing any constraints or restrictions. This open dialog enables the comprehensive exploration of the problem, identification of potential barriers, and a deeper understanding of the organizational processes involved.

The issues gathered are graphically represented in conceptual maps. It facilitates understanding the cause and effect by linking two concepts with a verb, thus providing an integrated view of the problem.

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Table 2 - Method CHAP2 Phases

Phase	Description	Objective
I	Define the initial agents Individual two-hour interview	Understand the big picture of the problem by interviewing a small and initial group of agents with a broad and open perspective of the situation. Draw the Initial Conceptual Map of the existing system/problem.
II	Define the seasoned complementary agents (professionals) Individual two-hour interview	Interview seasoned professionals to understand the issues mentioned by the initial agents in the Initial Conceptual Map. Capture the individual metacognitive perspective of the complementary agents. .
III	Draw thematic maps	Analyze the agents' individual metacognitive perspectives and gather their content in thematic maps to represent the problems per theme. That will facilitate prioritizing the actions to solve the problems.
IV	Workshop for the elaboration of conceptual and paradoxical models	Analyze the thematic maps with the agents and discuss the possible conceptual and paradoxical models for the studied problem.
V	Articulation with formal models, indicators, and processes	Define the possible processes and indicators
VI	Identification and implementation of viable actions. Monitoring	Implement the actions and monitor

5.1 CHAP2 METHOD RESULTS

The individual two-hour interviews comprised twenty-four senior expert professionals with critical thinking to broadly analyze the situation in Brazil as they are leaders in numerous projects or executive professionals whose experience spans 10 to 40 years. CHAP2 Phase I comprised six experts, and Phase II comprised eighteen.

Throughout the interviews, the agents shared their insights on Brazil's project sustainability requirements, encompassing various aspects such as the decision-making phase, barriers, organizational culture, enabling factors, and market pressures. The highlighted issues comprise organizations and stakeholders. Although organizations are undeniably stakeholders, this study intentionally treats them as detached entities to focus specifically on their capacity to drive change when assuming the roles of project entrepreneurs or business owners. By doing so, we aim to understand better their potential to influence integrating sustainability requirements into project management. The organizations' and the stakeholders' sponsorship are crucial to sustainable project management.

After the interviews in CHAP2 Phases I and II, the agents' perspectives were analyzed to represent the problems per theme in CHAP2 Phase III, which helps propose solutions to solve the problems. Figure 1 and Figure 2 present the thematic maps of CHAP2 Phase III regarding the organization's role. CHAP2 Phases I and II details are in another article, under peer review in Helyion Journal.

