



WHAT EXACTLY IS OUR PROBLEM? CHALLENGES TO PUBLIC PROCUREMENT OF INNOVATION

QUAL É MESMO O NOSSO PROBLEMA? DESAFIOS ÀS COMPRAS PÚBLICAS DE INOVAÇÃO¹

¿CUÁL ES MISMO NUESTRO PROBLEMA? RETOS A LAS COMPRAS PÚBLICAS DE INNOVACIÓN

ABSTRACT

Dilemma: What concepts, approaches, and techniques could be used to formulate a strategy for state public servants to minimize legal risks in the execution of public procurement of innovation?

Educational objective: Discuss issues of public procurement of innovation. The objectives in the teaching notes are to understand a) the legal implications and managerial challenges associated with the public procurement of innovation, b) the importance of the problem analysis stage in the innovation process, c) user centrality and the non-linear/iterative nature of the innovation process, and d) the tools required for problem analysis and framing.

Contextualization: This teaching case will explore the managerial implications of the legislation on the hiring of innovation solutions, enacted by the Brazilian State of Santa Catarina State (Decree 842/2020). As this new legal instrument shifts the logic of public procurement from specifying the contract object to describing the problem that prompts an unknown solution, it requires skills that public servants may not currently possess.

Main topic: Public procurement of innovation.

Target Audience: This teaching case can be applied in undergraduate and graduate programs in Administration, Public Administration, and Public Management. It is particularly relevant in courses such as Innovation Management, Public Sector Innovation, Public Procurement, Bidding, and Contracts.

Originality / value: This topic is crucial given the numerous managerial challenges faced by public administrators at both national and international levels. Considering its novelty, there are few existing works in the literature. The value of this study extends beyond public management, benefiting entrepreneurs who perceive the state's purchasing power as a pathway to numerous business opportunities.

Keywords: Public Procurement. Innovation. Problem analysis. Problem framing.

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RESUMO

Dilema: Que conceitos, abordagens e técnicas poderiam compor uma estratégia de capacitação dos servidores públicos estaduais para minimizar os riscos de problemas jurídicos na execução de compras públicas de inovação?

Objetivo educacional: Discutir questões relativas a compras públicas de inovação. Nas notas de ensino constam como objetivos compreender as implicações legais e os desafios gerenciais associados a compras públicas de inovação, a importância da etapa de análise de problemas no processo de inovação, a centralidade do usuário e a natureza não linear/iterativa desse processo, e o ferramental para análise e enquadramento de problemas.

Contextualização: O caso trata das repercussões gerenciais do Decreto n. 842/2020, que dispõe sobre a contratação de soluções inovadoras, publicado pelo estado de Santa Catarina. Na medida em que o novo instrumento transfere a lógica das compras públicas da especificação do objeto a ser contratado para a descrição de problema que suscita solução desconhecida, requer competências inexistentes nos servidores.

Tema principal: Compras públicas de inovação.

Público: Pode ser utilizado em cursos de Graduação e Pós-graduação em Administração, Administração Pública e Gestão Pública, nas disciplinas Gestão da Inovação, Inovação no Setor Público, Compras Públicas, Licitações e Contratos.

Originalidade/valor: O tema está na pauta de gestores públicos nos âmbitos nacional e internacional. São muitos os desafios gerenciais que o cercam. Dada à sua novidade, são poucos os trabalhos existentes na literatura. Promove valor não apenas à Gestão Pública, mas também a empreendedores que percebem no poder de compra do Estado a abertura de uma larga avenida de oportunidades de negócios.

Palavras-chave: Compras públicas. Inovação. Análise de problemas. Enquadramento de problemas.

RESUMEN

Dilema: ¿Qué conceptos, enfoques y técnicas podrían componer una estrategia de capacitación de servidores públicos para minimizar los riesgos de problemas legales en la ejecución de compras públicas de innovación?

Objetivo educativo: Discutir temas relacionados con la contratación pública de innovación. La comprensión de las implicaciones legales y los desafíos de gestión asociados con la contratación pública de innovación, la importancia de la etapa de análisis del problema, la centralidad del usuario y la naturaleza no lineal/iterativa de este proceso; y las herramientas para analizar y enmarcar problemas.

Contextualización: Trata de las repercusiones gerenciales del Decreto 842/2020, sobre la contratación de soluciones innovadoras, publicado por el estado de Santa Catarina. Puesto que el nuevo instrumento legal transfiere la lógica de la contratación pública de la especificación del objeto a ser contratado para la descripción de problemas que plantea una solución desconocida, requiere habilidades inexistentes entre los servidores.

Tema principal: compras públicas de innovación

Público: Se recomienda la aplicación en cursos de grado y posgrado en Administración, Administración Pública y Gestión Pública, en las disciplinas de Gestión de la Innovación, Innovación en el Sector Público, Compras Públicas, Licitaciones y Contratos.

Originalidad / valor: El tema está en la pauta de los gestores públicos nacionales e internacionales. Son muchos los desafíos gerenciales que los cercan. Frente a la novedad, existen pocas obras en la literatura. Ofrece valor no solo para la gestión pública, sino también para los emprendedores que perciben el poder adquisitivo del Estado para abrir una amplia vía de oportunidades de negocio.

Palabras clave: Compras públicas. Innovación. Análisis de problemas. Definición de problemas.



