Framework for Submitting Projects to Public Innovation Calls: A Case Study of the Smart Cities Innovation Center Project

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***Abstract*—Submitting complex projects to public innovation calls requires governance, traceability, and objective adherence to technical and documentary criteria. This article presents a replicable framework for proposal planning and writing, formalized as an operational Step–Description–Action Plan table, applied to the submission of the Smart Cities Innovation Center to the MCTI/FINEP/FNDCT (2021) call for financial support to innovation centers. The framework structures nine stages, from institutional due diligence to quality control and submission, incorporating Theory of Change in the logical-operational modeling and Gap Analysis based on evaluation criteria as a mechanism for optimizing merit and mitigating elimination risk. As evidence of application, the reference Project 0926/22 enabled funding of R$ 4,754,775.20. The evaluation criteria and their respective weights are also detailed, linking the framework to the assessment logic**

***Keywords*—fundraising; public calls; innovation centers; smart cities**

I. Introduction

Public policy for Science, Technology, and Innovation (ST&I) in Brazil is structured to induce economic and social benefits, which imposes challenges on proposing institutions during the project formulation and submission stages [1]. In this context, proposal development must go beyond technical consistency, incorporating specific objectives, metrics, and traceable evidence that enable execution monitoring and the evaluation of results and impacts, in line with recommendations for strengthening monitoring and evaluation [1].

This article deepens the analysis of methodologies for submitting complex projects, using as a case study the Smart Cities Innovation Center of Lucas do Rio Verde (MT), approved under the Public Call MCTI/FINEP/FNDCT/Innovation Environments Program – Public Selection of Proposals for Financial Support to Innovation Centers (2021) [2]. The relevance of this study lies in the empirical demonstration that the adoption of management frameworks—specifically the integration of Theory of Change (ToC) with Gap Analysis—constitutes a determining factor for the competitiveness of new actors in the national innovation landscape, enabling municipalities in the interior, without the tradition of major university centers, to access substantial funding for digital transformation.

The analysis that follows is not limited to describing the success of fundraising but dissects the "engineering process" behind the proposal. It examines how the agro-industrial vocation of Lucas do Rio Verde was translated, through the theoretical lens of the Smart City Wheel from the Smart City Hub Switzerland, adapted from Boyd Cohen [3], into a technological infrastructure project aligned with federal requirements. Furthermore, the article explores the nuances of FINEP's merit evaluation, discussing how methodological structuring directly influenced the scores obtained in critical criteria such as "Institutional Partnerships" and "Contribution to Local Development."

II. Context

The proposal for a Smart Cities Innovation Center in Mato Grosso is framed within a practical problem of territorial competitiveness. Industries and agro-industries in the state have historically faced a shortage of skilled workers [4], and the ability to attract and retain talent is influenced by urban factors—such as quality of services, mobility, safety, access to opportunities, and overall well-being [5]. In this sense, improving cities is not merely a public agenda; it is a strategic lever that reduces labor frictions and contributes to enhancing the competitiveness of the productive environment.

Within this framework, the role of SENAI MATO GROSSO is aligned with its mission to foster industry through applied innovation, capacity building, and productivity enhancement. The smart cities agenda thus operates as a means to strengthen the territory that sustains industrial activity, articulating government, academia/research institutions, and the productive sector around results-oriented urban solutions and services.

Lucas do Rio Verde (MT) is presented as a favorable context for this type of intervention, as it has already established itself as a successful case in smart cities, demonstrating maturity in public policies related to the theme and a history of awards in the field, reinforcing the legitimacy of the territory and the coherence of the initiative [6][7].

Regarding the submission cycle, the work was conducted under a compressed internal timeline—approximately 45 days until the call deadline—requiring strategies to consolidate partnerships, documentation, and the technical-operational design of the project within a limited timeframe, with the team operating under conditions of prioritization and continuous replanning of activities.

III. Theoretical Review

The robustness of an innovation proposal depends on the strength of its theoretical foundations. In the case under analysis, three theoretical approaches were mobilized to structure the project: the multidimensional Smart Cities model, the planning methodology based on Theory of Change, and the auditing techniques of Gap Analysis.

A. The Smart City Wheel: A Holistic Approach

To substantiate the project's thematic foundation and move beyond the reductionist view that "Smart Cities" are limited to the installation of sensors, the proposal adopted the Smart City Wheel framework from the Smart City Hub Switzerland, based on the model developed by urban strategist Boyd Cohen [3]. The structure provided by this model is considered intuitive, organizing the broad concept of urban intelligence into six interdependent dimensions, referred to as "smart": Economy, Environment, Governance, Living, Mobility, and People. This configuration enables a clear categorization of the proposed interventions.

B. Theory of Change (ToC)

Theory of Change (ToC) is a planning method that makes explicit the project's causal chain: the intended impact, the intermediate outcomes required, the outputs to be delivered, and the activities that generate them, while clearly identifying underlying assumptions and risks. In practice, it is constructed through backward mapping (starting from the impact and working back to the activities), which improves textual coherence and facilitates project defense before evaluation committees. In the case under analysis, ToC was used to link the investment to the intended impact and to document critical assumptions (demand, institutional engagement, and the feasibility of the sustainability model) [8].

