



INTERNATIONAL
HELLENIC
UNIVERSITY

Public Innovation Labs

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SCHOOL OF SCIENCE & TECHNOLOGY

A thesis submitted for the degree of

Master of Science (MSc) in Digital Marketing and e-business

JANUARY 2022

THESSALONIKI – GREECE



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Abstract

This dissertation was written as a part of the MSc in Digital Marketing & e-business at International Hellenic the University. Its purpose is to clarify what exactly Public Sector's Innovation Laboratories are, which are their barriers until the date that this dissertation become published; and through research which are the proposals of authors who have researched this topic. After explaining the meaning of the terms "Living Labs" and "Innovation Labs", with the last one being divided in "Public Sector's Innovation Labs" and Private Sectors Innovation Labs", we keep up with the differences between the last two categories. To sum up, after the research we made various conclusions, according to our findings, which we hope will be helpful for future researchers.

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Introduction

This dissertation is about exploring Innovation Labs in Public Sector. There are many categories of Innovation Labs, such as private innovation labs, public innovation labs, social innovation labs, international innovation labs or living labs. In this paper we are going to define two categories of Innovation Labs; Public Sector's and Private Sector's.

Throughout the years Innovation Labs have become a part of government and business field. Since we are focusing on the Public Sector mainly, in the following pages, we will analyze Public Sector's Innovation Labs (PSI labs). The methodology that we followed to make our conclusions, is Literature Review.

The main purpose for Innovations Labs' existence is to create new solutions for citizens' lives, adapted to the new era that we are living. Because of the changes in technology, citizens have become more and more demanding. This is one of the reasons that governments nowadays have to adapt more into new technologies and innovation in general. *"The clear message is that these changes call for public organizations to be able to do more with less; organizations that provide innovative solutions and better services, while increasing transparency, accountability and legitimacy"* (Arrona, A., Franco, S., & Wilson, J. R. (2020).

By the end of this dissertation, you will be fully aware of what exactly Innovation Labs are, their main subcategories, the reasons that make them important in Public Sector, the gaps that they have, and the methodology that we followed that have driven us to the final conclusions.

1. Literature Review

To start with, we have to be specific about what some terms are exactly, in order for the reader to not be confused. As Zivkovic, (2018) mentions: *“Labs are increasingly being used to address societal problems. There are many different forms of labs, both within and outside of government, that are created for the purpose of solving social problems”* (Puttick, 2014, p. 7).

1.1 Living Labs

First of all, let's analyze the term “Living Labs”. According to the literature, Living Labs are open innovation ecosystems which are person-centered. The base of Living Labs is a systematic user creation method, which integrates studies and innovation strategies in actual lifestyles groups and settings (*Ballon & Schuurman, 2015*).

In the educational world, the term “Living Laboratory” and its conception, was born in the nineties. Became popular in the early 2000s due to the European Commission's initiative to encourage the European innovation system (Dutilleul et al., 2011). Also, a special capacity which makes Living Labs become more important to the academic world in the field of open and user innovation, due to the offering of users and communities; is that they are both practice-pushed agencies and real-existence environments where studies and experiments are taking place in order to have answers in a specific research (Schuurman & Tönurist, 2017). To add up, it is indicated by (Schuurman & Tönurist, 2017), that until the ending of the 1990s decade, *“the proper living lab concept came into use, first in a US setting, which mostly Følstad (2008) refers to as ‘living labs as testbeds’”*.

It is pointed out in both papers “The City as Living Laboratory: Empowering Citizens with the Citadel Toolkit” by (Fu et al., 2007), and “Innovation in the Public Sector: Exploring the Characteristics and Potential of Living Labs and Innovation Labs” by (Schuurman & Tönurist, 2017) that according to (Westerlund & Leminen, 2011), there are 4Ps (Public, Private, People Partnerships of firms, Public agencies), that all of them

are working together in order to find the latest technologies, services, products and systems in everyday life circumstances.

It is crucial to mention, that Ståhlbröst (2012) recognises that Living Labs are characterized by five principles, value, sustainability, influence, realism and openness (Schuurman & Tönurist, 2017). To continue, (Pallot et al., 2011), refer to Living Labs as an upstanding method to minimize the opening among, quoting, “*technology push and application pull*”, in view of the fact that, they convey about the essential mixture of digital expertise, inventiveness, and innovation techniques in conjunction.

1.2 Innovation Labs

About the “Innovation Labs” term, for starters, we will quote the following definition: “*Innovation labs are innovation management models aimed at fostering creative and critical thinking, driving the organization in finding the best ways to generate knowledge and digital culture, introduce technologies, digitize operations and implement digital strategies for continuous and sustainable innovation paths*” (Santarsiero et al., 2019, 2020). In many papers, it has become clear that the management of Innovation Labs is very important in order to run effectively and achieve their goals. Indicated by (Bondeson, 2016), “*one challenge in the management of the Innovation Laboratory, might be to maintain a realistic view of its actual abilities*”. But we will see more about the challenges and the barriers of Innovation Labs in the following pages.

It is stated in (Santarsiero et al., 2021), that Lewis and Moultrie (2005), claim that Innovation Labs inspire innovative ways and selling progressive tasks through imparting suitable resources, as a committed space. In the same paper, (Santarsiero et al., 2021), it is noted that Innovation Labs help organizations to stay up to date, build closer relationships, leave behind the old narratives and quoting “*embrace the paradigms of open innovation, user-driven innovation and collaborative innovation.*”

1.3 Public Sector’s Innovation Labs

Public Sector’s Innovation Labs, are helping governments to be more adapted to the new reality of life and make citizens’ lives easier by being, for example, more tech

oriented. Even though Public Sector's Innovation Labs are not as known as they could be, it has been proven that they are beneficial for citizens' wellbeing in public life and for the government-citizen's relationship. Public Innovation Labs, are growing both in scale and scope, according to Lewis et al., (2018). Additionally, Lee et al. (2012), note that *"innovation in the public sector is used to improve service performance and to add value in terms of public benefit"*.

According to the paper "Tab the lab : a typology of public sector innovation labs", (Stoll & Andermatt, 2021), which cites (Lewis et al., 2020; McGann et al., 2018; Tonurist et al., 2017), there is an increase of Public Sector's Innovation (PSI) Labs, public governance and policymaking. The same paper, cites also (McGann et al., 2018) and claims that Public Sector's Innovation Labs, are designed *"to create a place where such new governance and management approaches like for example evidence-based policy making, user-led methods like design-thinking or prototyping can be tried out independently of the prevailing, usually rigid bureaucratic structures"*.

As mentioned by (Schuurman & Tönurist, 2017), referring to (Mulgan & Albury, 2003), public organizations are mainly *"characterized by a culture of risk aversion, and a focus on short-term delivery pressures"*. It is stated in the same paper that pursuantly De Vries et al. (2016), in the latest years Public Sector's Innovation Labs, have to focus on innovation per se. In addition, it is indicated that the final results of innovation are impacted by dissimilar organizational setups, management arrangements, carried out innovation strategies, and pursued activities, in the same amount as the building of innovation capacity (Stoll & Andermatt, 2021), (Lewis et al., 2018).

1.4 Private Sector's Innovation Labs

Private Sector's Innovation Labs are in general, more widespread. They have the same mission as the Public Sector's Innovation Labs, but for private companies; not for governmental purposes. In "Insights into Kenya's public sector innovation: The case of managers" paper, by Agolla & Van Lill, (2017), it is mentioned that even though the term "innovation" is commonly paired with the private sector, through the years this has started to change.

As all organizations, private sector's Innovation Laboratories, have to stay relevant. In all the papers that mentioned the Private Sector's Innovation Labs, it is mentioned that

the competitiveness is a huge part of them and that they are not under the protection of politics.

Another important fact by Arrona et al., (2020) is that in the private sector, *“innovation is mainly driven by market logics”*.

Of course, we could not fail to note that there is the possibility for private and public sectors to partner up (PPP), if the government passes the appropriate legislations (Agolla & Van Lill, 2017).

1.5 Comparison among Public and Private Sector's Innovation Labs

It is pointed out that private sector's organizations reside more uncomplicated environments than public sector's organizations (Lewis et al., 2018). Public Innovation Labs, have three main problems, according to (Schuurman & Tönurist, 2017), which cites Borins (2002). The first one is that it is a monopoly. The second, that the media are emphasizing in the non-successes of PSI Labs and thirdly, the huge bureaucracy, that in many cases comes with governments' way of functioning. The third one, is also mentioned by (Arrona et al., 2020), in “Public innovation through governance in place-based competitiveness policymaking: The case of Bizkaia Orekan” paper, quoting: *“the very nature of a public sector that builds on classical bureaucratic principles fosters stability and leaves little room for flexibility and experimentation”* (Bason, 2011; Brugué et al., 2014). In contrary Private Sector's Innovation Labs does not have such kind of issues.

There is the perception, that public sector's employees are not as innovative as those who work in the private sector. This is stated by Lewis et al. (2018), who continues by explaining that this happens due to the competitive nature that the private sector has, and that public sector's employees are *“risk-averse to take chances with public money or failing in regard to personal political esteem.”* (Hartley, 2005). On the other hand, since public sector does not have competition, it can be benefited by that, since it is not necessary to find or give away any competitive advantage (Hartley, 2014).

One more difference between the two sectors in Innovation Labs, is that public sector is all the time specific in context and its goal is to benefit in the public (Arrona et al., 2020). In addition to that, in the same paper the authors mention the following: *“This can be achieved through different means, such as: developing more meaningful*

services; improving efficiency and effectiveness of public organizations; or enhancing democratization through participation, accountability and transparency.”.