INTRODUCTION

The literature on problem-solving provides a myriad of typologies for problem categorization. Broadly speaking, these problems can be classified into two significant groups: simple, treatable, and structured problems with known solutions; and complex, intractable, and wicked problems that require innovative responses (Ansell, 2011). To address the latter, the Government of the Brazilian State of Santa Catarina enacted Decree 842/2020, promoting the procurement of innovative solutions that could help solve issues of public relevance within both direct and indirect State Public Administration.

This decree subverts the traditional procurement approach provided by Federal Law 8666/1993, which lays out the rules for public administration bids and contracts. To ensure adherence to the constitutional principle of isonomy and to select the most advantageous proposal for public administration, the law stipulates in Article 14 that “no purchase shall be made without adequately defining its object” (Brasil, 1993).

However, calls for innovation contracts do not specify the technicalities of the desired solution; instead, they outline the government’s needs. The search then becomes about finding an innovative solution, defined by Article 2 of the decree as a “novelty or improvement that results in new products, services, or processes, or includes new functionalities or characteristics to the existing ones, which can lead to quality or performance improvements” (Brasil, 2004). Consequently, the exact nature of the purchase is unknown and cannot be defined, as provided for in Law 8666/1993, which requires a significant shift in public procurement practices.

Decree 842/2020 outlines the procedures for procuring this solution: planning, selection of innovative solutions, and contractual management (Santa Catarina, 2020). As per Articles 7 and 8, the first step in the planning stage is the preparation of a “Technical Study” to define the public issue to be addressed by an innovative solution. Claimants are to outline the public problem and its boundaries, demonstrating the necessity for an innovative solution. Furthermore, the public notice must be clear in justifying why it

is necessary, according to the decree: “I – because there is no known solution in the market; or II – to improve identified solutions” (Santa Catarina, 2020).

The legal instrument was conceived by the State Secretary of Administration (SEA), specifically the team from the Bids and Contracts Management Department, led by the Procurement Governance and Innovation Manager, Fabiana. Given its novelty and unique nature, the SEA took responsibility for its implementation. This approach allowed them to directly oversee the process, identify potential difficulties, and establish safeguards to minimize risk and issues with regulatory bodies.

The first procurement under this new policy represented a significant and decisive challenge for the department. It was an opportunity to cement the decree’s provisions. Hence, Fabiana proposed a fictional purchase as a pilot experiment. This pilot, covered in this teaching case, was intended to test the process before the first official procurement was made.

The SEA’s Bids and Contracts Management Department is responsible for standardizing, supervising, guiding, and formulating policies for bids and contracts within the public administration, including the direct and indirect – public foundations and state agencies (called “*autarquias*” in Brazil), for example – administration. It has consistently promoted transparency in public procurement, improved public spending, and achieved more effective results.

Nonetheless, the implementation of the decree not only raised expectations within the Bids and Contracts Management Department but also among the regulatory bodies, public managers, entrepreneurs from startups and the wider tech sector, as well as the media (as observed in the news article illustrated in Figure 1). These stakeholders are keen to solve problems that demand innovative solutions, and they perceive the operationalization of this purchase modality as a significant business opportunity with the public sector. For many entrepreneurs, the call for innovative solutions represents a promising avenue for exploring new businesses. The state’s purchasing power thus serves as a public policy tool for encouraging innovation.



Figure 1

News article about the decree, entitled “Decree 842/20 establishes the rules of public procurement of innovation in the State of Santa Catarina”

DECRETO 842/20 REGULAMENTA A CONTRATAÇÃO DE SOLUÇÕES INOVADORAS NO ESTADO DE SANTA CATARINA

🕒 24 de setembro de 2020

👤 Postado por: Inove

📁 Categoria: Notícias

💬 Nenhum comentário

A partir desta semana a contratação de soluções inovadoras para impulsionar e facilitar o acesso aos serviços do Estado vai ficar mais ágil e menos burocrática. Com a publicação do decreto 842, de 17 de setembro de 2020, uma comissão formada por servidores da secretaria de Estado da Administração, por meio da diretoria de Tecnologia e Inovação, e da secretaria de Desenvolvimento Econômico Sustentável, juntamente com o representante da empresa demandante, ficará responsável pela análise da solução pretendida.

A contratação de soluções inovadoras ou de novas tecnologias para solucionar desafios do Estado nem sempre é um processo fácil. “Os entraves burocráticos e a demora das análises das propostas acabam emperrando a contratação e, por vezes, novas demandas mais eficazes são lançadas no mercado, o que faz com que o Estado fique defasado nas novas contratações. Por isso, o decreto é um importante meio legal para regularizar essa situação”, explica o diretor de tecnologia e

Source: Inove, 2020.

As previously mentioned, Fabiana, the Procurement Governance and Innovation Manager, was deeply invested in the successful consolidation of Decree 842/2020. She was aware of the arduous journey the SEA team had embarked on to formulate the decree, having faced numerous questions, setbacks, and challenges while preparing for the first procurement to acquire an innovative solution. The fictional pilot experiment was an opportunity to test procedures in a safe environment and reduce the risk of legal non-compliance, where any errors could result in valuable lessons, thereby effectively guiding the inaugural official purchase.