C. Gap Analysis: Optimization and Compliance

Gap Analysis is a diagnostic technique that compares a current state with a desired state to identify differences that must be addressed. In management, project, and compliance contexts, it translates requirements and objectives into an objective map of "what exists" versus "what is missing," supporting prioritization, assignment of responsibilities, and the definition of corrective actions.

In the present study, Gap Analysis was applied first as an internal diagnostic of capacity and submission inputs, mapping gaps in information, evidence, responsibilities, and artifacts against the requirements of the call. In parallel, it was used as a diagnostic tool for the project's target problem itself, identifying gaps within the territory/system that the proposal aimed to address (i.e., the mismatch between the current and desired conditions in terms of services, infrastructure, governance, and capabilities).

The output consolidated a matrix structured as requirement → responsible party → evidence → deadline, complemented by a framework of problem gap → objective → deliverable, guiding both the prioritization of tasks and the refinement of the project's technical-operational design within the available timeframe [9].

IV. Methodology

The method applied to develop the proposal did not follow a linear workflow. It was conducted iteratively, with cycles of review and refinement until final consolidation, structured into nine sequential stages. Table I presents this framework, including the description of each stage and the corresponding action plan for execution.

Table I – STEP–DESCRIPTION–ACTION PLAN FRAMEWORK FOR DEVELOPING PROJECTS IN PUBLIC INNOVATION CALLS

Stage	Description	Concise Action Plan
1. Eligibility verification and documentary compliance	Ensure formal adherence to the call and eligibility conditions (roles, representation, legal compliance, co-funding, and others).	Go/no-go checklist; validate representations/signatures; organize version-controlled dossier; resolve pending issues; define rules for co-funding, attachments, and restrictions.
2. Consolidation of institutional capabilities and evidence	Consolidate proof of execution capacity: portfolio, team, infrastructure, governance, partner network, and demand.	Map roles and availability; list available infrastructure; organize evidence and sources; mobilize targeted support (specialists/technical assistance).
3. Logical-operational structuring of the proposal	Structure problem → objectives → deliverables → evidence → results/impacts; define scope/out-of-scope, Work Breakdown Structure (WBS), and acceptance criteria.	Define project thesis; delimit scope/out-of-scope; develop WBS; link "deliverable + evidence"; define acceptance criteria and minimum governance.
4. Referencing through benchmarking and analogous models	Search for similar centers and initiatives to calibrate services, ESG alignment, and design coherence.	Select analogous cases; extract replicable patterns; map differentiators and applicable lessons; adjust scope/deliverables to evaluation standards.
5. Preliminary resource sizing	Estimate resources by deliverable, distinguishing CAPEX and OPEX, ensuring coherence with timeline and co-funding.	Separate CAPEX/OPEX; parameterize by unit/deliverable; justify technically; link item → deliverable → evidence; verify limits, restrictions, and co-funding.
6. Partnership articulation and formalization (triple helix)	Formalize commitments with government, academia/research institutions, and industry: contributions, responsibilities, governance, and demand pipeline.	Conduct meetings per helix; agree on responsibilities/contributions; define governance routines; structure pipeline; formalize partnerships (letters of support, agreements, cooperation protocols).
7. Call-oriented gap diagnosis (Gap Analysis)	Diagnose internal gaps against call requirements (information, evidence, responsibilities, artifacts), prioritizing eligibility and merit.	Matrix: requirement → responsible → evidence → deadline; classify "eliminatory vs. scorable"; prioritize corrections; reinforce capacity/sustainability; ensure coherence (scope–budget–timeline).
8. Evidence-based and auditable technical writing	Develop an operational and verifiable version with execution mechanisms, risks, governance, sustainability, and monitoring aligned with evidence.	Write by blocks (scope/deliverables/execution); standardize terminology; include evidence and acceptance criteria; review consistency (values, names, deadlines, deliverables).
9. Final validation, packaging, and submission protocol	Ensure formal and technical integrity of the submission package.	Final checklist; validate attachments/signatures; verify system fields and documents; archive final package (versions, evidence, submission record).

In Stage 4, a indirect desk-based online benchmarking was conducted using the Smart Cities Innovation Center of the University Center for Economic and Administrative Sciences (CUCEA), University of Guadalajara (UDG) [1], as an

[1] Centro de Innovación de Ciudades Inteligentes, CUCEA/UDG, website: http://cici.cucea.udg.mx

analogous reference to identify possible configurations for services, governance, and stakeholder articulation, thereby reducing the time required to define the initial structure of the proposed center.

A. Innovation Project Pillars

To provide scientific coherence to the proposal, the Center's actions were mapped and structured according to the six dimensions of the Smart City Wheel [3]. Table II illustrates how each theoretical dimension was translated into practical project deliverables (Laboratories, Programs, Governance), facilitating the evaluation committee's understanding of the scope of the intervention.