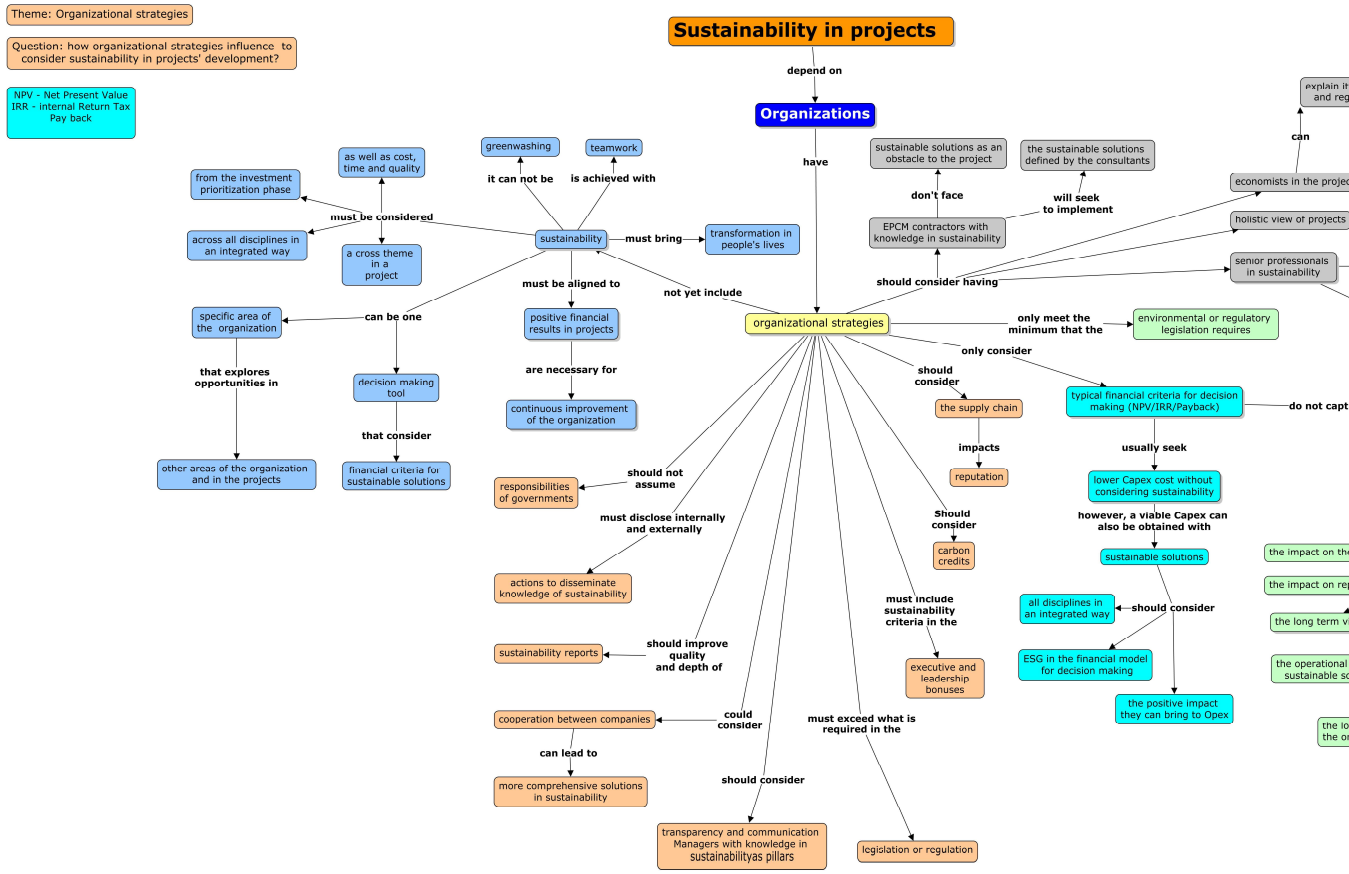

Figure 1 - Thematic map - Organizational strategy

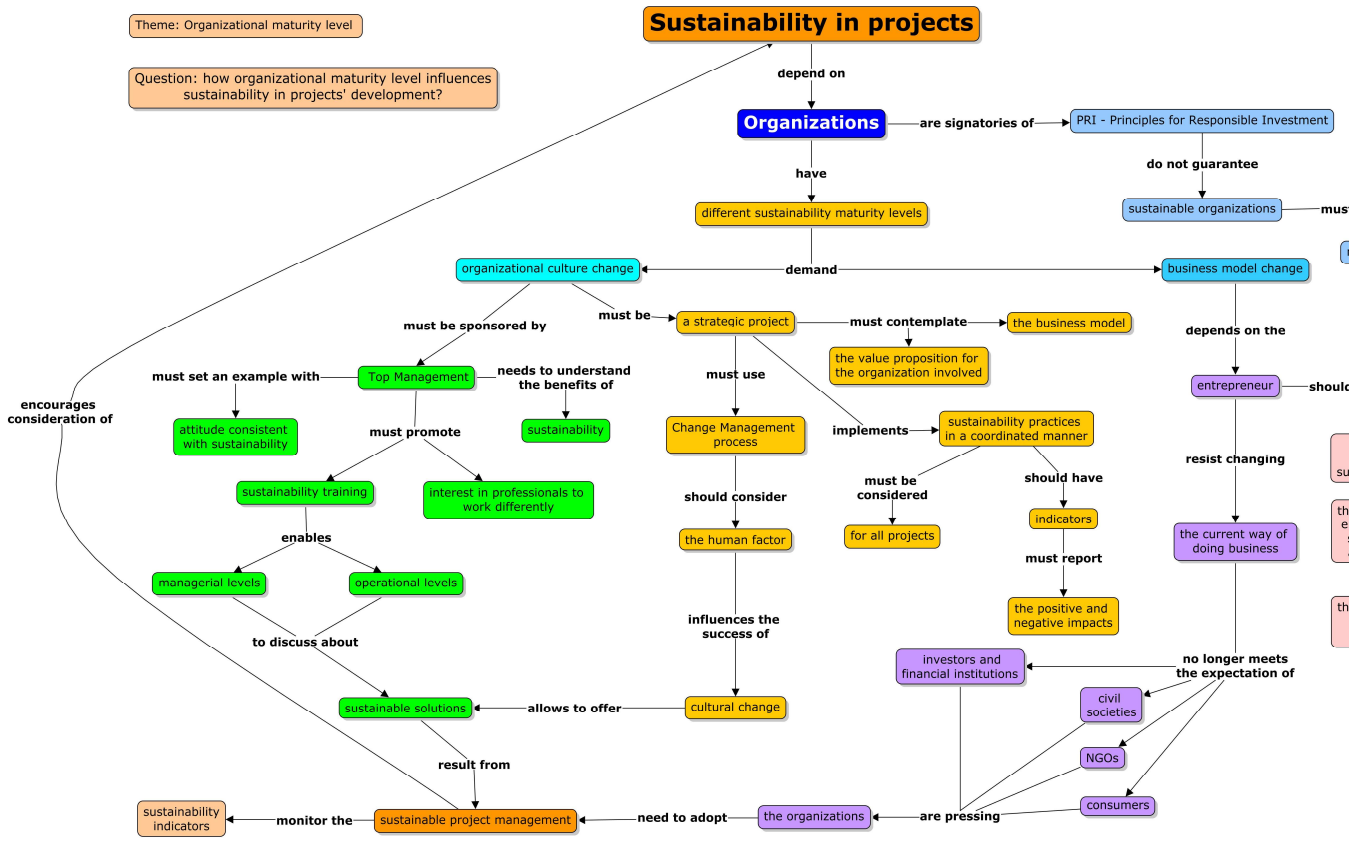

Figure 2 - Thematic map - Organization maturity level

After analyzing the thematic maps and the literature review results, the envisaged solution was to build a framework to guide organizations and project development. As organizational support is crucial to achieving success, we focused on a framework to serve and guide organizations to implement and enhance sustainability requirements in their business, their sustainability journey, and projects' development.

The framework comprises critical success sustainable factors, strategic requirements, and objective actions, as indicated in Figure 3. The critical success sustainable factor (CSSF) is a broad concept that indicates the organization's high-level approach. Under the CSSF, a high-level requirement is poised and cascaded into more specific requirements clusters. Each specific requirement cluster is translated into objective actions that accomplish the requirement. The objective actions are classified into four stepped levels and link the SDG to which they contribute. Level one is the objective actions already in the Brazilian legislation, level two comprises the first steps beyond legislation or regulations to start the sustainability journey. Levels three and four are more complex actions that demand greater maturity and depend on each organization's goals.

The path to sustainability is a journey, so the organizations shall take gradual steps, from assuring to comply with legislation to adding good practices to achieve successful sustainable results. So, the framework proposes four implementation levels for the objective actions.