Therefore, she invited the State Police of Santa Catarina to participate in the experiment. The proposal involved starting with a problem that the corporation had already identified and experienced, prototyping the bidding process under the new regulation, analyzing the technical specifications demanded by the area, and identifying potential competence gaps during the problem definition stage.

THE PILOT EXPERIMENT

A meeting was arranged between the Secretariat and the State Police. Fabiana, who had conceptualized and spearheaded the creation of the decree, was anxious about effectively conducting an unprecedented process. She was uncertain about the best approach to guide the meeting and whether the purchaser understood

the basic procedures of the new decree. Major Viturino Calado, representing the State Police, attended the meeting with the expectation of addressing a longstanding demand. From his perspective, this was an opportunity to finally see the implementation of a solution they had been considering.

In relation to this meeting’s context, it is worth noting that the State Police is a direct administration body of the state government. It is an institution dedicated to providing public security services, with its mission to maintain public order and social peace across the state’s territory. For many years, the State Police of Santa Catarina has pursued modernization, applying advanced techniques to its practices. Such pursuits have elevated the institution to a prominent position nationally among public security organizations due to the technological innovations applied to routine policing. Its primary system, the “PM Mobile,” has garnered numerous awards in the innovation category, including the Santa Catarina Innovation Award (2022), the Public Sector Innovation Contest – ENAP (2021), and the Special Courts National Forum Award (2018). The PM Mobile system handles various tasks such as generating and communicating incidents, compiling crime reports, and structuring the State Police’s database, among other functions.

Major Viturino Calado is a keen advocate and member of the team responsible for the corporation’s leadership role in developing and implementing new technologies. His position



provides him with prior knowledge about the potential technological implementations the State Police can still adopt and a strategic perspective on what needs to be done. This experience and his decision-making approach were evident during the initial alignment meeting between the police and the SEA. This was the dialogue during the meeting:

Fabiana: Gentlemen, what issue of public relevance has been identified by the State Police that requires an innovative solution?

Major Viturino Calado: We aim to implement data-driven intelligence through augmented reality. Our officers should have a tablet or augmented reality glasses that provide access to a research database that includes images of the terrain they are working in, data on incidents, and other available information.

Fabiana: So, is it an augmented reality solution for real-time visualization of georeferenced data?

Major Viturino Calado: Exactly. This will help enhance police action in the field, improving productivity and reducing response times to other calls.

Fabiana: But specifically, what is the problem you are aiming to solve?

Major Viturino Calado: We face many problems in our line of work. Many of these can be mitigated by using augmented reality solutions.

Fabiana: What data do you have to support that this is a relevant public issue? Who are the individuals experiencing the problems we are seeking a solution to? Were they consulted when defining this issue?

Major Viturino Calado: I have seen this solution used by a security force in another country. Based on my experience, I believe we will see excellent results by using it.

After the meeting, Fabiana was left with concerns. The relevant public issue affecting the State Police was still unclear. It was impossible to identify the users' specific "pain point" that an innovative solution was intended to alleviate. Instead of clarifying the problem, the representatives of the State Police proposed an immediate solution – one rooted in technology.

Fabiana's pilot experiment revealed a tendency among public servants to gravitate towards known and accepted solutions.

Moreover, it highlighted a fixation with technological solutions as the sole avenue for innovation. These observations were troubling, as the decree's central condition stipulates that the procurement subject must be a problem for which no known solution exists. Further, the focus is not necessarily confined to technological innovations.

Back at her desk, Fabiana contemplated the potential hurdle she had identified for successfully implementing the decree. Clearly, the State Court of Auditors would reject a procurement based on the problem as formulated during the discussion with the State Police. If the solution is already proposed in the procurement, the new decree is redundant, and the procuring party would need to adhere to a traditional bidding process.

THE DILEMMA FOR THE STATE SECRETARY OF ADMINISTRATION

Consequently, Fabiana's team at the SEA departed the meeting with their pilot experiment's objective fulfilled: they had successfully mapped out potential challenges in implementing the new bidding regulation. The result of this experiment pinpointed an issue that the Inter-American Development Bank (IADB) highlighted in discussions on the topic of barriers to public purchases of innovation. Namely, there is a deficiency in technical expertise and knowledge about the subject matter among the public servants responsible for procurement (Radaelli, Azevedo & Díaz, 2021).

It became clear that purchasing officers were not equipped to initially conceptualize problems that seemingly necessitated the procurement of innovative solutions. They were even less prepared to draft the description composing the technical study, which would define the public relevance issue requiring an innovative solution, as stipulated in Article 7 of Decree 842/2020.

Fabiana also noted that the decision-making approach of the public manager was clearly rooted in his professional experience, but it



lacked the involvement of the actors who face the problem and would ultimately be the end-users of the solution. This was a source of concern, as there was a consensus within the State Secretary of Administration's (SEA) team that the problem statement should emerge from a collective effort to foster a shared understanding among those who directly interface with the problem and consequently experience the need firsthand. Simultaneously, the SEA's team acknowledged the value of data and evidence-driven analysis to solidly support the arguments in the technical study. The more an innovative solution's need specification was backed by precise evidence, the closer the team could get to solutions that might solve the problem while providing rigor to the analysis conducted by Procurement and Bidding Management, per the terms of Decree 842/2020.

This then presents the dilemma: How can the process of procuring innovation be conducted so as not to breach legality and undermine the credibility of the decree, given the purchasers' lack of competence? More specifically: What concepts, approaches, and techniques could be incorporated into a training strategy to minimize legal risks associated with deviations such as the one encountered in the pilot experiment?