A comparison that is coming to our knowledge from our research and supports previous statements, is that the public sector has more barriers and challenges in innovation compared to the private sector (Agolla & Van Lill, 2017).

In the next pages we are going to present the barriers and the proposals of innovation labs.

1.6 Barriers

There are some barriers in the Public Sector’s Innovation Labs that we will analyze. From the way they are functioning, to their resources, the management and more. For start, we will refer to one barrier/challenge of the management in Public Sector’s Innovation Laboratories, which is that they have to maintain realistic about the capabilities (Bondeson, 2016).

The authors Boukamel & Emery, (2017) went deep down to find out what are the root causes of barriers that Public Sector Innovation Labs, deal with. In the Abstract of their paper, they make their findings clear; quoting: *“Our findings highlight the relevance and usefulness of the exploitation– exploration question, which underlies the development of innovation capabilities, and show that contemporary public organizations are meeting particular challenges regarding innovation.”* (Boukamel & Emery, 2017).

At first, the barriers that are being presented, are legal frameworks, procedural constraints and red tape, organizational structure and culture. In addition, in Agolla & Van Lill, (2017) shares that the main barriers of Public Sector’s Innovation Labs, are due to the non-success in policy structure from governments, the low educational level, the lacking of the educational system and the high-risk projects. Agolla & Van Lill, (2017), continue by referring to Albury, (2011), that some other barriers for Public Sector’s Innovation Labs are *“a culture of risk aversion, delivery pressures and administrative burdens, reluctance to close down failing programmes or organisations, poor risk or change management skills, no rewards or incentives to innovate or adopt innovation, constraining cultural or organisational arrangements despite the*

availability of technology, an over-reliance on high performers as sources of innovation, short-term budgets and planning horizons and a bureaucratic culture". To continue with that statement, we have to refer to Bondeson, (2016), who explains that the only risk that managers are doing research for is the financial, and nothing more.

Also, it is mentioned that there are barriers to distribute knowledge and innovation; silo sharing and innovation functioning because of the shortage of distribution; silo integration (Boukamel & Emery, 2017). According to the same authors, "*Barriers to innovation in the public sector, as emphasized by the literature, may be partially explained by this risk-averse cultural and structural transition towards contextual ambidexterity that puts PSOs in a position in which neither exploitation nor exploration can be optimally performed.*" Although it is stated that these findings are not for every single Public Sector Organization; generalizations have been avoided.

One more barrier that is presented is the lack of empirical investigation, in order for the findings to be approved and represented (Boukamel & Emery, 2017). To add in to the list of barriers, that we found out during our research, since the projects are high risk, there are financial restrictions and too much bureaucracy; and managers are avoiding any kind of risk because of the fear of failure (Agolla & Van Lill, 2017). One more paper that is referring to the managers, is by Bondeson, (2016), who states that making profit and being creative in the same time, can be a challenge, but possible.

It is crucial to mention that in many papers as a barrier is presented the risk-aversion in innovation in general; and that besides managers, politicians are in fear of failure so they are avoiding the attention from the media, since the history has shown that the failures become known to the public in higher percentage than the success stories. Additionally, politicians are afraid to try new methods, due to the fact that there weren't any positive results with the old methods. (Agolla & Van Lill, 2017). About the risk-averse culture of Public Sector's Innovation Labs and the fear of risk taking by politicians and manager we found one more paper by P Tönurist et al., (2015).

Other limitations are the missing awareness for the employees who are not motivated only by the salary that they get and that they are not "accepting" the new technology which can turn out beneficial for the Public Sector's Organizations. (Agolla & Van Lill, 2017). Moreover, about the employees, we are quoting the following statement:

"managerial behaviours are related to job satisfaction, job strain and turnover

intentions (Rooney and Gottlieb, 2007:197)” (Bondeson, 2016). To support what we stated about the lack of technological aspect of innovation labs, in Bondeson (2016) is stated that “the presence of an informal technical leader in the innovation laboratory could mean that technical knowledge requirements are not being met elsewhere”.

Besides all these, we came across in many papers such as “Experimental governance? The emergence of public sector innovation labs in Latin America” by Ferreira & Botero, (2020), which brought up the budget limitations, in this specific paper in Latin America.

An important barrier that is adding to the finding about the bad structure of innovation labs is that the creative leader and the lab manager due to many obligations are not focused in one project or lab (Bondeson, 2016).

Finally, we have to cite a study by Munro (2015) whose findings are confirming all the above; that the innovation in public sector is having barriers like *“the short-term horizon of politicians, the risk-averse culture and the challenges of reaching agreement in complex political organizations. These constraints were also found in a study by Van Buuren and Loorbach (2009) in the Dutch context.”* (Lewis et al., 2018).

1.7 Proposals

To continue, in many of the researched papers, authors mention some proposals to optimize the Public Sector’s Innovation Labs for the best possible results.

According to Agolla & Van Lill, (2017) a part of these barriers can be overcome by the combination of the following factors: *“availability of material resources (Agolla and Van Lill, 2013; Agolla, 2016); intangible organisational resources, creation of innovation funds; appropriate reward systems (Albury, 2011; Clark et al., 2008); appropriate innovation policies (Bloch et al., 2010; Carstensen and Bason, 2012; Paraskevopoulou, 2012); a learning organisation and training (Mele et al., 2010; Spicker, 2012); and transformational and strategic leadership (Spicker, 2012).”*

A crucial proposal for the governments is to find solutions instead of trying to control the procedures (Arrona et al., 2020). Further, it is proposed for public innovation labs to start working together with other labs in private or public sector to become more

innovative. In addition to this proposal, come Agolla & Van Lill, (2017), who propose for Public Sector's Innovation Labs to work along with universities.

Moreover, "*Lewis and Moultrie (2005) argue that a successful innovation laboratory appear to be those where problem-solving, team-based new product development and inter-organisational collaborations are closely related*" (Bondeson, 2016). One more proposal about the importance of collaboration is stated in "Powering Collaborative Policy Innovation: Can Innovation Labs Help?" by Carstensen & Bason, (2012).

Public Sector's Innovation Laboratories have to start being open to experimentation, new knowledges and getting out from their comfort zone, even though it is not easy due to governments' restrictions (Arrona et al., 2020). Furthermore they have to be open to communication too (Carstensen & Bason, 2012).

A less structured environment can be beneficial in the way it functions, for the employees, their creativity and of course for the final results (Bondeson, 2016). A proposal that is very interesting, for Public Sector's Innovation Labs, is to "act" like an entrepreneur with the motto "fail, but fail cheap, quick and then continue" (Munkongsujarit, 2019). Additionally, a proposal for governments' change of view is claimed by Ferrarezi et al., (2021), who state that there is a need for development of new skills to keep up with the new era and solve any issues.

One more smart proposal that we came across, is for the Public Sector's Innovation Laboratories to become more user-centered, since in this way they could be more effective. Although it is becoming clear by the authors that in order for the user to be more involved, Labs have to be "*more agile and bottom-up models of co-innovation need to be explored and exploited*" (Kallio et al., 2013).

According to a different paper, a suggestion for Public Sector's Innovation Labs, is besides being more innovative in order to do the difference, is to take higher risks and aim to more crucial subjects such as poverty (Martin et al., 2017). Also, the same paper suggests collaborations (i.e., with business universities), as mentioned in the first paragraphs of this chapter.

A more design-focused approach is provided by Komatsu et al., (2021) who supports the idea of "(1) *setting the context for a new organizational culture to develop; and (2) developing its 'usability' through capacity building. In this way, design has the*

potential of transforming public sector organizations – albeit implicitly – through practice and the creation of environments and contexts that allow for situated design cultures to develop”.

Continually, another design-focused approach is that *“Innovation labs have the strong design researcher ability built into their teams that can work together with users to work in physical and/or virtual spaces to push problem-solving and unique solutions.”* (Hum et al., 2019).

As for the technological aspect, a research finding showed that even though there were concerns about new technologies, at the end the employees were benefited and positively minded (Batt-Rawden et al., 2017).

One other proposal, according to our research is for Public Sector’s Innovation Labs to keep being innovative *“within the host organization along with complimentary assets, architectural innovation and ambidexterity”*, which will help the economy (Barnes, 2015).

Some writers provided some kind of new Lab versions. One of them is Santarsiero et al., (2021) who recommended a meta-model, which is based in management optimizations, for the best possible results of innovation labs. As for Zivkovic, (2018) he proposes a new kind of lab, which will have all the important characteristics *“This new lab is coined a Systemic Innovation Lab, as it supports systemic design, solution ecosystem and systemic innovation approaches. The proposed Systemic Innovation Lab incorporates and synthesizes all of the key features recommended for addressing wicked problems: it will focus on addressing complex problems, take a place- based transition approach, enable coherent action by diverse actors, involve users as co- creators, support a networked governance approach and recognize government as an enabler”*.

2 Methodology

After deciding that we will focus on the Innovating Labs in Public Sector, we had to do research for related articles on that specific subject. We concluded to the keyword sets “public sector innovation labs” and “public sector innovation labs case study”. By researching articles and papers on this subject we found 74, from which we concluded to 30, that were more relevant and closer to what exactly we were focused on.