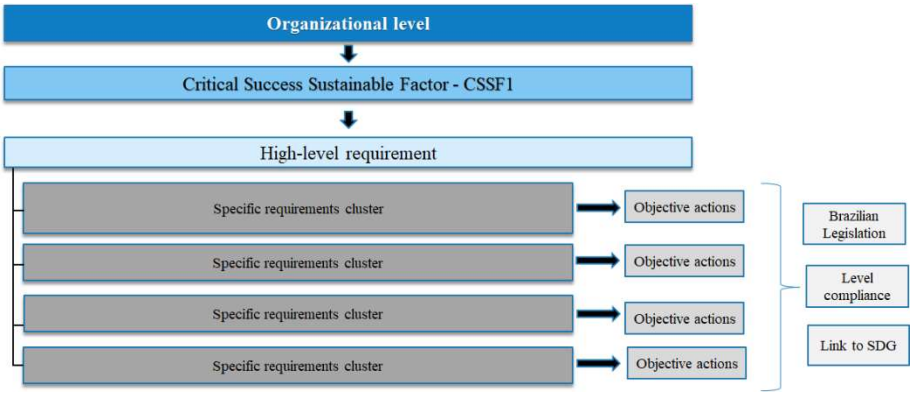

Figure 3 - Framework structure

The framework was built and validated with the experts in CHAP2 Phase IV. The discussion with each one took two hours, and they could present their perception and suggestions to enhance the preliminary developed framework. The open dialog enabled the experts to present their broad perspectives, enriching the understanding of difficulties, barriers, and possible actions related to the sustainability requirements at the organizational level.

For CHAP2 Phase V, we recommend some indicators to track the implementation of the objective actions and the results presented in item 6. In Phase VI, the organizations shall apply the self-assessment, define and implement the actions, and monitor the results.

The study results and discussion are in the following item.

6 DISCUSSION AND RESULTS

A paradox problem emerges based on a comprehensive literature review and insightful interviews. While organizations express a desire to board on the sustainability journey, they often struggle with the crucial question of how to take that initial step. This study's unique contribution addresses this paradox by presenting a strategic framework guideline that equips organizations with a robust self-assessment mechanism, propelling them confidently into sustainability.

In this context, the role of coercive pressure assumes pivotal significance. While the impetus for change typically emanates from organizational leadership, it becomes evident that mere directives are insufficient. For sustainable transformation to take root, it needs the collective belief in the strategy across the entire team, a profound understanding of its benefits, and the capability to proffer sustainable solutions. In this endeavor, the organization's support emerges as a linchpin, and the framework serves as an indispensable guide.

The broad objective is to empower organizations to perform a thorough self-assessment, pointing them toward the initial objective actions required to embark on their sustainability journey.

The interviews conducted as part of this study aimed to verify among experts how relevant organizational support is in embedding sustainability requirements within project development. A unanimous agreement was reached, with one hundred percent of the experts endorsing that organizations should set the tone and the guidelines. Moreover, these experts provided compelling rationales and valuable recommendations, all documented in Table 3 and Table 4.

Table 3- Resumed agents' perceptions

Perceptions
The framework structure is suitable to guide organizations to start their sustainability journey, and it can be of great help
If organizations do not support the sustainability journey, it is not possible to achieve results in the projects
The organizational governance should set the guidelines
The sustainability journey should follow the organizational business strategy
The organizational level should give the support, tools, and guidelines to the sustainability requirements integration

Table 4 – Resumed agents' suggestions

Suggestions
Creation of one more strategic requirement to separate the objective actions of organizational governance from project governance and cluster the objective actions accordingly
Enhancement of some objective action statements to make them more precise or complete
New objective action statements to complement the framework
Instead of defining specific standards or certifications in the framework as mandatory, offer a comprehensive list so that the organizations can choose from
Modify some of the previously indicated level classifications to the objective action
Complementary SDGs for which the objective action contributes

The agents' suggestions in Table 4 comprised the framework. Figure 4 presents the specific requirements to build sustainability in organizations.

The first and the most relevant one is top management leadership toward sustainability. Without management support and guidelines, nothing happens. Governance aligned with sustainability requirements is essential to set the foundation for the employees. Additionally, each project shall follow macro guidelines related to sustainability to translate the organizational strategic plan into actions and development. A specific committee to give

recommendations, monitor the objective actions implementation, projects' results, and demand new or corrective actions is essential to the success of the sustainability journey.

Figure 4 - Framework at the organizational level

Table 5 presents a set of indicators that can be tracked along the implementation. They will help organizations track their progress. The objective actions implementation will depend on the organization's strategy, and it is not usual to implement one hundred percent. The results are in Table 6, Table 7, and Table 8.

