

# Collaborative and Agile Construction of Digital Solutions: The Lean Inception Experience in A Public Agency

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Received date: November 03, 2025; Accepted date: November 17, 2025; Published date: November 25, 2025

Citation: Jefferson Gonçalves, Tancredo A. Marques, Tayline W. Bispo, Maria C. Mesquita, (2025), Collaborative and Agile Construction of Digital Solutions: The Lean Inception Experience in A Public Agency, *J Clinical Research and Reports*, 21(5); DOI:10.31579/2690-1919/579

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## Abstract

This article presents the experience of applying the Lean Inception methodology to support the development of Information Technology (IT) projects in a federal government agency, focusing on the collaborative and agile development of digital solutions aimed at improving internal processes. According to CAROLI (2018), Lean Inception is a methodology focused on defining and aligning a Minimum Viable Product (MVP), used to promote integration among multidisciplinary teams, identify real user needs, and prioritize functionalities objectively. In the case presented here, it can be concluded that the results demonstrated gains in clarity of purpose, participant engagement, and assertiveness in solution development. The experience demonstrates the potential of this approach to foster innovation in the public sector, reduce waste, and deliver value incrementally and continuously.

**Kew Words:** lean inception; innovation in the public sector; minimum viable product (mvp); agile management; digital transformation

## Introduction

Reducing bureaucracy is a sensitive issue for public administration as a whole. In the context of the federal public agency that is the focus of this investigation, one of the strategic goals is to reduce bureaucracy and implement agile methods. This goal can be identified as a topic in the Information and Communication Technology Master Plan (PDTIC), a document that guides the agency's technology initiatives, aiming to meet its final and information needs for the period 2025 to 2028. The target audience for public services, in this context, generally consists of scholarship students, researchers, professors, and scientists. These profiles, by their very nature, demand agility in the delivery of services, whenever possible, updated with the agile and current resources of today. Regardless of the beneficiary profile, it is important to consider that historically, in many scenarios, public administration has had difficulty keeping up with citizens' demands in real time, requiring a constant search for agile methods. Given the demands of educational policies and programs, the public agency participating in the research needs to quickly publish calls for proposals that enable access to resources for its target audience. This led to the idea of using agile methods like Lean Inception, which brings together support and end-use areas in the same environment for a specific period to jointly develop appropriate tools. This article presents the Lean Inception experience from the participants' perspective, with the aim of elucidating whether the experience had a positive result

through an internal survey of the public agency's employees who participated in the process.

### 1. Theoretical Framework

From a theoretical point of view, *Lean Inception is based on key Lean concepts Thinking* (Womack & Jones, 1996), such as eliminating waste, delivering continuous value, and focusing on the customer. Furthermore, it incorporates principles from the Agile Manifesto (Beck et al., 2001), such as collaborating with the customer and responding to change. The *Lean Inception framework* consists of a series of interactive workshops, held over the course of a week, aimed at building a clear product vision, defining personas, mapping user journeys, aligning features, and prioritizing deliverables. Recent studies indicate that the adoption of *Lean Inception* contributes significantly to reducing rework and increasing efficiency in software development (Gonçalves & Silva, 2021; Martins et al., 2022). Furthermore, its use has been reported in different contexts, from startups to large organizations, demonstrating its adaptability and effectiveness in building user-centric digital products. Thus, this theoretical framework seeks to deepen the understanding of the foundations, practices and impacts of *Lean Inception*, in order to support the analysis of its application in innovation and digital transformation projects.

## 2.1 Lean Inception

*Lean Inception* is a collaborative and objective approach focused on defining minimum viable products (MVPs) efficiently and aligned with business objectives. Created by Paulo Caroli (2018), with the release of the book *Lean Inception: How to align people and build the right product*. The methodology is based on practices from Lean philosophy and agile thinking to promote convergence between business, design, and development areas, ensuring a shared understanding of what needs to be built. This technique has gained prominence in dynamic corporate environments, where rapid hypothesis validation and continuous learning are required to deliver value. *Lean Inception* emerged as a practical response to the challenges faced by development teams in clearly and collaboratively defining digital products. Inspired by *Lean principles Thinking* (WOMACK & JONES, 1996) and the Agile Manifesto (BECK et al., 2001), *Lean Inception* offers a week of structured workshops to align expectations and plan the MVP. The method has been adopted by Brazilian organizations, particularly in sectors seeking agility in delivering customer value. Over the years, *Lean Inception* has expanded beyond the national landscape and has been adopted by multinational companies, being used in digital transformation and innovation projects across a variety of sectors. Academic studies and case reports have reinforced the methodology's effectiveness, highlighting its contribution to reducing rework, improving team communication, and focusing on delivering value to users (GONÇALVES & SILVA, 2021; MARTINS et al., 2022). Currently, *Lean Inception* is considered a well-established practice within the agile toolkit, taught in courses, applied in consulting, and adapted to different organizational contexts. Its evolution reflects the growing demand for collaborative and lean methods that promote fast and effective delivery in digital product development.