TEACHING NOTES

This teaching case explores the managerial implications of Decree 842/2020, which stipulates the contracting of innovative solutions that can address relevant public issues within the direct and indirect administration of the state government. It describes a pilot experiment conducted with the State Police of Santa Catarina, particularly the dialogue between the representatives of the police and the Procurement Governance and Innovation Manager, outlining the SEA's dilemma regarding the decree's implementation. As this new legal tool shifts the logic of public procurement from specifying the contract's object to defining the problem that calls for an unknown solution, it demands competencies that are not yet present. Given this gap, how can we train the individuals involved to analyze and frame problems in a manner directed toward finding innovative solutions?

The case allows students to recognize the

legal implications and managerial challenges tied to the implementation of public procurement of innovation. It highlights the significance of problem analysis and framing, as well as the importance of focusing on the user. Furthermore, it promotes the identification of tools for problem analysis and framing. This teaching case can be applied in undergraduate and graduate programs in Administration, Public Administration, and Public Management.

Educational objectives

Based on the reading and analysis of the proposed teaching case, which has "public innovation procurement" as its central theme, it is possible to address and reflect on related themes, with emphasis on innovation typologies, innovation process, and problem analysis and framing. Discussion of this case is expected to allow students to:

- Identify the legal implications and managerial challenges associated with implementing the concept of public procurement of innovation;
- Understand the importance of the problem analysis stage in the innovation process and its role in the implementation of solutions connected with the real needs of the actors involved;
- Understand user-centricity and the non-linear/iterative nature of the problem analysis and framing process;
- Discover tools for analyzing and framing problems in an appropriate approach to the search for innovative solutions.

Sources and collection methods

The data that allowed the development of this case were obtained through the personal experience of the authors in meeting the challenge presented by the Board of Management of Tenders and Contracts of the Secretary of State for Administration, through the Management of Governance and Innovation in Purchasing, to the University of the State of Santa Catarina – UDESC.

The authors formulated the case by interviewing the Procurement Governance and Innovation Manager, who played a key role in pro-



posing Decree 842/2020. They also examined documents the SEA's team used while drafting the decree and conducted bibliographic research. The study received due authorization from SEA and introduced fictitious elements into the characters' names and dialogues between the representatives of SEA and the State Police.

Use of the case

This teaching case can be used in undergraduate and graduate programs in Administration, Public Administration, and Public Management in the following courses: innovation, innovation in the public sector, public procurement, bidding and contracts, and entrepreneurship.

Suggested lesson plan

This case can be applied after exposing students to the theories and concepts to be explored, thus providing them with the necessary theoretical foundation for discussing the proposed themes. The reading of the case, estimated to take approximately 15 minutes, can be done in the classroom or at home before class.

After reading, the case can be subjected to an initial analysis where students familiarize themselves with the proposed dilemma (this analysis can be conducted in a plenary). Subsequently, it is suggested to divide the class into groups of two to five students to discuss the proposed questions (listed below) and others that the professor deems relevant to the course topic. Depending on the program and course, selecting specific blocks and/or questions may be appropriate.

Given the number of questions, the professor can allow between 60 and 90 minutes for group discussion. Afterward, it is suggested that the class reconvene in a plenary session to debate the answers, with each group tasked with presenting an answer, followed by subsequent discussion and consolidation. The professor can link the consolidated answers to the discussed theories to conclude the class.

If the professor chooses to focus on question 4.4, the students should be allotted more time, approximately 120 minutes. Socialization in a large group could be accomplished through the

practical application of the set of tools proposed by the students, considering a fictitious problem.

Suggested questions for case analysis

1. Definition of public procurement of innovation: the case allows an understanding of the concept of innovation from Decree 842/2020, which takes the Oslo Manual (OECD & Eurostat, 2018) as a reference. Thus, it defines innovation as the introduction of novelty or improvement in the productive and social environment that results in new products, services, or processes that include the addition of new functionalities or characteristics to an existing product, service, or process that may result in improvements and effective gain in quality or performance. Based on this framework, it can motivate the understanding of the types of innovation provided for in the Oslo Manual: product innovation, process innovation, organizational innovation, and marketing innovation (OECD & Eurostat, 2018). Product innovation is related to important changes and improvements in the potential of existing products and services. Thus, it is possible to perceive improvements in techniques, materials, and ease of use, among others. On the other hand, process innovation is related to production and distribution methods, including changes in the techniques used or the insertion of new tools. Organizational innovation is associated with implementing new organizational methods related to management practices, relations with stakeholders, and changing the layout of the work environment, among others. Finally, innovation in marketing refers to changes in product design or presentation that lead to improved performance. For a discussion oriented toward innovation in the public sector, it is suggested to go further, seeking classifications presented in this particular literature (Olavo et al., 2022; Meijer & Thaens, 2021; Cavalcante, 2019; Klumb & Hoffmann, 2016; Osborne & Brown, 2011; Moore & Hartley, 2010; Osborne and Brown, 2005). Cavalcante (2019), for example, presents a classification that includes what the author calls six "extended formats." The first is related to public investment in science, technology, and innovation, in the most traditional form of state action, in which conditions are created to innovate through basic and applied research. The second mentions



innovation via public procurement, in which innovations arise due to demands expressed by the state on the production and acquisition of new technologies and products. The third type of innovation is associated with institutional economic formats – new institutional solutions aimed at changing the rules of the game in the economy. The fourth occurs through institutional political innovations, in which the change occurs in the rules of the political game. The fifth type of innovation is associated with innovations in public services. In this case, the government aims to modify how a service is provided. The usual way of doing that is by incorporating management trends to improve administrative processes and/or the service per se. Finally, the author presents the type “organizational innovation,” which refers to changing decision-making or management processes.