Table 5 - Indicators

Objective	Formula	Reference
Track compliance with Level 1 requirements	Nº of chosen level 1 requirements / Nº of total level 1 requirements	100% - as it is legislation
Track compliance with Level 2 requirements	Nº of chosen level 2 requirements / Nº of total level 2 requirements	According to the organization's strategy
Track compliance with Level 3 requirements	Nº of chosen level 3 requirements / Nº of total level 3 requirements	According to the organization's strategy
Track compliance with Level 4 requirements	Nº of chosen level 4 requirements / Nº of total level 4 requirements	According to the organization's strategy

Table 6 - Framework guideline - at the organizational level

Framework Guideline - At the Organizational Level

CSSF1 - Build company strategy toward sustainability

ID	Strategic Sustainable Requirements - SSR (4)	Detailing Objective Actions (61)	Meet Brazilian legislation & resolutions	Level	Link to the SDG	Sub item
SSR1	Top management creates conditions to foster employees' behavior toward an enhanced business model to meet sustainability requirements (culture, sponsorship, guidelines, accountability)	**Top management** supports and launches an internal strategic project to foster or enhance and implement sustainability in the Organization and the projects		2	12	12.a
		Write a policy to be used by the Organization as a reference to its sustainability journey purpose, defining the meaning of sustainability within the Organization (revising it periodically according to the Organization's strategy plan), indicating the primary standards/guidelines to be followed, and the main sustainability requirements that are non-negotiable.		2	12 16	12.a 16.6
		Suggest a sustainability leader in the Administrative Council (if applicable)		2	12	12.a
SSR2	Provide Organizational Governance Structure aligned with the sustainability requirements	**Implement** a Compliance program and train the staff on its requirements	Anticorruption law 12846 - 2013.	1	16	16.5
		Implement a program to track and solve workplace issues related to (e.g., bullying, sexual harassment, discrimination)	Law 14.457/22/Law 14.540/23 and Law 7.716/89	1	16	16b
		Establish no child or forced labor	Law 8069 - 1990	1	8	8.7
		Open an internal channel to receive employees' contributions toward sustainability		2	12	12.a
		Define and adopt sustainability criteria to evaluate and approve projects together with financial criteria in the Feasibility Study in order to present the benefits in the short and long-term		2	17	17.4
		Assess the business materiality periodically, according to the changes/phases in the Organization's sustainability journey and its sustainability policy to support the decision-makers for the best strategy to be followed (e.g., GRI Standards, SASB, IFRS, ISO 26000, etc.)		2	16 17	16.6 17.4
		Provide training for engineers/leaders/on-site employees/support areas within the Organization (e.g., law/financial/communication/IT) in sustainability encompassing energy, emissions, impacts, technology, environment, social issues, etc. to change attitudes toward sustainability		2	8	8.3
		Employ visible minorities (Racial and Ethnic, LGBTQ+, Women and Gender, Religious, Socioeconomic Disadvantaged Groups, People with Disabilities, Immigrants, and Refugees) with no discrimination.		2	8	8.5
		Provide training to the staff to understand the concept of inclusion to learn how to deal with minorities (cultural change, training, lectures). Have awareness, understanding, adoption of practices, and exercise the process.		2	8	8.5
		Provide a focal external channel to receive, treat, and respond to complaints related to the Organization - both for internal and external issues		2	17	17.4
		Define compliance requirements to communicate with stated-owner organizations (roles and responsibilities, number of professionals involved in the meetings, etc.)		2	16	16.6
		Assess the sustainability requirements for funding and compare them to the Organization's strategy (International Finance Corporation (IFC), Banks, BNDES, etc.)		2	17	17.4
		Implement a governance where a committee makes relevant approvals		3	17	17.4
		Promote voluntary sustainable practices beyond legislation compliance		3	16	16.6
		Assess how the business sector will look like in 5/10 years from now		3	17	17.4
		Include sustainability criteria in top and middle management performance goals		4	17	17.4
		Subsidize conferences, seminars, and workshops on sustainable construction for leaders and team players		4	9	9.5
		Provide sustainability knowledge to small and medium companies (partners) through a web-based platform to help improve their sustainable management processes		4	12	12.8
		Adopt third-party audits to the sustainability reports		4	12	12.6
		Adopt standards to write sustainability reports (e.g., Global Reporting Initiative (GRI), Sustainability Accounting Standards Board (SASB), Task Force on Climate-related Financial Disclosures (TCFD), International Integrated Reporting Council (IIRC), ISO 26000, International Financial Reporting Standards (IFRS))		4	12	12.6
		Assess potential small business advancement in the project's local area		4	8	8.3