Subsequently, after reading all the papers and articles that we concluded to, we created an excel document. In this excel there are all 30 related papers and articles listed in specific sections and practical applications. The reason we decided to create this excel was to work easier on the literature that we were going to use for this dissertation. In other words, it was more convenient to have the main part of each article or paper, in one place.

On the excel document, in more detail, we wrote for each article/paper: the title, the practical application, the field, the country where the research had taken place, the abstract and the conclusion of each one. By doing this, we had the opportunity to see all the details of the articles and papers that we used, summed up.

To continue with this procedure, we had the idea to categorize those articles by their goals and conclusions, because we wanted to have a clearer view of the results. If the papers or articles were in the same page (i.e., focusing on the barriers that exist in Public Innovation Labs), that means that they are in the same category. Those categories were five; Barriers, comparison, proposals, analysis, and analysis & proposals.

In the following pages we are going to show you the excel document and explain to you what were the reasons that we categorized the papers and articles in each category. Also, we have to mention that for better understanding, we have different colors for each category. The “proposals” category is in blue, the “barriers” category is in green, the “analysis” category is in purple, the “proposals & analysis” category is in orange, and finally the “comparisons” category is in yellow.

In the “barriers” category, are five of the articles/papers. In the comparison category are the less, which are two. Following, in the “analysis” category there are eight articles/papers, and in the “proposals” category are the majority of them, which are ten. Finally, there is a category “analysis & proposals” in which the authors focused on both (five papers/articles).

Since we divided the papers on categories, we were able to sum up the main conclusions in order to understand in depth the PSI labs subject and make it clearer for everyone interested.

3. Discussion & Findings

Firstly, we will present the “proposals” category, since this category is the one consisted with the most articles and papers. As you can see in the blue tables below there are 10 papers and articles that in the majority of their content, were focusing on proposing new ideas for Public Innovation Labs. That is the reason that we put them in this specific category. Let’s see why each one article/paper was categorized in this way.

3.1 “Proposals” category

Table 1: Powering Collaborative Policy Innovation: Can Innovation Labs Help?

Practical Application	Country	Field
Collaborative innovation based on interaction and mutual learning between relevant and affected stakeholders, driven by dedicated platforms in the form of innovation labs.	Denmark	Public Sector

Summary of abstract

The concepts of bridge collaboration, "joined-up government," and "networked governance" are not intrinsically novel (Pollitt, 2003; Hartley, 2005; Mulgan, 2009). Throughout the last years, though, new types of internal units within public sector organizations have been established with the express objective of supporting innovation activities. In at least one example, a temporary governance network – aimed to stimulate cross-governmental innovation – has formed. We begin by delving into the innovation lab's fundamental change logic. The background, purpose, as well as operation of Denmark's MindLab, an innovation lab that is now associated of both the Ministries of Business & Growth, Taxation, and Employment, are then examined. Researchers highlight whether MindLab's evolution through time matches a typology of successive innovation lab eras. Lastly, we consider likely new prospects for public-sector collaborative innovation platforms.

Conclusions

1. Assume responsibility for continuous development. MindLab's success is due in part to its capacity to continually reinventing on its own and concentrating on providing value to its owner firms.
2. Keep upper executives on board. MindLab's experience is also one of demanding on active senior leadership involvement from version 2.0 forward.
3. Show compassion among your colleagues. The activity of MindLab seeks to assist public employees in greater understanding the population they serve, as well as empowering them to utilize the skills they have in conjunction with an outside-in viewpoint.
4. Make it a point to work together.
5. Act, not just ponder.
6. Employ and upskill employees who are likeable.
7. Don't go overboard.
8. Make an effort to connect.

Table 2: Public innovation through governance in place-based competitiveness policymaking

Practical Application	Country	Field
Public Sector	Spain	collaborative governance, competitiveness policy and public innovation

Summary of abstract

The goal of this article is to look into the relationship among cooperative government and public innovation for place-based competitiveness.

The article presents a theoretical exploration of the connections between collaborative governance, competitive policymaking, and public innovation with an analysis of the collected data of a specific governance process in the Basque province of Biscay, that tries to adjust policy to local competitiveness concerns. The theoretical approach proceeds to the suggestion of a new separation between governance and public innovation. Innovation can occur in governance, through governance. This distinction is supported by the case analysis. Policy innovation has resulted from multi-actor collaboration for competitiveness policymaking (innovation in governance). This has also aided the emergence of

organizational improvements that could lead toward a more progressive public sector overall (innovation with governance). The results back up proponents of collaborative innovation's claims that multi-actor collaboration is a catalyst for public sector innovation. The publication's value is based on combining two significant and commonly accepted concepts: interconnected government for location competitiveness policymaking and public sector innovation, both conceptually and methodologically. The study offers unique insights into the process of developing a context-sensitive policymaking process that can help practitioners facing similar issues.

Conclusions

The governance innovation project is nonetheless yielding actual policy innovations, and it has the power to shape people's minds and behaviour in ways that encourage further testing and ultimately drives to a more inventive public sector.

Whereas structural and bottom-up approaches to regional growth policymaking necessitate authorities which are willing to try something new, discover, and interact with outsiders, the article demonstrates how these methods suggested in the theoretical section can add value to accessibility, acquiring knowledge, and testing.

This study cannot assume whether new place-based policy reforms are a part of public sector development by themselves. It also doesn't dismiss the importance of current governments' management culture, processes, and capabilities in implementing regional rivalry measures. The discoveries, on the other hand, expand on and support earlier study on the subject.

Further than the influence on particular policies, alterations in governance linked with new competition governance structures might have an impact on public development.

Table 3: Enhancing Country's Competitiveness with Innovation Policy Lab A case study of Thailand Innovation Policy Accelerator (THIPA)

Practical Application	Country	Field
Public Sector	Thailand	Economic & Social

Summary of abstract

The above study investigated the repercussions of constructing an innovation policy accelerator to ensure the efficiency of implementing, utilizing, and upgrading revolutionary public policies with in frame of reference of government intervention, mainly in developing nations where financial and cultural demands force the government to develop innovative policies to address issues and elevate the country's competitiveness in the international arena. Several policy and government lab simulations are examined and debated in depth. The article concentrates on a practical example of the Thailand Innovation Policy Accelerator (THIPA), which is still in its beginning phases, and highlights the main positive aspects and the challenges of working in a program like that, in Thailand.

This study finishes with ideas for how emerging economies might progress, with the innovation policy lab.

Conclusions

1. Thailand's policy lab and government lab are in their infancy.
2. The establishment of innovation policy laboratories would be impossible without the assistance of top-level people who make decisions, as well as in regarding policy orientation and functions within the organization (money and staff).
3. A government booster who sees through the concept and functioning of the innovation policy research facility is one of the lab's main performance goals. In Thai, one of the Ministers Attached to the Office Of the President advocated the concept and the formation of PM Labs.
4. Start-ups and policy labs can work and be structured in some way the same. We want the best results through innovation.

Table 4: *The Innovation Journal: The Public Sector Innovation Journal*, 18(3), 2013, article 7. Co-innovation in public services: Planning or experimenting with users?

Practical Application	Country	Field
Public Sector	Finland	user-driven and collaborative aspects in innovation models in the public sector

Summary of abstract

Due to expanding demands and economic difficulties in the public organizations, updating government services is a major topic. According to current data, user-driven techniques to customer orientation could be a critical success element. Studies of the procedures, on the other hand, were scarce. Before, stage-gate models of development appeared to be prevalent, including in, detailed, in-house planning, but more recently, quick and accessible forms have evolved. Researchers cover the study gap by investigating what types of development aims any one of the two approaches, scheduling (stage-gate) and quick testing, is best suited for, and how they stimulate radical ideas. They compared four ground-breaking revitalization projects from two Finnish towns in a qualitative approach. Citizens, here characterized as users, and a number of others, stakeholders were included in all four.

Samples were chosen to serve as detailed examples of various innovation methodologies and procedures. The users in one town used a more typical plotting (stage-gate) method managed by the city, while the users in the other location used quick testing. They wanted to find creative ways to address the pressing issue of joblessness while also encouraging intergenerational dialogue. The researchers' work adds to the sustainable progress of user-driven and participatory components in governmental innovation models.

Conclusions

1. The researchers' examinations have demonstrated that each implemented co-innovation techniques exemplify the adaptation in the Nordic public organizations to more transparent and equitable contact amongst town officials, people, and businesses in the area.
2. The plotting co-innovation approach appears to generate an educational environment for users; as a result, reciprocal discourse and appreciation for other's ability and expertise should be developed.
3. Co-innovating methods can be even more methodical and tactical, which has been identified among the most significant obstacles in government sector development.
4. The nature of appropriate co-innovation activities is defined by the complication of a goal of rejuvenation, its special qualities, as well as the amount searched after.

5. Fast testing appears to be far more appropriate to regional activation, whereby locals embrace obligation to carry out upgrades that are relevant to their own needs.
6. The research evidence of the authors show that more revolutionary sprouts for inventive solutions were produced in user-driven speedy experimentation methods.
7. The experts' responsibility was to use their data to both assist and clarify regional co-innovation processes, as well as to raise awareness of them in international platforms

Table 5: Exploring Public Sector Innovation Challenges through a Case Study of New Zealand's Service Innovation Lab

Practical Application	Country	Field
Public Sector	Finland	Design of public policy & services

Summary of abstract

Within the field of public sector innovation research, this paper presented a qualitative case study on the phenomenon of civil service innovation labs. The article illustrates the Service Innovation Lab, a cross-sectoral federal program that ran in Wellington, Aotearoa New Zealand, as part of broader public sector attempts for integrated citizen-centric digitalization. Through a literature analysis, interviews conducted, and facility inspections, one of the purposes of the dissertation is to obtain a better insight into the current state of design-led PSI labs as a concept.