## 2.2 The Locus of Research

Founded in 1951, the public agency where the analytical experience was developed is responsible for the induction, coordination, and evaluation of *stricto sensu* graduate programs in the country. Briefly, its trajectory can be organized into four fundamental periods:

- Implementation (1951-1969), characterized by the training of teaching staff abroad and the initial structuring of the system;
- Consolidation (1970-1989), marked by the creation of the national evaluation system and expansion of postgraduate studies;
- Diversification (1990-2009), with emphasis on internationalization and interdisciplinarity; and
- Contemporary phase (2010-present), highlighting technological innovation initiatives and the adoption of agile methodologies in management.

The agency has evolved from a body focused primarily on training university professors to a complex agency for promoting scientific and technological research. The foundation played a fundamental role in building the national science and technology system, but it faces the challenge of adapting to the new demands of the 21st century, particularly regarding digital transformation and the competitive internationalization of Brazilian research.

## 2.3 Lean Inception and Innovation in the Public Sector

To understand how *Lean Inception* works within the State, it is crucial to examine the ideas behind this approach and how they fit into the current challenges of public administration. Inspired by *Lean Thinking* (Womack and Jones, 1996), *Lean Inception* emerges as a natural advancement of agile practices, shaped for the essential phase of defining and adjusting minimum viable products (Caroli, 2018). Specialized publications show that agile methods, initially created for the technology sector (Schwaber and Sutherland, 2020), have been progressively adapted to the government environment, although with notable implementation

challenges (Janowski, 2015). In this context, *Lean Inception* stands out for providing a concise structure to overcome traditional bureaucratic inflexibility, a prominent characteristic of public organizations, as highlighted in Hood's (1991) studies on New Public Management. Caroli's (2018) works establish the theoretical foundations of *Lean Inception*, emphasizing its collaborative and user-centered nature. This approach connects directly with the concepts of design thinking (Brown, 2008), especially with regard to empathy among stakeholders and agile prototyping. The methodology is particularly relevant for the public sector when considering Mergel's (2016) research on government innovation, which highlights the need for more flexibility in public service development processes. In the specific context mentioned, the use of *Lean Inception* reveals an interesting convergence with digital governance theories (Dunleavy et al., 2006). Recent literature (Institute of Applied Economic Research - IPEA, 2021; Organization for Economic Cooperation and Development - OECD, 2020) indicates a growing demand for agile methods in research funding agencies, although significant gaps remain in the documentation of practical cases. Vincx's (2020) studies on agile transformation in the public sector warn of the risks of superficial adoption of these methodologies without proper adaptation to institutional concerns. A critical analysis of the literature reveals three primary tensions that underlie the implementation of innovative approaches in the public sector. First, there is the inherent dichotomy between the need for agility and the rigorous control requirements typical of public administration (Pollitt, 2016). Second, there is the persistent challenge of measuring tangible results in processes that are inherently iterative in nature (Janowski, 2015), where continuous evolution makes standardized assessment difficult. Finally, there is a lack of clear and replicable models for the scalability of solutions that prove effective on a small scale (Mergel et al., 2018), limiting the expansion of their impact. These tensions highlight the complexities of the governmental context and underscore the critical need for more empirical research documenting the application of methodologies such as *Lean Inception* in its various scenarios. Available case studies (Caroli, 2018; IPEA, 2021) suggest that implementation success critically depends on three factors: (1) alignment with broader organizational strategies (Mintzberg, 1994); (2) an ability to adapt to existing regulatory frameworks (Pollitt, 2016); and (3) ongoing stakeholder engagement (Bryson, 2018). This finding echoes collaborative governance principles (Ansell and Gash, 2008), indicating that *Lean Inception* can serve as a link between agile practices and traditional public management models. Basically, the theoretical context shown here sets the stage for understanding how *Lean Inception* can work in a government-owned organization, placing it within the broader framework of theories of public sector innovation, digital governance, and agile management. The review demonstrates how this approach can change the context and the theoretical and practical obstacles that future studies will need to overcome.