Table 7 - Framework guideline - at the organizational level

Framework Guideline - At the Organizational Level

CSSF1 - Build company strategy toward sustainability

ID	Strategic Sustainable Requirements - SSR (4)	Detailing Objective Actions (61)	Meet Brazilian legislation & resolutions	Level	Link to the SDG	Sub item
SSR3	Provide Project Governance Structure aligned with the sustainability requirements	**Conduct** assessment and inform externally about projects' social and environmental positive and negative impacts	Regulated by the National Environment Council (CONAMA) Resolution 09/1987 (holding of Public Hearings in the environmental licensing process)	1	12	12.6
		Designate project sponsor to the project committed to sustainability (both client (internal or external) and contractor).		2	12	12.6
		Foster voluntary actions toward the existing communities in the projects' neighborhood, according to the Organization's strategies		2	11	11.a
		Inform internally about projects' positive and negative impacts		2	16	16.6
		Designate an ESG agent to stay at the site and communicate with the communities		2	8	8.3
		Define a specific place, far from the construction site but easy to arrive, where the community or third-party employees can communicate about the project impacts and solve them very briefly		2	17	17.4
		Assess public acceptance of the project through a survey		2	17	17.4
		Provide a focal external channel to receive, treat, and respond to internal complaints related to the project		2	16	16.6
		Develop a standard to guide projects with sustainable management, indicators, monitoring, and control; define broad sustainability requirements to insert in the request for proposal		2	16	16.6
		Implement a specific kick-off with contractors and suppliers to discuss ethical behavior		2	16	16.6
		Train leaders on the organization's compliance requirements to communicate with stated-owner organizations (roles and responsibilities, number of professionals involved		2	16	16.6
		Implement workshops with the engineering team to present the project's sustainability impacts		2	12	12.6
		Assess the specific project materiality to support the decisions about the sustainability requirements to be implemented		3	12	12.6
		Define and adopt criteria to evaluate and approve project termination in the case the sustainability requirements, previously approved, can not be implemented		3	12	12.6
		Connect the negative materiality impacts to the results on human rights issues (e.g., how particulate emissions affect people's health, operating in a water-stressed area and consuming		3	17	17.4
		Develop robust planning in sustainability in the early stages (conceptual and basic designs) to benefit the following stages		3	17	17.4
		Develop a management process to capture, record, and distribute sustainability lessons from projects (management of sustainability knowledge)		3	8	8.3
		Indicate local community benefits from project results		3	8	8.3
		Adopt whole life costs models to demonstrate the long-term benefits of sustainability while deciding on the project's solutions		4	17	17.4
		Certificate projects sustainability solutions per third-party entities		4	12	12.6