Conclusions

1. Recognized the primary structural barriers to innovation in the public sector as accountability structures, workplace culture, and attitudes, all of which strengthened one another.
2. Recognised two broad kinds of reactions from individuals engaged with the project in order to manage the case's obstacles: providing the circumstances for innovation and encouraging training and delivery systems.
3. The study demonstrates the difficulty of civil service development, with a focus on Aotearoa New Zealand as well as other relevant state sector environments.

4. While running an innovation lab within the public sector, it is necessary to create an authorizing atmosphere and provide management within the Lab to counter several of the challenges that come from the broader state industry.

5. The impact of the case organization's innovation culture and language use on the team and their work, which, to the author's awareness, are mainly underrepresented in the bibliography, specifically in Aotearoa New Zealand.

6. Service Innovation Lab as a changing institution in terms of connecting with the circumstances for public sector innovation training and delivery through diverse collective and individual reactions adopted by people connected with the initiative over the course of its three-year operation.

Table 5: SOCIAL INNOVATION LABS IN CANADA - A Preliminary Analysis of the Canadian Social Innovation Lab Landscape

Practical Application	Country	Field
Social Innovation	Canada	Canadian Social Innovation Labs

Summary of abstract

The study is focused on unanswered questions and gaps in this field, such as:

1. The quantity of social innovation centres in Canada, and their location.
2. What is their work and how they implement it.
3. Are they beneficial in societal issues.
4. What are the finest internal and overseas methods in terms of budget, governance, form, management, and culture?
5. What are the most significant problems and obstacles that they have to deal with.
6. What level of intra-organizational cooperation and education is taking place, and in which ways this can become better.
7. How involved are communities in developing and delivering improvements.
8. What are the financial, managerial, and institutional consequences of social lab vulnerability and knowledge co-creation?

This initial study will seek to pave the way for broader research with three goals:

1. Develop and promote open data and inventories that capture the present condition of social innovation laboratories within Canada, including their location, the types of projects they work on, the facilities they offer, and benchmarks in government, structural, and financial setups.
2. Develop guidelines and success indicators, then put them to trial with top laboratory operators.
3. Help labs, their host organizations, and civic groups achieve greater results.

Conclusions

1. A business case for social innovation labs still has to be established, and defining social innovation in a manner appropriate to exact statistics may be problematic.
2. To thrive, social innovation laboratories must be creative in itself, undertaking larger risks to be at the forefront of the development, while also tackling the genuinely difficult subjects, including how to interact varied, highly plural societies.
3. Its measures must be less precise and decisive by nature, and one method could be to assemble a cooperative workgroup area to construct the business case.
4. One more method might be for educational programming laboratories to invite their business schools into becoming partners.

Table 6: Modelling and managing innovation lab as catalyst of digital transformation: theoretical and empirical evidence

Practical Application	Country	Field
Digital Transformation	Italy	Digital Ecosystem

Summary of abstract

The purpose of this study is to explore the function of innovation labs as new leadership frameworks for encouraging digital and ongoing new methods and techniques within digital ecosystem corporations. A meta-model is suggested based on the case study research to characterize the essential stages and difficulties for the efficient administration of institutes as digital innovation catalysts.

Conclusions

1. The research adopted a meta-model to investigate several of the essential aspects that can really help creativity laboratories be managed more successfully.
2. The analysis contributes to the understanding of the way to run these laboratories properly, as well as providing practitioners and researchers with helpful insights and managerial implications for the establishment and management of these programs.
3. It is noted that using a single case study may restrict the generalizability of the findings.

Table 7: Tab the lab: a typology of public sector innovation labs

Practical Application	Country	Field
Public Sector	Switzerland	Wicked Problems

Summary of abstract

Public sector innovation laboratories are being established everywhere across the globe with the goal of addressing difficult challenges and increasing public benefit. These innovation laboratories, however, are diverse. Because of this variation, determining the real effect of innovation laboratories on the public sector's innovation capability is tricky. As a result, this paper proposes a typology that may be used to organize the environment of various entrepreneurial laboratories in order to assess their influence later. Three aspects are covered by the suggested typology:

- 1) impact,
- 2) network (corporates and cooperation partnerships), and
- 3) administration.

Conclusions

1. The research offers a Public Sector's Innovation institution typology that may be used to investigate the creation and operation of these laboratories, as well as their impact in fostering innovative potential.
2. Creating a typology based on Public Sector's Innovation institution scientific research and studies of innovation capability should be a first and critical phase in researching PSI Labs' function in innovation capacity building.
3. The Public Sector may make the most of PSI Labs and establish a culture of innovation activities with better clarity on significant variables to improve innovation capabilities and the interaction of the parameters.

Table 8: Systemic innovation labs: a lab for wicked problems

Practical Application	Country	Field
Social Policy Problems	Australia	Systemic Innovation Lab

Summary of abstract

The goal of this project is to investigate whether present lab models are suitable for dealing with wicked situations. A new lab form, the Systemic Innovation Lab, is presented, which incorporates the characteristics of existing labs that are well-suited to dealing with complex challenges.

Present lab kinds that possess some of these features are highlighted as well as elements of initiatives that are regarded suited for handling terrible challenges. The suggested new laboratory model is justified by blending the characteristics of current labs that are well-suited to dealing with difficult challenges. A case study demonstrates the way that new lab could work in the real world.

Conclusions

1. Handling problematic situations necessitates the use of a more effective lab model.
2. When dealing with wicked challenges, a user-centred system design concept is ineffective as a lab technique.
3. A systemic design technique is necessary, which blends design and complexity theory.
4. A "Systemic Innovation Lab" has been introduced as a promising lab model. The suggested lab's name reflects its compatibility with systemic design, response environment, and systemic innovation strategies to solving wicked issues.

Table 9: Policy labs challenges in the public sector: the value of design for more responsive organizations

Practical Application	Country	Field
Public Sector	Italy - Finland	Design

Summary of abstract

Design has developed as a discipline capable of addressing the complicated situations of the twenty-first era, owing to its human-centred perspective, exploration, and participatory aspects. The concern of how design can assist government institutions effectively adapt to their urgent needs is discussed through a case study of a state design lab, formerly inside the Finnish Immigration Service, in an effort to investigate the benefit of design as it is used by the growing population of policy labs in authorities all over Europe. Since these facilities have been tasked with bringing innovation to governance, numerous obstacles are impeding their ability to function as "system challengers." Given the time limits and restricted decision-making ability of policy labs, the study noted building a culture of design as a desirable consequence, working as a generative instrument for organizational change throughout its ability to mediate among product/service demand and supply.

Conclusions

1. It is necessary for public institutions to broaden their horizons and accept different types of assistance and expertise.
2. Design has the capacity to assist these organizations in developing interactive educational collaborations with other parties involved in the process in order to generate outcomes that are appreciated by residents while also increasing their potential to adjust.
3. Design: (1) establishing the context for the launch of a particular workplace culture; and (2) increasing the 'functionality' of that culture through capacity building. By practice and the construction of surroundings and circumstances that encourages the growth of situated design cultures, design has the capability to change government departments - usually indirectly.
4. Some difficulties raised in the research, including the lab's role in the organization, the separation of design activity from more critical roles, and its relative impermanence as an organizational asset constant battle for organizational legitimacy.
5. Presenting a human-centred design approach to problem-solving, as opposed to a user-centred design approach, as well as its possibilities.
6. Top administrators and policymakers must foster situated design cultures at all areas of government and handle the interconnections among these.
7. Designers must understand and accept ownership for their part in the process.

To start with, we are going to refer to “Powering Collaborative Policy Innovation: Can Innovation Labs Help?” by Carstensen & Bason, (2012). With this article the authors find the possibilities for collaborative innovation “*based on interaction and mutual learning between relevant and affected stakeholders, and driven by dedicated platforms in the form of innovation labs.*” (Carstensen & Bason, 2012).

Based on their findings with the use of Danish MindLab as an example, they concluded to the following: there is need for continually optimization, redevelopment and support for the management; for better understanding of the citizens’ needs, Public Innovation Labs have to be empathetic and collaborative. To continue with the conclusions of this article, it is mentioned that it is crucial to take action, make known in the public what they are doing and that there is no need to have many employees since if there is good structure and knowledge it is giving results. Finally, about the employees, they claim that it is very important to be likeable.

Secondly, we will present the “Public innovation through governance in place-based competitiveness policymaking” written by Arrona et al., (2020). This paper is focused on finding the way that collaborative governance arrangements connect for public innovation and place-based competitiveness. The key point of this paper is that there is

need for openness and thinking out-of-the-box in order for the Public Innovation Labs to be more innovative. Also, it is mentioned that collaboration can be a great asset for the best possible results.

Another paper in this category is written by Songphon Munkongsujarit (2019) titled: “Enhancing Country's Competitiveness with Innovation Policy Lab A case study of Thailand Innovation Policy Accelerator (THIPA)”. In this paper we can find proposals for Public Innovation Laboratories in developing countries and barriers for Thailand’s Labs, but we are focusing on the first part since this is the one that we are researching. The writer comes to the conclusion that the support of government, budget and qualified employees is crucial for Public Innovation Labs, in order to be more effective. Moreover, it is proposed that Public Innovation Labs have to be thought as a start-up.