TABLE II STRATEGIC ALIGNMENT MATRIX: SMART CITY WHEEL DIMENSIONS AND PROJECT ACTIONS

Smart City Dimension	Expectation	Planned Actions in the Project
Smart Governance	Citizen participation, transparent structures, and technology-supported decision-making.	– Connect municipal management through a smart cities challenge call. – Foster memoranda of understanding and cooperation with research institutions and local government. – Promote shared governance with SENAI MATO GROSSO Operational Units. – Provide an open innovation event involving ecosystem stakeholders.
Smart Economy	Implementation of economic strategies based on digitalization, competitiveness, and innovation.	– Foster a startup creation program through calls and mentorship. – Promote development and acceleration programs for smart city startups. – Structure pre-acceleration of innovation projects with companies. – Operate funding acquisition programs and investor connections.
Smart Mobility	Local accessibility, modern transportation systems, and sustainable resource management.	– Establish a Smart Urbanism Laboratory focused on urban mobility. – Provide equipment for traffic and transportation system simulation. – Foster projects in intelligent urban transport and mobility. – Integrate urban data into mobility studies within the laboratory.
Smart Environment	Energy optimization and sustainable management of natural and built resources.	– Establish a Smart Grids Laboratory. – Establish a Lighting Engineering Laboratory for illumination assessment. – Provide laboratory infrastructure for smart urbanism. – Foster projects in energy efficiency and urban sustainability.
Smart People	Skilled human capital, flexible education, and integration of digital competencies.	– Train staff in emerging smart city technologies. – Promote training and mentorship programs for entrepreneurs. – Connect researchers, students, and companies to laboratory usage. – Provide coworking spaces, meeting
Smart Living (Quality of Life)	High quality of life, cultural opportunities, and harmony between humans and the environment.	Structure the center as a hub for priority municipal challenges. Provide a data laboratory for urban indicator analysis. Promote events and calls aligned with urban sustainability and SDGs. Connect platform and application between the center, ecosystem, and public management.

V. Results and Discussion

The effectiveness of the methodological framework was subjected to external evaluation by FINEP. The analysis of the official results and the scores assigned provides a precise diagnosis of what works and where bottlenecks lie in the submission of projects of this nature.

A. Analysis of Performance in the Merit Evaluation

The Smart Cities Innovation Center project was approved in the Public Call, ensuring its eligibility for contracting. The amount recommended by FINEP was R$ 4,754,775.20. The final score obtained was 3.607 (on a scale from 0 to 5), ranking twentieth among a list that previously included 55 qualified proposals [2].

Table III breaks down the final score across the seven evaluation criteria of the call, enabling a detailed analysis of the proposal's performance.

TABLE III – MERIT EVALUATION CRITERIA AND ASSIGNED SCORES

Evaluation Criteria	***Score Range***	***Weight***	***Score***
1. Contribution to local development and alignment with local and regional innovation plans	1 to 5	5	4
2. Technological and innovation capability	1 to 5	5	4
3. Set of installed companies (nature, areas of activity, size, and linkage to the innovation center)	1 to 5	4	2
4. Ability to attract investors and generate revenue	1 to 5	4	3
5. Adequacy of execution timelines, budget, and physical-financial schedule	1 to 5	3	3.5
6. Current stage of available infrastructure and services offered by the innovation center	1 to 5	3	3.5
7. Institutional partnerships	1 to 5	4	5
Final Average Score			3.607

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VI. Final Considerations

This article proposed and analyzed a replicable framework for submitting complex projects to public innovation calls, based on the integration of Theory of Change and Gap Analysis. Applied to Project Ref. 0926/22, the framework supported the structuring of the Smart Cities Innovation Center proposal, which secured R$ 4,754,775.20 in funding and obtained a Final Average Score of 3.607 in FINEP's merit evaluation.

The results indicate that the strongest dimensions of the proposal were institutional articulation and territorial alignment. The highest score was obtained in Institutional Partnerships, demonstrating that the formalization of commitments among government, research institutions, and the productive sector was a decisive strength of the submission strategy. High scores in Contribution to Local Development and Technological and Innovation Capability also suggest that the proposal successfully connected the smart cities agenda to regional development needs and to the institutional capabilities of SENAI Mato Grosso.

At the same time, the evaluation revealed important bottlenecks. The lower score in the criterion related to the set of installed companies indicates that, although the project was

technically and institutionally coherent, the innovation center still needed stronger evidence of an active business base directly connected to its operation. The intermediate scores in revenue generation, infrastructure maturity, and execution adequacy show that the framework was effective in reducing eligibility and coherence risks, but that future proposals should strengthen market traction, sustainability mechanisms, and evidence of operational readiness.

Therefore, the main contribution of this article is the presentation of a replicable framework for proposal planning and writing, formalized as an operational Step–Description–Action Plan table. The framework organizes the submission process into stages, responsibilities, evidence, deliverables, and merit-oriented adjustments, supporting greater traceability, coherence, and alignment with evaluation criteria. Future work may apply it to other calls and institutional contexts to verify its adaptability and limitations.

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