## 2.5 Applying Lean Inception as An Mvp

*Lean* meetings began *Inception*, applied to the planning and design of the technological framework required for the public education program underway. The target audience for this program is undergraduate students. *Lean* methodology was chosen. *Inception* to facilitate the visualization and structuring of the MVP, with the ultimate goal of ensuring that beneficiaries achieve their goal of obtaining scholarships (Caroli, 2018). The meetings were attended by public servants and employees from two of the agency's departments: the Information Technology Department (ITD) and the final department responsible for managing the program. The first meeting involved the *kick-off stage*, during which participants were introduced to the methodology and product overview. This phase aimed to align expectations and present the initiative's strategic objectives. On the second day of the meeting, the personas were defined, based on the construction of the Empathy Map, a tool of the aforementioned methodology that seeks to identify what each representative profile sees, hears, thinks, and feels (Caroli, 2018). Three

main personas were defined: the financial manager, the scholarship manager, and the scholarship recipient. The third meeting focused on feature leveling. At this stage, the desired system features were listed, estimating the value generated and the effort required for implementation for each. The degree of technical uncertainty and the level of agreement among the business areas involved were also assessed. On the fourth day, the user journey and feature sequencing were developed. This phase consisted of associating features with personas and mapping out when these features are triggered during the user experience, providing a more concrete view of the system's interaction flow. Finally, on the final day, participants completed the MVP Canvas, a tool that consolidates all the information gathered in the previous stages. The activity culminated in the *Showcase*, where participants presented a general summary of the process and validated the decisions made. As a result, the initiative's MVP was generated, which, in the context of the public agency, consists of a technical instrument containing essential requirements and initial guidelines for the development of the first system aimed at operationalizing the public program.

## 1. Methodology

The survey questions were directed to the employees and collaborators who participated in Lean Inception. The questions allowed responses to classify the interviewee's agreement, from 1 to 5, representing "I strongly agree (5)", "I agree (4)", "I neither agree nor disagree (3)", "I disagree (2)" and "I strongly disagree (1)". The research results are expected to provide an understanding of the level of acceptance of Lean Inception, as an agile methodology in public service, and to understand how this methodology impacted the users involved in its application.

## 1. Results And Discussions

This chapter presents and analyzes the main results obtained from the questionnaire, the central data collection instrument for this research. The collected data were organized and interpreted in light of the established objectives, seeking to identify evidence regarding the impact of applying the *Lean Inception methodology* in the public service context. The first question, "Did you notice higher engagement than usual when discussing the meeting topics/objectives in the *Lean Inception format*?" 29% of participants responded "Strongly Agree" and 71% responded "Agree". The second question, "The dynamics applied during *Lean Inception* helped align the team's objectives," was answered by 29% of respondents with "I Strongly Agree," and 71% answered "I Agree." The third question posed to participants was: "Were the activities well-conducted and within the allotted time?" Of the participants, 14% responded "Neither agree nor disagree," while 29% responded "Strongly agree," and 57% responded "Agree." For the question "The decisions were made collectively and democratically." 14% of the responses were "I completely agree" and 86% answered "I agree". For the question "*Lean Inception* brought clear benefits to project planning and execution", 29% of responses were "I agree" and 71% responded "I completely agree". The sixth question presented to participants was: "Were the results obtained with *Lean Inception* applicable to the reality of the development foundation?" Of the participants, 14% answered "Neither agree nor disagree," while 29% answered "Agree," and 57% answered "Strongly agree." For the question "At the end of *Lean Inception*, it was clear what should be delivered in the Minimum Viable Product (MVP)" 43% of responses were "I agree" and 57% responded "I completely agree". For the question "Am I satisfied with the overall experience of *Lean Inception*?" 100% of the responses were "Yes". The ninth question presented to participants was: "Was there continuity in actions after the *Lean Inception*?" Of the participants, 14% answered "Neither agree nor disagree," while 29% answered "Agree," and 57% answered "Strongly agree." For the question "Would you recommend the use of *Lean Inception* in other projects within the development foundation?" 100% of the responses were "Yes". For the question "Would you consider participating in a *Lean Inception* again at the development foundation?" 100% of the responses were "Yes". The

final and optional question was: "Leave a report about your experience with *Lean Inception*" had 2 answers which were:

1. The needs presentation process is very creative, which helps in understanding the process to be solved and significantly contributes to all levels' commitment to resolving issues. The playfulness and creativity are a highlight, making the process light and productive. Congratulations to the team involved.

2. Great experience. The team is to be congratulated for their management. The only difficulty is balancing schedules.

Based on the responses, participants' perception of the *Lean Inception experience is largely positive*. The first questions indicate a high level of engagement and alignment of objectives, with the vast majority of respondents marking "Agree" or "Strongly Agree." The implementation of activities and adherence to the allotted timeframe were also well-evaluated, although a small percentage remained neutral. The extremely favorable evaluation of democratic decision-making, the perceived benefits in project planning and execution, and the applicability of the results to the foundation's reality stand out. Questions related to the MVP's clarity, the continuity of actions, and overall satisfaction with the experience showed unanimous or high positive agreement. Furthermore, 100% of participants stated they would recommend the methodology for other projects and would participate again. Qualitative reports reinforce the perception of a creative, collaborative, and well-managed dynamic, although they highlight challenges such as scheduling.