The article “The Innovation Journal: The Public Sector Innovation Journal, 18(3), 2013, article 7. Co-innovation in public services: Planning or experimenting with users?”, by Kallio et al., (2013) is also categorised in “Proposals”. The writers compared two Finish cities in order to understand “*for what kinds of innovation targets are each of the two processes, planning-oriented (stage-gate) and rapid experimenting suitable, and how do they encourage radical innovations*”

(Kallio et al., 2013). One proposal of this article is that the communication with citizens is important for better understanding of their needs. In addition, the authors concluded that “*The planning-oriented (stage-gate) approach seems more suitable for rather complex, strategic development targets that can attract investment in the co-innovation process as such. Rapid experimenting seems to better suit local activation, where the citizens take responsibility for conducting the renewals close to their own interests.*” (Kallio et al., 2013).

The next paper that we are going to refer to is “*Exploring Public Sector Innovation Challenges through a Case Study of New Zealand’s Service Innovation Lab*” written by Lehtinen, n.d. The main proposal, according to the author’s research, of this paper is that it is important to create an authorizing environment and of leadership in order for the innovation labs to deal with any barrier from the public sector.

The sixth paper in this category, is “SOCIAL INNOVATION LABS IN CANADA - A Preliminary Analysis of the Canadian Social Innovation Lab Landscape” a research by Martin et al., (2017). Some of the proposals that are being discussed in this paper, are the importance of being innovative and not fearing about risk taking. Also, it is claimed that the focus has to be more in tough matters, such as poverty. One more proposal is to cooperate with universities, especially those in the field of business.

One of the most helpful papers is “Modelling and managing innovation lab as catalyst of digital transformation: theoretical and empirical evidence” by Santarsiero et al., (2021), which proposed a new meta model that could find the main issues of the labs in order for better decision making.

Stoll & Andermatt, (2021) wrote “Tab the lab : a typology of public sector innovation labs” a paper which we also put in the category “Proposals”. The typology that is being proposed for Public Innovation Labs, “*allows studying the setup and functioning of PSI Labs and especially their role for building innovation capacity*” (Stoll & Andermatt,

2021). In addition, they mention that the public sector has to use Public Sector's Innovation Labs as much as it can, since they are not only beneficial for the innovation outcomes but also for creating a culture of collaborative innovation.

Zivkovic, (2018) who wrote a very insightful paper "Systemic innovation labs: a lab for wicked problems", is clarifying that "a user centred service design approach" is not the to-go method to address wicked problems. He suggests a systemic design methodology in order to that combines design and complexity theory. Finally, he proposes a new lab type named "Systemic Innovation Lab", which will focus on addressing wicked problems.

The last paper in this category is "Policy labs challenges in the public sector: the value of design for more responsive organizations". Komatsu et al., (2021), the authors, are presenting, the following proposals: openness of boundaries and knowledge; use of design; role awareness and responsibility of designers.

We will continue with the next category on our excel document, which is "Analysis & Proposals".

As we can understand from all the above, the main proposals are: governments have to be more open and supporting to Public Sector's Innovation Labs and their managers; more knowledge; collaborations; promotion of projects; motivation of employees and thoughtfulness about the citizens' needs. Moreover, it is suggested that Innovation Labs in the Public Sector, have to be thought, organized and work as a start-up. It is clarified also that there is need for openness to create and innovate, which can happen by taking risks.

3.2 "Analysis & Proposals" category

Table 10: Human factors in implementation and adoption of innovations in health care services: A longitudinal case study on the introduction of new technology

Practical Application	Country	Field
Public Sector	Norway	Human factors - Health care

Summary of abstract

There is a lack of literature on the initial stage of the project execution in community care industry when it comes to public sector innovations. This research emphasis on the human factors that influence adoption process of health-care innovations aimed at improving the quality of public health service delivery through the use of technological advances. In 2015, a longitudinal case study was undertaken in Norway using a qualitative and explorative technique that included personal interviews, focus group discussions, and monitoring. The respondents were recruited in a planned and effective way. There was a moment of turbulence and instability during the adoption process. Some staff reported that using the cellphone was challenging for them. Number of concerns about the care of individuals led to emotions of frustration and powerlessness over their workplace. Initially in the adoption process, high aspirations were replaced by apprehension. Various nurses claimed that they needed additional training and guidance. Personnel aspirations seemed to be linked to their attitudes and, in certain cases, their aptitude or competency to embrace technology. The analysis contributes to a better understanding of the shift from old to new solutions, resulting in a new demand for information on innovation and the adoption of new technology in health care. Effective interaction and communication at all organizational levels will almost certainly reduce the chances of malfunction and increase the chances of success for public sector innovation.

Conclusions

1. The workforce profited from the introduction of new technology.
2. There have been worries about poor cell phone connection speeds and a lack of staff training.
3. Exchange of information and interaction between Municipality employees, super-users, staff, management, and The Company revealed distrust.
4. Employees, on the other hand, reported satisfaction with the concept that they had been more noticeable while doing home visits, and hence less likely to be treated with suspicion.
5. The early implementation stage of the experiments offered a better knowledge of the benefits and drawbacks of the proposed format, as well as how it differed to the old.
6. Effective communication and collaboration at all organizational levels will likely decrease setbacks and increase the chances of public sector innovation success.

Table 11: The Rise of the Innovation Lab in the Public Sector

Practical Application	Country	Field
Public Sector	Canada	Engineering/Applied Science Technology

Summary of abstract

The majority of institutions understand that they must innovate or risk collapsing in their specific sectors. This seems to be particularly the case in the public sector, where innovation is supposed to save money and increase productivity. The first section of this study looks at innovation in big corporations, with a focus on recently developed innovation hubs, transnational clusters, and public-sector partnerships. The aspects of public sector innovation, as well as the numerous ways utilized to acquire it, are then discussed. Authors have seen how newly created public-sector innovation hubs are delivering excellent benefits to communities through mainstreaming. It is advocated to embed and integrate the innovation activities in host institutions using complementary assets, architectural innovation, and ambidexterity to keep doing so in the current transforming context.

Conclusions

1. Through mainstreaming, recently developed innovation labs in the government sector are producing beneficial socio-economic outcomes.
2. It is advocated to embed and integrate structural or constant innovation processes, as well as complementary assets, architectural innovation, and ambidexterity, within the host institution.
3. Incorporating 'skunk works' into an institution improves congruence, flexibility, and compatibility; complements the millennial workers and on-demand market; and helps the government of Canada fulfil aspects of its Blueprint 2020 central goal.

Table 12: Evaluating experimentation in the public sector: learning from a Brazilian innovation lab

Practical Application	Country	Field
Public Sector	Brazil – Australia	Brazilian Innovation Labs

Summary of abstract

The goal of this research is to contribute to the government lab research and argument on the benefits provided by public sector innovation labs by offering an independent assessment of the GNova lab. GNova is a Brazilian national government innovation lab interested in creating innovative solutions to topics through design-led experiments involving members of partner teams. GNova conducted an assessment process to interpret the data of its programs during an era of political shift. The method was design-led and composed of two phases, with working principles serving as performance indicators. A workshop with project partners was held initially, followed by lots of in-depth group discussions and interviews in six different initiatives. The discoveries were divided into three categories based on their impact (effects of the process, effects of products and effects of the participation). Due to its small field of view, the analysis supports the hypothesis that, in addition to its impact of particular products delivered, the research centre led to the growth of qualifications in government employees who take part, which is in line with a public administration conceptual framework based on public worth.

Conclusions

1. The methodology had a favourable impact on both the formation of high-value items and the attitude and activities of the study participants.
2. The lab team's terminology has a big influence on the way participants communicate about the activities and make sense of what they've learned.
3. The data support the government's part in the social employee capacity development.

4. The approaches are versatile and may be used to a wide range of procedures and everyday difficulties in the government sector, not just innovation.

5. The requirement to gain new abilities to effectively negotiate the difficulties that arise with the drastic shift toward the public value concept of public service correlates with the learning by doing strategy used by state employees in lab projects.

6. Research facilities could symbolize a change in the way governments conceive about issues and their ability to "fix" them through developing knowledge.

Table 13: Taking the Culture out of the Lab and Into the Office: A "Non-Lab" Approach to Public Service Transformation

Practical Application	Country	Field
Public Sector	Canada	Culture

Summary of abstract

One low-key co-design study at Immigration, Refugees and Citizenship Canada over-delivered on client feedback, service experience enhancements, and operational effectiveness. By trying to compete against graduate design students, co-designing across the institution, producing a design project alumni group, and complying to strict monitoring and testing, one department was able to embed human-centered design into organizational culture. The analysis will discuss the benefits and drawbacks of incorporating human-centered design (via a "non-innovation lab") into the institution.

Conclusions

1. By the use of a range of techniques, from ethnographic inspection and questioning to generating path waypoints and services capes to chart out the way that services establish a connection and where touch-points and pain points can be found, service design has succeeded to understand the way individuals navigate service offerings.

2. When co-creation is used to create government infrastructure, the designer often plays a pivotal role and to assist public employees in improving ideas.