From this basic understanding, we can delve into the concept of public innovation procurement. This is a policy tool used for purchasing goods and services that do not yet exist or need to be improved, requiring research and innovation to meet specified needs (Rauen, 2021; Sánchez-Carreira et al., 2019). According to Maspons and Alessandrello (2017), they represent an administrative action aimed at promoting innovation to enhance the development of new markets through the public procurement instrument.

It is crucial to understand that public procurement of innovation is not synonymous with innovation in public procurement. While innovation in public procurement pertains to the integration of new tools into administrative procurement processes in the public sector (Rauen, 2021; Mardones, 2016), public procurement of innovation is product-focused, seeking goods and services that address demands in previously unexplored ways (Hoffmann et al., 2021; Sánchez-Carreira et al., 2018).

The case also helps distinguish between public procurement of innovation and technology acquisition. The latter relates to purchasing patents, licenses, and know-how or incorporating technology into machinery and equipment with technological performance. This can contribute to certain technological innovations linked to

products or processes (OECD & Eurostat, 2018; Tironi, 2005). This concept is narrower than the concept of innovation stipulated in Decree No. 842/2020, which is open to various types of innovation, including technological innovation.

In this scenario, the following questions are proposed for discussion:

- 1.1 What is innovation?
- 1.2 What types of innovation are applicable to the public sector?
- 1.3 What is innovation in public procurement?
- 1.4 What is the difference between public procurement of innovation and innovation in public procurement?
- 1.5 How does public innovation procurement differ from technology procurement?

2. Implementation of public procurement of innovation: the case motivates the identification of the purposes of public procurement of innovation and the benefits that can be expected. The establishment of requirements for contracting innovative products or services brings potential gains to society insofar as they can allow the public administration to offer more effective services, creatively and flexibly, with greater quality and value, more quickly, serving more suited to the needs of citizens (Sánchez-carreira et al., 2019; Maspons & Alessandrello, 2017). According to Moñux and Ospina (2017), public procurement for innovation can be implemented for various purposes. One way is mobilizing innovation to improve services provided by the public sector or promoting innovation in strategic sectors or specific challenges. By playing the role of consumer, the state can use its purchasing power to promote the strategic direction of its contracts by establishing innovative requirements for public acquisitions (Saramago, 2021; Sánchez-Carreira et al., 2019; Moreira & Vargas, 2015).

On the other hand, this case study enables us to identify challenges associated with the topic. Purchasing innovative goods and services may require solutions that do not yet exist, thus posing a significant challenge for suppliers who might need to develop solutions beyond their current technological capabilities. This



situation inherently involves risk, as neither the management nor stakeholders control the needs and results (Maspons & Alessandrello, 2017).

Moreover, it is important to consider the specialized knowledge required and the technical capabilities of public managers in this type of contract (Moñux & Ospina, 2017). Thus, to attain the proposed objective, it is necessary to know the technologies and tools essential for designing the notice and contracting the solution itself. Of particular note is the fact that this type of procurement implies searching for an unknown solution whose cost cannot be budgeted a priori, thereby introducing an element of risk and legal uncertainty (Maspons & Alessandrello, 2017; Moñux & Ospina, 2017). Additionally, there is the challenge of developing solutions that may surpass the market's capabilities, representing a high level of risk since neither management nor stakeholders have control over needs and results (Maspons & Alessandrello, 2017).

The case study also offers the opportunity to analyze this type of procurement as a public policy instrument for encouraging innovation via the state's purchasing power (Hoffmann et al., 2021; Maspons & Alessandrello, 2017; Moñux & Ospina, 2017).

In this regard, it is suggested to present the following questions for discussion:

2.1 For what purposes can public procurement of innovation be implemented?

2.2 What benefits can be expected from the implementation of public innovation procurement?

2.3 What challenges and risks are associated with implementing this type of purchase?

2.4 What is the state's role played in public procurement of innovation? How can the state's purchasing power foster innovation and represent an opportunity for entrepreneurs in the technology sector?

3. The ability to analyze and frame problems: A key element of the case is to highlight the centrality of problem analysis and framing, not only in public procurement of innovation but also in innovation processes in general. Given that the government tackles highly complex issues with

far-reaching impacts (Torfing et al., 2019; Santos et al., 2018; Sørensen & Torfing, 2017; Sørensen & Waldorff, 2014), a clear and precise problem definition is not easily achieved (Hoffmann et al., 2021). At times, understanding of the problem may also evolve during the analysis process, necessitating studies and discussions about the situation to guide its reframing when necessary (Haubert et al., 2019; Ansell & Torfing, 2016; Dalsgaard, 2014).