## 1. conclusion

This article presented the experience of applying the Lean Inception methodology in the context of public administration as a strategy for reducing bureaucracy, intersectoral alignment, and increasing agility in formulating deliveries, as in the case of preparing strategic notices. Analysis of the data collected through the questionnaire administered to *Lean Inception participants* revealed a largely positive perception of the methodology's effectiveness. The results indicate that the approach helped increase participant engagement, promote alignment of objectives among the departments involved, and enable more collaborative decision-making. Furthermore, respondents noted that the planned deliverables became clearer and more applicable to the institutional context, reinforcing the methodology's suitability for the public sector. Qualitative reports complement the quantitative data, highlighting the creativity of the dynamics and the ability to engage different hierarchical levels in a collaborative and productive process. Although scheduling was identified as a challenge, the overall assessment was largely favorable, with all participants indicating a willingness to repeat the experience and recommend its use in other projects.

The conclusion is that *Lean Inception* has proven to be a promising tool for public administration, especially in contexts that require agility, alignment across multiple departments, and deliveries focused on public value. This experience can serve as a benchmark for other government institutions seeking to innovate in project management by adopting agile practices in a structured, participatory, and efficient manner. For future research, it is recommended to deepen the study in different organizational contexts, as well as longitudinal monitoring of the practical impacts of the actions planned during *inceptions*, in order to broaden the understanding of their effectiveness and sustainability in the public sector.

## References

1. ANSEL, C.; GASH, A. (2018). Collaborative governance in theory and practice. *Journal of Public Administration Research and Theory*, vol. 18, no. 4, p. 543-571.
2. BATISTA, Paulo Caroli. (2018). *Lean Inception: How to Align People and Build the Right Product*. São Paulo: Caroli.org.

3. BECK, Kent et al. (2001). Agile Manifesto for Software Development.
4. GONÇALVES, R.; SILVA, M. (2021). Practical applications of Lean Inception in agile teams. *Software Engineering Journal*.
5. BRAZIL. Decree No. 29,741 of July 11, (1951). Creates the Coordination for the Improvement of Higher Education Personnel. *Official Gazette of the Union, Rio de Janeiro, July 12*.
6. (2018). BRYSON, JM Strategic planning for public and nonprofit organizations. 5. ed. Hoboken: *Wiley*.
7. BROWN, T. (2008). *Design thinking: a powerful methodology for declaring the end of old ideas*. Rio de Janeiro: *Elsevier*.
8. DUNLEAVY, P. et al. (2006). *Digital era governance: IT corporations, the state, and e-government*. Oxford: Oxford University Press.
9. HOOD, C. (1991). A public management for all seasons? *Public Administration*, vol. 69, no. 1, p. 3-19.
10. (2021). IPEA – Institute of Applied Economic Research. *Bureaucracy and efficiency in the Brazilian public sector*. Brasília: IPEA.
11. JANOWSKI, T. (2015). Digital government evolution: from transformation to contextualization. *Government Information Quarterly*, vol. 32, no. 3, p. 221-236.
12. MARTINS, L. et al. (2022). Lean Inception and its contribution to digital innovation projects. *Proceedings of the Brazilian Systems Congress*.
13. MERGELL, I. (2016). Agile innovation management in government: A research agenda. *Government Information Quarterly*, vol. 33, no. 3, p. 516-523.
14. MERGELL, I. et al. (2018). Agile government: Systematic literature review and future research. *Government Information Quarterly*, vol. 35, no. 2, p. 291-298.
15. MINTZBERG, H. (1994). *The rise and fall of strategic planning*. New York: Free Press.
16. MOROSINI, MC (Org.). (2006). *Encyclopedia of university pedagogy*. Porto Alegre: FAPERGS/RIES, v. 2. (Entry "CAPES", p. 78-85).
17. (2020). OECD – Organization for Economic Co-operation and Development. *The innovative capacity of public procurement*. Paris: OECD Publishing.
18. OLIVEIRA, JBA; FONSECA, M. (2022). The challenges of internationalization of Brazilian postgraduate studies in the context of CAPES PrInt. *Education and Research, São Paulo*, v. 48, e20220045.
19. POLLITT, C. (2016). Managerialism redux? *Financial Accountability & Management*, vol. 32, no. 4, p. 429-447.
20. SCHWABER, K.; SUTHERLAND, J. *Scrum Guide*. 2020.
21. SGUISSARDI, V.; SILVA JUNIOR, JR. (2009). *Intensified work in federal universities: postgraduate studies and academic productivity*. São Paulo: Xamã.
22. VINCX, P. (2020). *Agile transformation in the public sector*. Berlin: Springer.
23. WOMACK, JP. (1996). JONES, DT *Lean thinking: banish waste and create wealth in your corporation*. New York: Simon & Schuster.



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DOI:10.31579/2690-1919/579

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