3. Co-designing could promote cooperation among different stakeholders and lead to more approximate solution while promoting mutual insight into the issues and solutions in an institution.
4. Innovation labs have significant design researcher capabilities embedded into their workforce, allowing them to collaborate with individuals, to share answers for any possible issue.
5. The difficulty for innovation labs is to: (1) thoroughly embed design research capability changes in the institutions they support, and (2) guarantee that any shift will be properly applied and confirmed once the task is finished.
6. Innovation labs, like punctuated co-design, seem to to be concentrated on creating practical solutions; thus, innovation labs can assist with brainstorming ideas and dispersed techniques of design research.
7. All innovation labs have an influence on the community of the enterprises with which they collaborate.
8. Institutional transformation requires both a culture shift that allows for failure, open communication about questions and emotions, and the capacity to challenge the status quo.
9. Though the use of innovation and design research approaches in government is on the rise, not all interventions are created equal.

Table 14: Public Innovation and Living Labs in Action: A Comparative Analysis in post-New Public Management Contexts

Practical Application	Country	Field
Public Sector	Spain - Brazil	Living Labs

Summary of abstract

This paper explores innovation (living) labs, a growing phenomenon in government administration directed at improving government institutions. This study analyses the most current articles on public innovation and i-labs in order to achieve so. The goal is to compare the operation of public innovation labs in Spain and Brazil using two examples. The paper utilizes qualitative methodologies with an analytical character. The goal is to evaluate the present state of innovation lab implementation

regarding foreign experiences. The next dimensions are investigated: lab type, origin, methods used, team, activity focus, and work patterns. This study offers thoughts and conclusions on the repercussions of living labs as a source of public management change, public value creation, and comprehension of new innovative technologies of governance. Within post-New Public Management contexts based on sophistication in authorities, this study presents results and concepts about the repercussions of living labs as a source of public management change, formation of public value, and understanding of new processes of co-creation, co-production, and cooperation with residents in the solution of societal issues.

Conclusions

1. There is a similar approach for public innovations to aim at the tackling of society's challenges, which includes the use of big data, experimental and agile approaches, openness to interact with residents and other institutions, and creating practical solutions in particular circumstances.
2. Governments and other public entities can be known as internal departments if they market themselves to boost ideas and cooperative mechanisms. In other circumstances, innovation laboratories might be designed as hybrid environments that allow government institutions to engage while bringing civilians at the focus.
3. There is need for hearing suggestions outside of the organization and build communication techniques.
4. The ability of innovation labs to change present public sector standard operating procedures and service dynamics, both formal and informal, and also the power dynamic, not just within government entities but even in their interactions with community, would provide public benefit.
5. They were too focused on procedures and not enough on the intellectual or cultural aspects of government institutions.
6. As part of larger innovation environment with more actors and more complicated policy - relevant concerns, public innovation laboratories will be able to expand their transition ability.
7. The public value provided by innovation laboratories should be enhanced by applying adaptable activities in public agencies and upgrading public service quality.

As you can see in the orange tables above, as in all the categories, we made seven columns. The category “Analysis and Proposals” consists of five papers and articles.

The first one that we will present you is “Human factors in implementation and adoption of innovations in health care services: A longitudinal case study on the introduction of new technology” by Batt-Rawden et al., (2017). One of the results of this study is that new technology was helpful for the employees, even though at first they were not positive about it. Also, as a proposal, Batt-Rawden et al., (2017) say that to avoid any possible failure, there is need for good communication.

In the second paper in this category, by Barnes, (2015), “The Rise of the Innovation Lab in the Public Sector” propose “embedding and integrating systemic or continuous innovation process within the host organization along with complimentary assets, architectural innovation and ambidexterity.”

“Evaluating experimentation in the public sector: learning from a Brazilian innovation lab” which is the third paper in the “Analysis & Proposals” category, was done by Ferrarezi et al., (2021). The authors state that labs can help governments to find solutions on an issue, by representing an alternative of their thinking. Additionally it is suggested for civil servants, to start getting new skills and knowledge.

In the fourth paper by Hum et al., (2019) which is titled “Taking the Culture out of the Lab and Into the Office: A “Non-Lab” Approach to Public Service Transformation”, we learn that the tendency of innovation labs to solve problems sometimes is not creating an ideal work environment. The suggestion that the writers concluded, is change of structure, which have to combine culture change, communication and the ability to challenge the status quo.

The final paper in this category, “Public Innovation and Living Labs in Action: A Comparative Analysis in post-New Public Management Contexts”, is written by Criado et al., (2021). Some of the proposals in this paper, are the following: necessity of communication; enhance of the public value that Public Sector’s Innovation Labs has.

All the papers and articles in this specific category come to the exact same conclusion. It is necessary for Public Sector’s Innovation Labs to start communicating, changing their structure for the better and their thinking in general. In addition, the authors are stating that the acquisition of knowledge is extremely important. As you will see in the

following pages, the authors of papers from the other categories came to the same conclusions through their research.

3.2 “Barriers” category

Table 15: Evolution of organizational ambidexterity in the public sector and current challenges of innovation capabilities

Practical Application	Country	Field
Public Sector	Switzerland	PSOs

Summary of abstract

The goal is to examine the fundamental barriers to the implementation of innovation capacities in PSOs. Various studies have looked into the constraints to government sector development. The core reasons of such impediments, on the other hand, are hardly understood. To remedy this situation, researchers use the level of organisational dexterity, which corresponds to an institution's ability to maintain exploitation and exploration whilst resolving the contradictions that emerge. Researchers use a three-period approach to track the growth of public organizations' dexterity, relying on a research framework of the rise of innovation in the public sector.

The results underscore the importance and utility of the exploitation–exploration dilemma, that also underpins the growth of innovation capacities, and demonstrate that modern public industry faces unique problems in terms of development.

Conclusions

1. A conflict connected to the need of the constant running of two contrary types of operations, exploitation and exploration, underpins PSO's innovative potential.
2. The role of organizational dexterity allowed researchers to highlight to a fundamental truth that is currently used in PSOs and driving the growth of their innovative capabilities far more challenging: a tough changeover to several form of experiential strategic flexibility.

3. Today's modern PSOs face a number of possible challenges as a result of this tough shift, as well as all the conflicts retained from the old days.

Table 16: Insights into Kenya's public sector innovation: the case of managers Joseph

Practical Application	Country	Field
Public Sector	South Africa	Management

Summary of abstract

The goal of this article is to look at innovation in public organizations through the eyes of middle managers. Multiple researches on organizational innovation sources have been undertaken; nevertheless, once it relates to the government sector, relevant findings are scarce. Till recently, the label "innovation" was associated with the private market, when it was embraced by government institutions. The current research takes a qualitative approach. The results are collected from a sample of 16 middle managers from two Kenyan PSOs. The data for the study is gathered through focus group interviews. The data is categorized and then examined conceptually. Initially, the findings revealed motivations, hurdles, solutions to resolve them, innovation results, and also the state of innovation in Kenya's public organizations. Furthermore, the research makes recommendations for policy, concept, and implementation. According to the report, state and top management are key drivers of innovation in the public sector, significantly in relation of how they develop regulations and foster innovative behaviour. These study results are restricted to the public sector's innovation activities in Kenya, particularly the two institutions. Because it is factually built on middle managers' insights, the results of the study can improve awareness of the nature of development in PSOs.

Conclusions

1. The principles of innovation are compatible with the research on the topic.
2. Industries can just develop if their personnel understand what that involves.
3. In the government sector, innovation is defined as "accomplishing things in a different way or new things, including being innovative whilst performing tasks" in order to delight people or fulfil their wants, as well as stay fitting in the industry.
4. The creation of innovation-friendly regulations, communication and engagement with academic institutions, and proper funding can all benefit the public industry innovate.
5. The operational plan has to be examined because it is not properly matched with the present constitutional system.
6. In the public organizations, communication and cooperation with diverse stakeholders and academic institutions are viewed as critical contributors to the development.
7. There is a public-private partnership policy in place that outlines how collaborations must be governed.
8. The state administration can develop regulations that encourage teamwork in which the benefits of creative results are distributed among the contributors.
9. In the government sector, social conditions promote innovation.
10. The state sector seeks out novel approaches to containing and resolving community issues.
11. Technology is a necessary component of effective development.

Table 17: Opportunities and challenges in the management of an innovation laboratory: A case study of Semcon Innovation Lab

Practical Application	Country	Field
Management of an innovation laboratory	Sweden	Management

Summary of abstract

The space where the innovation implementation is performed is defined as an innovation laboratory. They are an example of a new type of organizational structure which has now arisen like a leadership reaction towards the issues of developing core competencies in an institution. This dissertation seeks to analyze the obstacles and opportunities which arise in the leadership of an innovation research lab, on a level of organizational innovation and self-determination, using a mixed-method approach. In the researched organisation, the tech advisory firm Semcon, the contextual form of innovative behaviour in organizations is utilized as a basis for assessing an innovation research lab.

A confusion exists in the way innovation laboratories are conceptualized. Establishing an innovation centre can be viewed as a potential for its own sake, but that operating on the edge among revenue and inventiveness can be difficult. Keeping a clear perspective of the innovation laboratory's true capabilities may also be a struggle. Cross-functional cooperation among advisors appears to offer benefits about how this might add value to awareness sharing and dissemination inside the organisation, but it also presents a problem within the groups require executives who are proficient in inventiveness planning, agile project management, and technological skill. It is necessary to have the appropriate resources in order to have the room to make some failed attempts to innovation.

Conclusions

1. There are several challenges as well as numerous chances.
2. A PSI can improve an institution's strengths.
3. Semcon's leadership have managed to develop an effective organizational structure that instills a sense of shared interest in the innovation centre.
3. Semcon's leadership have managed to develop an effective organizational structure that instills a sense of shared interest in the innovation centre.
4. It eludes dangers.
5. There isn't enough room for ambiguity and there are not many funds for them.
6. The need to turn research projects into real-world projects.
7. Project leaders must have agile project management abilities.