The emphasis on redefining problems extends beyond incorporating and optimizing known solutions and seeks to exploit the potential of new and emerging solutions (Crosby et al., 2017). Therefore, without adequate mapping of the public problem, the discourse on innovation may fail to address real needs. In other words, problems can be oversimplified, distorted, or confined, compromising the innovation's effectiveness (Santos & Hoffmann, 2016).

A discussion should be held on how this stage of the process is crucial to guide the identification of alternatives and ensure that the solutions developed and tested align with needs, are relevant, and are useful, thus enhancing the decision-making process (Koen et al., 2014; Santos & Hoffmann, 2016; Trischler & Scott, 2016; Pluchinotta et al., 2019). In this context, the approach to formulating the problem based on analysis and framing can be explored. This is because an appropriately stated problem could be the key to an effective, original, and innovative solution (Crosby et al., 2017; Liu et al., 2018).

Moreover, the case enables exploration of how proper problem framing directly contributes to the bidding process of public procurement of innovation. This is because it pertains to a bidding modality that cannot anticipate costs and the definition of the contracted objects in advance (Hoffmann et al., 2021). Adequate delimitation of the problem aids in avoiding the contracting of goods or services that do not meet needs and expectations (Maspons & Alessandrello, 2017). Innovation purchases will always be linked to problems that lack existing solutions; thus, innovative solutions will be considered. Understanding and clearly defining the problem is the initial step in the innovation process and is essential to guide the identification of alternatives



and ensure that the solutions developed and tested are relevant and useful (Casciola, 2016). Also, inadequately defining the problem can lead to purchasing pointless solutions, causing organizations to lose their way and mimic other ineffective practices, as they are unclear about the context in which they operate.

Thus, the following questions are suggested for discussion.

3.1 What is the importance of analyzing and framing problems in the innovation process?

3.2 In the public innovation procurement process, what is the role of problem analysis and framing, considering the purposes, benefits, and challenges associated with this procurement modality, as discussed in questions 2.1, 2.2, and 2.3?

3.3 How does the correct framing of the problems help in the bidding process for public procurement of innovation?

3.4 How can the problem statement contribute to an innovative solution?

4. Tools for analyzing and framing problems:

The challenge presented in the case motivates us to go beyond the conceptual foundations associated with the topic, leading to the need to search for tools for analyzing and framing problems in practice. There is no single and universally correct way to analyze problems, but tools associated with the design approach can support the process of analysis based on the previously discussed challenges (Pfleger et al., 2022; Hoffmann et al., 2020; Santos & Hoffmann, 2016). The design approach is founded on principles that propose iterative processes, conducted jointly and collaboratively, focusing on user centrality (Bandeira et al., 2022; Osborne et al., 2021; Trischler & Scott, 2016). To the extent that they facilitate the involvement of relevant stakeholders in a collaborative innovation process, these tools help to delineate complex problems.

Thus, the case leads to choosing tools adhering to collaborative, user-centered approaches in a non-linear and iterative process (Cavalcante, 2019). In particular, it is possible to explore the design thinking method (Bootcamp

Bootleg, 2011; Cavalcante, 2019; Dell'era et al., 2020), which proposes five stages: immersion, analysis, ideation, prototyping, and testing. Through these steps, it is possible to gather information about the situation, organize it, analyze it, propose solutions to the problem, implement them, and test them, always focusing on people and seeking to understand what was done correctly and what needs to be rethought and redesigned. The method encourages thinking of a process and entails a careful selection of participants, emphasizing the importance of a transdisciplinary approach in constructing understandings and solutions (Cavalcante, 2019). Moreover, the application of design thinking is based on the logic of divergence and convergence, particularly when exploring the problem and proposing varied responses, thus avoiding focusing on a single potentially biased solution (Cavalcante, 2019).

Under this approach, there is a profusion of tools that can be discussed by students, allowing for the alignment of the service with the actual needs of the target audience and identifying critical incidents capable of guiding the refinement of the value delivered (Bandeira et al., 2022; Osborne et al., 2021; Trischler & Scott, 2016). Hoffmann et al. (2021) present a path for analyzing and framing problems, which encompasses specific techniques for analyzing causes and consequences, understanding critical nodes, raising ideas, and immersing in the characteristics of problems. Other tools that can serve these purposes can be found in Pluchinotta et al. (2019), Ferrarezi & Lemos (2018), Wedell-Wedellsborg (2017), and Jonassen (2010). Students can be challenged to propose a sequence of tools that could be used to train demanding civil servants from a practical perspective. More specifically, the following questions can be discussed:

4.1 What tools would be appropriate for analyzing and framing problems to meet the requirements of the decree and the expectations of SEA described in the case?

4.2 What is the role of the design thinking approach and its associated tools in analyzing and framing the problem?



4.3 How would you train the employees involved in this new purchasing process to use these tools?

4.4 Propose a set of tools that can be applied to analyzing and framing problems by civil servants engaged in public procurement of innovation, considering the requirements of Decree 842/2020 presented in the case.

CONCLUSION

This teaching case aims to stimulate the expansion of knowledge about innovation in the public sector, a growing theme in the applied social sciences. It fosters a dialogue between the presented case and the literature on innovation.

The discussion about the need for concise definitions of contracting demands in Public Administration also allows for advancement in the debate on public procurement, a topic emphasized due to the changes in the Brazilian legal framework around bidding.