Table 8 - Framework guideline - at the organizational level

Framework Guideline - At the Organizational Level						
CSSF1 - Build company strategy toward sustainability						
ID	**Strategic Sustainable Requirements - SSR (4)**	**Detailing Objective Actions (61)**	**Meet Brazilian legislation & resolutions**	**Level**	**Link to the SDG**	**Sub item**
SSR4	**Create a committee to foster and monitor sustainability externally, in the organization and in the projects**	**Assess** incentives, support, policies, and standards by various agencies/laws/government/funding (impacted by the projects' sustainability requirements) that may benefit or impact the Organization and the projects in the sustainability journey		**2**	**8**	**8.3**
		Assess how the standards imposed by industry or stakeholders may benefit or impact the Organization or projects		**2**	**8** **17**	**8.3** **17.17**
		Assess how a liaison with Senai and Senac (Brazilian entities that foster education) to train people locally can benefit the Organization and projects, if applicable.		**2**	**12** **4**	**12.a** **4.4**
		Assess if joining the United Nations Global Compact can benefit the Organization or projects		**2**	**8**	**8.3**
		Conduct an internal survey to capture the Organization's motivation and knowledge toward sustainability		**2**	**8**	**8.3**
		Foster voluntary actions toward the existing communities in the projects' neighborhood, according to the organizations' strategies		**2**	**11**	**11.a**
		Assess national and international guidelines of relevant entities related to energy and water that may advise the Organization or projects, if applicable (e.g., in the USA: NREL - National Renewable Energy Laboratory, Environmental Protection Agency (EPA), Alliance for Water Efficiency (AWE); American Water Works Association (AWWA), The Nature Conservancy (TNC; in Brazil: Agência Nacional de Águas (ANA), Associação Brasileira de Engenharia Sanitária e Ambiental (ABES), Associação Brasileira de Recursos Hídricos (ABRH), Instituto Brasileiro de Administração Municipal (IBAM); in the EU: European Environment Agency (EEA), European Water Partnership (EWP); European Water Resources Association (EWRA); Water Framework Directive (WFD), European Commission (EC).		**3**	**12**	**12.6**
		Monitor and evaluate the current state of sustainability (ESG) in the projects, demand corrective measures to deviations		**3**	**16**	**16.6**
		Investigate the carbon credits market and how the business can benefit from it		**3**	**13**	**13.3**
		Assess if certifications may benefit the business (e.g., ISO Standards, B Company (B Corps, or Beneficial Corporations, are businesses that act in ways that benefit society as a whole. What defines them is their belief that the purpose of a company is not just profits but also social and environmental good).		**3**	**12**	**12.6**
		Assess external pressure of market/stakeholders (investors, banks, communities, users, regulators) and new rules toward sustainability relative to the Organization's business sector and how it may impact the Organization and projects (e.g., EU regulation - SFDR - Sustainable Finance Disclosure Regulation/ IFRS - International Financial Reporting Standards/ ANP Regulations/Environmental agencies regulations)		**3**	**16**	**16.6**
		Designate an auditor (internal or external) to oversee the ESG requirements implementation in the project		**3**	**16**	**16.6**
		Assess projects' sustainability results and the value delivered to society and the Organization's future		**3**	**12**	**12.6**
		Assess liaisoning with other Organizations that operate in the same neighborhood to cooperate with better and collectively sustainable solutions or with Organizations that operate in the same sector		**4**	**17**	**17.16**
		Partnership with academic researchers/consultants to leverage sustainability readiness		**4**	**9**	**9.5**
		Review periodically business strategies towards sustainability and how the Organization wants to be in the future		**4**	**16**	**16.6**
		Encourage certification (if applicable)/education for professionals in sustainability		**4**	**17**	**17.16**

7 CONCLUSIONS

The findings of this study yield a comprehensive framework guideline designed to empower organizations on their path toward sustainability. This guideline comprises a well-structured list of objective actions clustered in strategic requirements under a critical sustainable success factor. Its primary purpose is to serve as an invaluable tool for organizations seeking to fortify their commitment to sustainability.

Within this framework, organizations can conduct a rigorous self-assessment. This self-examination enables them to pinpoint their current sustainability standing, align the objective actions with their strategic objectives, and commence or elevate their sustainability journey with precision and purpose.

Crucially, this framework is not a static document but is intended to remain dynamic and adaptable. Future researchers are encouraged to revise and update it as sustainability evolves within organizations, responding to emerging demands and ever-evolving best practices.

In addition, future studies could explore the technological dimension at the organizational level, illuminating how it can enhance the seamless integration of sustainability principles into project management practices. Such investigations promise to yield further insights and advancements in pursuing sustainable and responsible business practices.

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