8. Because of a strong baseline level of desire, by using development lab to bring new personnel can open up avenues.
9. Cross-functional collaboration could be advantageous in assisting co-workers in gaining a diversity of perspectives and techniques that activate innovative thinking cognitive difficulties.
10. The skill of the executives is crucial to the growth of a PSI.

Table 18: Discovering Innovation Labs in the Public Sector

Practical Application	Country	Field
Public Sector	Estonia	International

Summary of abstract

Because there isn't enough academic study upon this area, this paper is the first thorough effort to identify and assess these institutions around the world. Researchers have found 35 of these groups internationally. The study takes a two-step methodology: initially, broad research was carried, accompanied with an additional in-depth interview with i-labs' top executives; eleven innovating laboratories answered. The research is based on a large-scale, long investigation of government institutions in Europe (the COBRA project), which we have extensively revised to match our goals. Our preliminary results are presented in this paper. I-labs are:

1. distinct institutions with various quests, supposed to perform as transformational leaders inside the government sector but also appreciate considerable freedom in defining their aims and implementation practices;
2. functionally distinct from the public at large sector and believed to be ready to recruit significant finance.
3. limited institutions having expertise in rapid research projects and most often insufficient the functionalities and jurisdiction. The capacity of i-labs to move or demonstrate user-driven service re-design projects is one of its core skills. Surprisingly, IT talents appear to be underrepresented in the i-labs surveyed. To recap, i-labs, while prevalent across many organisations today, they are still a long way from becoming organic aspects of the government sector, that is both their strong and weak point.

Conclusions

1. They are fundamentally distinct from other parts of government.
2. They have no jurisdiction above other government structures, therefore their efficacy is mainly reliant on their skill to connect with and convince other government departments via unofficial contact.
3. They have limited resources.
4. Innovating laboratories favor small sizes.
5. It takes time to integrate into the government sector.
6. After the increased awareness and visibility in government circles of some of the earliest i-labs, the proliferation of state sector innovation labs could be perceived as a fad or a craze.
7. Different labs exist all throughout the globe.
8. Catalysing and legitimizing transformation in the public organizations is among the objectives of such semi-autonomous places.
9. The i-labs are often state institutions with a slightly higher life expectancy than typical government agencies.
10. Technology is crucial in their development.

Table 19: Experimental governance? The emergence of public sector innovation labs in Latin America

Practical Application	Country	Field
Public Sector	Finland	Social Challenges

Summary of abstract

A more prominent tool for public industry innovation activities, is what PSI institutions have started to become. Supporters of such facilities argue that they may contribute in solving critical societal issues, transforming political institutions, and by doing so defining forthcoming governance methods and beliefs. While there has been some analysis on state innovation labs, the emphasis has mostly been on the creation, designs, and functions of research laboratories in Europe and North America. This

study aims to add to the expanding knowledge base by highlighting several of the unique characteristics of this process as it occurs in Latin America.

The article offers understanding and findings out of a research of ten government sector innovation labs in Latin America, using as a starting point three experimental interests discussed in the study, notably growing flexibility of public processes, developing solutions for public engagement, and experimental development of public policies. Researchers' attention is on the way these interests are challenged with various situations and, as a result, what obstacles the labs confront. Experimentation in Latin America appears to entail more than just flexibility, involvement, and government policies; it moreover appears to entail juggling financial restrictions, a need to connect, to cooperate, and eventually to line up their agendas with those of other organizations, while also being able to take responsibility to different administrative levels.

Conclusions

1. In Latin America, government innovation laboratories are exploratory organizational formations with complex interactions even within government and existing organizations.
2. Labs aren't always in charge of funding and operational decisions.
3. Due to a shortage of assistance from officials and legislative limits, they are only able to minimally advise government policies and seek the assistance of public workers in creating a public administration innovative environment.
4. Financial restrictions.
5. There is a need to build connections and synchronize interests.
6. Accountability to various levels of society.
7. Recommendation: Demonstrate the value of persons for the lab's future expansion and long-term viability.

We are going to continue with the next category, which is the “Barriers”, as you can see above. There are five papers categorized here, which focus on what makes difficult for Innovation Laboratories to become better and more helpful.

Boukamel & Emery, (2017) are the researchers of the first paper that we will present, “Evolution of organizational ambidexterity in the public sector and current challenges of innovation capabilities”. They came to the conclusion that some barriers that Public Sector’s Organizations face are: the tension that is related to the need of running exploitation and exploration, at the same time; and the complexity of innovation capabilities.

Moving on to the second paper “Insights into Kenya’s public sector innovation: the case of managers Joseph” which was very insightful for our research, we understood that the structure policy of Public Innovation Labs, is not well aligned with the current legal framework. For this reason, as a solution the writers propose a new review (Agolla & Van Lill, 2017).

“Opportunities and challenges in the management of an innovation laboratory: A case study of Semcon Innovation Lab” written by Bondeson, (2016), mentions that besides the potentials of the Public Sector’s Innovation Labs, the managers have to deal with some challenges. Also, it is stated that there is fear for taking risks and there is needed more space for making mistakes and failing, something that due to the framework of governments is difficult to happen.

The fourth paper of this section is “Discovering Innovation Labs in the Public Sector”. The researchers P Tönurist et al., (2015), concluded that innovation labs are without authority because of the public sector’s guidelines. To add on, they have limited budget and are generally small fluid.

Lastly, in “Experimental governance? The emergence of public sector innovation labs in Latin America” Ferreira & Botero, (2020) claim that there is little to none support by the authorities, for Public Innovation Labs. Moreover, there are budget constraints, and poor networking.

To sum up, the papers and articles in the category “Barriers”, are very clear about what is keeping Public Sector’s Innovation Labs from evolving. First of all, is the structure that they have. The legal frameworks of governments are very narrow and this does not help at all in the evolution of PSI Labs. Also, besides the legal frameworks of each government, there are budget constraints. Additionally, because of politics and the fear of media, there is a huge fear of failure for projects. As mentioned in the papers, there has to be some risk taking in order for Public Sector’s Innovation Labs to be actually

innovative. Another barrier that is stated is the lack of motivation and knowledge from the employees. Especially the gaps of knowledge in the technology, is decisive. Finally, there is also lack of networking and communication. Public Sector’s Innovation Labs have to be open to promote their projects and connect with the right organizations and people.

3.4 “Analysis” category

Table 20: How innovation drivers, networking and leadership shape public sector innovation capacity

Practical Application	Country	Field
Public Sector	Australia -The Netherlands - Denmark	Innovation Capacity

Summary of abstract

It is necessary to develop a hypothesis, practically examine it, and contrast it across regions. The purpose of this paper is to comprehend the aspects that influence innovation potential. It looks at how three European municipal governments – Barcelona, Copenhagen, and Rotterdam – evaluate their own innovation capability in terms of innovation drivers (formations, practices, and contextual factors), outside communication, and leadership capabilities. A research framework has been used to statistically examine the association between these utilizing data from an online poll of top management in municipalities. For all these municipal governments, top management has a greater impact on self-rated innovation capability than innovation drivers and outside connections.

Conclusions

1. The most critical factor in self-assessed innovative potential was management. For both Barcelona and Copenhagen, network governance stands out, while in Rotterdam, entrepreneurial leadership had the greatest perceived impact on innovation capability. In every one of the locations, altruistic leadership was found to be inversely linked with self-rated innovation capability.

2. While management styles seem to be more associated with innovative capability in different regions, numerous types are also recognized as encouraging creativity in the same region.
3. Leadership is sometimes overlooked.
4. Having outside ties does not always help a person's perception of how innovative the organization they work for is.
5. The definition of 'network,' how it is preserved, and how its connection to innovation has been evaluated are frequently ambiguous according to the study on the relationship between networks and creativity.
6. The absence of a link among exterior networking and innovation drivers suggests that the regularity of the outside interaction has nothing to do with perceptions of the structure, procedures, and contextual variables that boost productivity.

Table 21: Innovation labs in the public sector: what they are and what they do?

Practical Application	Country	Field
Public Sector	Estonia	International

Summary of abstract

The paper examines the theoretical grounds for the creation of i-labs in the government organizations and puts the hypothesis to the check in reality. Thirty-five similar institutions from around the globe were discovered during the experimental analysis. The study takes a two-step concept: first, a comprehensive questionnaire was taken, accompanied by an extended in-depth interview with i-labs' top executives; eleven i-labs answered. The assumptions of outside complexity, technological hurdles, emulation, and legitimization as causes for the formation of i-labs are supported in this paper.

Conclusions

1. The role of external complexity technical difficulties, emulation, and legitimization of public-sector i-labs in the formation of i-labs was supported by the writers.
2. I-labs are often structurally detached from the rest of the government and are supposed to be able to acquire external money as well as 'sell' their workable solutions to the government.
3. When an i-lab loses its donors, its chances of living plummet. This has resulted in an intriguing conundrum: relatively small i-labs are simpler to shut, yet larger i-labs run the risk of losing their agility and freedom to function.
4. Introducing in a fresh sort of knowledge is among the objectives of these kind of semi-autonomous areas in catalysing and legitimizing transformation of the public sphere.
5. Innovation laboratories are government entities with a slightly lower life expectancy than other aspects of public organizations, however the actual connection to their innovation capacity or other aspects cannot be determined convincingly in this study. The authors believe this is due to an absence of political patronage, as well as disputes among fresh and existing organizational structures, instead of knowledge or other factors.
6. Many innovation laboratories depend on outside ICT capabilities, which they acquire whether by outsourcing or crowdsourcing.