It is presented the context surrounding the implementation of public procurement of innovation to solve significant public problems, considering Decree 842/2020 enacted in the Brazilian State of Santa Catarina. The decree addresses the lack of results observed in traditional procurement and emphasizes the necessity for dialogue and the involvement of stakeholders to develop and implement innovative solutions. Additionally, the case problematizes the scarcity of evidence-based approaches to delineate relevant public problems observed in Santa Catarina and in other Brazilian states seeking to advance this agenda.

Moreover, the legal framework established by the decree may spark interest in innovative initiatives in Public Administration, which can improve the quality of public services.

Although the teaching case incorporates several fictitious elements, such as the names and dialogues of the pilot experiment, it portrays a real challenge experienced by the State Secretary of Administration (SEA) of Santa Catarina in implementing public procurement of innovation. In this regard, students of the Graduate Program in Administration at the Santa Catarina State University (UNESC) prepared the

document "Manual for Analysis and Framing of Problems – Hiring Innovative Solutions SC – Decree 842/2020" (Hoffmann et al., 2021). This guide offers tools that public servants can use for training or in the process of outlining the relevant public problem to be addressed when elaborating public procurement through Decree 842/2020.

Following the events that inspired this teaching case, the SEA of the State of Santa Catarina, with the support of the State Government Innovation Laboratory, made progress in overcoming the initial challenges and published the first public procurement to purchase innovative solutions in March 2022. The procurement served the needs of the State's Public Prosecutor's Office.

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REFERENCES

- Ansell, C. (2011). *Pragmatist Democracy Evolutionary Learning as public philosophy*. <https://doi.org/10.1093/acprof:oso/9780199772438.001.0001>
- Ansell, C., & Torfing, J. (2016). *Introduction: theories of governance*. In *Handbook on theories of governance* (pp. 1-18). Edward Elgar Publishing.
- Bandeira, G. L., Chanquini, A., Tortato, U., & Quandt, C. (2022). Inovação em serviços e gestão do conhecimento: Uma revisão bibliométrica e caminhos futuros. *RAM. Revista de Administração Mackenzie*, 23.
- Bootcamp Bootleg, D. (2011). *School Bootcamp Bootleg*. *Has no Plattner Institute of Design at Stanford University (Online)*.
- Brasil, L. (1993). *Lei n. 8666 de 21 de julho de 1993*. Institui normas para licitações e contratos da Administração Pública e dá outras providências. Diário oficial da União.
- Brasil, L. (2004). *Lei n. 10.973, de 2 de dezembro de 2004*. Dispõe sobre incentivos à inovação e à pesquisa científica e tecnológica no ambiente produtivo e dá outras providências. Diário Oficial



da União.

Cavalcante, P. L. C. O. (2019). *Inovação e Políticas Públicas: superando o mito da ideia*.

Comissão Europeia (2018). *Powering European public sector innovation: towards a new architecture*. Brussels: Directorate General for Research and Innovation; Innovation Union; European Commission.

Crosby, B. C., 't Hart, P., & Torfing, J. (2017). Public Value Creation Through Collaborative Innovation. *Public Management Review*, 19(5), 655-669.

da União, T. de C. ([s.d.]). Inovamos: Modelo de Apoio a Compras Públicas de Inovação. Gov.br. Recuperado em 26 de agosto de 2022, de <https://portal.tcu.gov.br/tcucidades/publicacoes/detalhes/inovamos-modelo-de-apoio-a-compras-publicas-de-inovacao.htm>

Dalsgaard, P. (2014). Pragmatism and Design Thinking. *International Journal of design*, 8(1).

Dell'Era, C., Magistretti, S., Cautela, C., Verganti, R., & Zurlo, F. (2020). Four kinds of design thinking: From ideating to making, engaging, and criticizing. *Creativity and Innovation Management*, 29(2), 324-344.

Diretoria de Gestão de Licitações e Contratos – Secretaria de Estado da Administração. ([s.d.]). Gov.br. Recuperado em 26 de agosto de 2022, de <https://www.sea.sc.gov.br/diretoria-de-gestao-de-licitacoes-e-contratos/>

Ferrarezi, E., & Lemos, J. (2018). *Imersão ágil: checagem de realidade em políticas públicas-Relato de aplicação da metodologia em projeto da Enap*.

Haubert, B., Schreiber, D., & Pinheiro, C. M. P. (2019). Combinando o Design Thinking e a Criatividade no Processo de inovação Aberta. *Gestão & Planejamento-G&P*, 20.

Hoffmann, M. G. et al. (2021). *Manual para Análise e Reenquadramento de Problemas: Contratação de Soluções Inovadoras SC - Decreto 842/2020*.

Inove. (2020). *Decreto 842/20 regulamenta a contratação de soluções inovadoras no estado de Santa Catarina*. Recuperado em 1º de setembro de 2021, de: <https://inovecapacitacao.com.br/Decreto-842-20-regulamenta-a-contratacao-de-solucoes-inovadoras-no-estado-de-santa->

catarina/.

Jonassen, D. H. (2010). *Learning to solve problems: A handbook for designing problem-solving learning environments*. Routledge.

Klumb, R., & Hoffmann, M. G. (2016). Inovação no setor público e evolução dos modelos de Administração Pública: o caso do TRE-SC. *Cadernos Gestão Pública e Cidadania*, 21(69).

Koen, P. A., Bertels, H. M., & Kleinschmidt, E. J. (2014). Managing the front end of innovation – Part II: Results from a three-year study. *Research-Technology Management*, 57(3), 25-35.

Liu, L., Li, Y., Xiong, Y., Cao, J., & Yuan, P. (2018). An EEG study of the relationship between design problem statements and cognitive behaviors during conceptual design. *Ai Edam*, 32(3), 351-362.

Mardones, C. (2016). Las compras públicas de tecnología e innovación como un elemento central de las políticas públicas del siglo XXI. *Revista chilena de derecho y tecnología*, 5(2), 95-126.

Maspons, R., & Alessandrelo, R. (2017). La compra pública de innovación: instrumentos de colaboración para nuevos escenarios. *Revista Econòmica de Catalunya*, 77(15), 72- 78.

Meijer, A., & Thaens, M. (2021). The dark side of public innovation. *Public performance & management review*, 44(1), 136-154.

Moñux, D., & Ospina, M. J. (2017). *Comprapública de innovación en América Latina: Recomendaciones para su despliegue en Uruguay. Working Paper*. Inter American Development Bank.

Moore, M. & Hartley, J. (2010). *Innovations in governance*. In *The new public governance?* (pp. 68-87). Routledge.

Moreira, M. F., & de Vargas, E. R. (2015). Indução de Inovações em Serviços: Qual o Papel das Compras Governamentais?. *Revista Gestão & Tecnologia*, 15(2), 186-210.

OECD/Eurostat, 2005. Oslo Manual, Guidelines for Collecting and Interpreting Innovation Data. OECD Publishing, Paris.

Olavo, A. V. A., Beneyto, G. P., Nebot, C. P., & Emmendoerfer, M. L. (2022). Laboratórios de inovação no setor público em perspectiva



comparada: uma análise exploratória entre Brasil e Espanha. *Revista de Gestão e Projetos*, 13(2), 89-115.

Osborne, S. P., & Brown, L. (2011). Innovation, public policy and public services delivery in the UK. The word that would be king?. *Public Administration*, 89(4), 1335-1350.

Osborne, S. P., Nasi, G., & Powell, M. (2021). Beyond co-production: value creation and public services. *Public Administration*, 99(4), 641-657.

Osborne, Stephen P., and Kerry Brown. Managing change and innovation in public service organizations. Routledge, 2012.

Pfleger, M. O., Picalho, A. C., de Almeida, J. H. D., Fialho, F. A. P., Fadel, L. M., & Macedo, M. *O Design Thinking como Ferramenta de Aproximação da Comunidade para com a Biblioteca Universitária*. Francisco Antônio Pereira Fialho Ricardo Pereira Camila Menegali (Org.), 2022.

Pluchinotta, I., Kazakçi, A. O., Giordano, R., & Tsoukiàs, A. (2019). Design theory for generating alternatives in public decision making processes. *Group Decision and Negotiation*, 28(2), 341-375.

Pluchinotta, I., Kazakçi, A. O., Giordano, R., & Tsoukiàs, A. (2019). Design theory for generating alternatives in public decision making processes. *Gr. Decis. Negot.*, 28, 341-375.

Rauen, A. T. (2021). *Compras públicas de inovações segundo o texto final do PL n. 4.253/2020*.

Sánchez-Carreira, M., Varela-Vázquez, P., & Peñate-Valentín, M. C. (2019). La compra pública de innovación: análisis de la experiencia de Galicia En El Ámbito Sanitario. *Revista Galega de Economía*, 28(2), 71-86.

Santa Catarina, L. (2020). *Decreto n. 842 de 17 de setembro de 2020*. Dispõe sobre o processo de contratação de soluções inovadoras que contribuam com questões de relevância pública para a Administração Pública Estadual Direta e Indireta. Diário Oficial do Estado de Santa Catarina.

Santos, E., Leite, A., & Silva, A. (2018). *Tomada de decisão no cotidiano do gestor de saúde: tecnologias, instrumentos e estratégias de atuação*. Recife: Ed. UFPE.

Santos, G. F. Z., & Hoffmann, M. G. (2016). Em

busca da efetividade na Administração Pública: proposição de uma metodologia para design e implementação de serviços públicos no município de Florianópolis. *NAVUS-Revista de Gestão e Tecnologia*, 6(1), 88-105.

Saramago, P. D. S. F. (2021). *O uso do poder de compra do estado como instrumento de fomento à inovação*. Editora Dialética.

Sørensen, E., & Torfing, J. (2017). Metagoverning collaborative innovation in governance networks. *The American Review of Public Administration*, 47(7), 826-839.

Sørensen, E., & Waldorff, S. B. (2014). Collaborative policy innovation: Problems and potential. *The Innovation Journal*, 19(3), 1.

Torfing, J., Cristofoli, D., Gloor, P. A., Meijer, A. J., & Trivellato, B. (2020). Taming the snake in paradise: combining institutional design and leadership to enhance collaborative innovation. *Policy and Society*, 39(4), 592-616.

Trischler, J., & Scott, D. R. (2016). Designing Public Services: The usefulness of three service design methods for identifying user experiences. *Public Management Review*, 18(5), 718-739.

Wedell-Wedellsborg, T. (2017). *Are you solving the right problems*. *Harvard Business Review*, 95(1), 76-83.

Endnotes

1 The translation of the article is the responsibility of the authors.