Table 22: The City as Living Laboratory: Empowering Citizens with the Citadel Toolkit

Practical Application

Public Sector

Field

e-government

Summary of abstract

The National Compact Stellarator Experiment's ideal magnetohydrodynamic stability is thoroughly investigated utilizing the most advanced three-dimensional magnetohydrodynamic codes. The National Compact Stellarator Experiment has been demonstrated to be steady to limited magnetohydrodynamic modes, such as the vertical mode, external kink modes, and ballooning modes. External kink modes with a high- n that peak at the plasma edge, on the other hand, are shown to be weakly unstable. Finite- n ballooning modes are much more stable than local infinite- n ballooning modes, according to a global computation.

Conclusions

1. The living lab method makes attendance easier.
2. By encouraging cooperation, parties were able to plan and implement innovative features, individuals were able to communicate with their governments, and reciprocal relationship was established.
3. Usability evaluation analysis revealed that individuals' intentions and capacities to engage were not entirely met.
4. The iterative living lab method was found to be useful not just for bottom-up co-creation, as well as for verifying analysis procedure and tracking attendance variables.
5. Methods of co-creation can both involve and exclude people.
6. More opportunities for participants to be heard and participate are generated when various methods are matched with their specific abilities and expertise.
7. People were given more influence as a result of the strategy.

Table 23: Environmental Determinants of Public Sector Innovation: A study of innovation awards in Canada

Practical Application	Country	Field
Public Sector	Canada	Administrative innovation

Summary of abstract

With this study, researchers examine proposals for the Institute of Public Administration of Canada's Innovative Management Award by performing observational research on administrative creativity in the Canadian government service (IPAC). Their outcome has been that the link among development and the surroundings has received very little attention, a fact that explains our research's emphasis and assumptions. Researchers show that these environmental variables as the growth of the economy, the size of the public sector, deficits, jobless rate, R&D investment, and the political structure, have significant implications for governmental innovation in the public industry, by analysing award applications over a 21-year period and award finalists and winners. They also make some recommendations for recommendations for further research based on the data analysis.

Conclusions

1. The findings demonstrate that surplus (a proxy for slack) is considerable, but in the reverse way than predicted.
2. Authorities having surpluses are far less inventive, according to the findings.
3. When authorities have a surplus, they develop, but too much surplus eliminates the necessity for creativity.
4. The environment is important in the public industry.
5. A majority government makes it simpler to innovate, possibly due to the choices that can be taken more quickly.

Table 24: Co-design, evaluation and the Northern Ireland Innovation Lab

Practical Application	Country	Field
Public Sector	UK	Northern Ireland PSI Lab

Summary of abstract

Co-production, co-creation, co-design, behavioural data, data science, and lean procedures are among the methodology used by government laboratories worldwide. Policy labs aggressively, creatively, and cooperatively involve citizens and a broad number of stakeholders in collaboratively producing solutions, regardless of the methodologies used. The Northern Ireland Public Sector Innovation Lab is part of a growing UK and international community of policy labs that use co-design to engage users in value co-creation, with the goal of improving public governance by providing a secure area for beneficiaries to formulate strategies, carry out experiments, and optimize concepts.

Conclusions

1. With the creation and growth of governance laboratories worldwide, a more in-depth independent analysis of their processes, actions, financial support, and governance structures can offer a better understanding of their success or failure, and also their policy traction and integration into the larger public industry.
2. The innovation laboratories' success could spur the establishment of a community of policy labs across the United Kingdom, thereby fostering cooperation, sharing of information, and project financing, particularly in terms of citizen-centered smart city planning.
3. The findings of the I-Lab evaluation can help translate and transmit accomplishment into fresh domain-specific situations, particularly via donor involvement and research projects and examples of effective interventions.

Table 25: An experimental evaluation tool for the Public Innovation Lab of the Uruguayan government

Practical Application	Country	Field
Public Sector	Uruguay - Australia	social learning in co-creation approaches for the design of public services and policies

Summary of abstract

The creation of an exploratory measurement tool for public innovation as an element of an action-research process in a facility within the Uruguayan authorities is described in this study. The 'Roadmap,' as researchers called the prototype version, aims to give a timely and deliberate way of learning from co-creation procedures while also being responsible to government bodies and civilization. They built the roadmap based on the convergence of multiple methodologies, such as development evaluation, knowledge management, and reflexive tracking, with the goal of creating an educational process within the organization to convey findings. Alternative approaches to public innovation and review, like public design evaluative thinking, social innovation evaluation, and systemic evaluation of learning, were also studied.

Conclusions

1. Conflict sometimes occurs in public testing as a consequence of the requirement to be responsible to authority by monitoring and presenting findings. The outcomes in this scenario are the result of learning procedures that contribute positively to the government service.
2. Prior to the formulation of the Roadmap, the Uruguayan Lab was used only instrumental evaluation to focus on co-creation outcomes.
3. The Lab should conceive itself as an innovative organization, not just a location for testing.

Table 26: What makes public sector innovations survive? An exploratory study of the influence of feedback, accountability and learning

Practical Application	Country	Field
Public Sector	Belgium	Survival

Summary of abstract

The subject of the lifetime of public sector innovations labs and what factors influence it, is still unanswered in the research on public management. The winners and nominees of public sector innovation awards in Belgium, France, the Netherlands, Romania, Slovakia, and the United Kingdom are the topic of this research project. It investigates if feedback loops, accountability systems, and educational methods, may justify the longevity of public sector innovations through an examination of 220 instances. The result has been that a mindset of review, responsibility, and training appears to be favourably related to creative labs longevity.

Conclusions

The culture of feedback, accountability and learning:

1. appears to be related to the lifespan of inventions in a good way.
2. is critical for the survival of public-sector innovations.
3. was, in fact, tied to the innovation's survivability, and also the period of time that had gone since it had been honoured or nominated.

Also, mechanisms for input, responsibility, and training by itself does not appear to be sufficient to ensure the survival of breakthroughs. What's more significant is how the data out of these mechanisms is handled, as well as the context in which it occurs.

Table 27: Enabling, Managing, and Leveraging Organizational Learning for Innovation - A Case Study of the USAID Feed the Future Innovation Lab Program Network

Practical Application	Country	Field
Public Sector	USA	Management

Summary of abstract

The study analyses how organizational learning for innovation occurs in a network administrative organization-led network, which has been granted formal responsibility for the management of government-funded multi-institutional projects. The Integrated Pest Management and Horticulture Innovation Labs, two comparable case studies representative of network administrative organizations-led goal-directed networks, were investigated as part of the US Agency for International Development Feed the Future Innovation Labs for Collaborative Research program. The 4I framework on organizational learning proposed by Crossan et al. (1999) emerged as the dominant conceptual framework for bringing up the way network administrative organizations enable, handle, and leverage organizational learning, related to program team representatives' boundary work in order to break new ground as networks.

Conclusions

1. The findings illustrate how the management entities, operating as network administrative organizations, assumed an active role on behalf of their goal-directed networks in facilitating the sharing of knowledge, institutionalizing that knowledge as learning practices, and navigating boundaries that contributed to organizational learning, within and across their networks.
2. The importance of enabling an environment for learning, bringing network partners together through enticements, finding ways to motivate adherence to shared goals.
3. Actions such as creating opportunities for virtual engagement, embracing partnership building on behalf of the network, and utilizing boundary objects to bring network partners together to negotiate common goals, helps NAO leaders enable, manage, and leverage organizational learning associated with the boundary work of their program team representatives to innovate as networks.

Eight papers and articles were categorized as “Analysis”. The first paper that is presented in this category “How innovation drivers, networking and leadership shape public sector innovation capacity”, is written by Lewis et al., (2018). With this research, the authors wanted to find out what are the factors of innovation capability. To do so, they examined the innovation drivers, the external networking and the leadership

qualities of three big European city governments. They summed up this researched by claiming that the being of external networking does not mean necessarily that the employees are changing for the better their thinking about the organization they work. Also, it is mentioned that leadership “*was the most important contributor to self-rated innovation capacity.*” (Lewis et al., 2018).

“Innovation labs in the public sector: what they are and what they do?” research paper that was conducted by Piret Tõnurist et al., (2017) after analysing and globally mapping innovation labs in the Public Sector, give us insights about the reasons that Public Sector’s Innovation Labs are created for. Mainly the authors on their conclusions state that there are many budgetary constraints and this is something that can make an innovation lab close. Additionally, “*Many of the i-labs tend rely to a large extent on external ICT capacities, obtained either through outsourcing or crowdsourcing.*” (Piret Tõnurist et al., 2017).

The third paper on this category is “The City as Living Laboratory: Empowering Citizens with the Citadel Toolkit”, by Fu et al., (2007). According to the authors, after analysing the feedback that they got from citizens, they came to the conclusion that the users were not motivated and not satisfied to participate. Therefore, it is mentioned that it is crucial to have the right approach which will empower and motivate the citizens.

Continually, Bernier et al., (2015), in “Environmental Determinants of Public Sector Innovation: A study of innovation awards in Canada” article, concluded that governments with too much of surpluses are not very innovative. In addition, they claim that because of the faster decision making in majority governments, innovation is not hard. Bernier et al., (2015) studied the administrative innovation of the Canadian public sector. They did that by “*analyzing applications to the Innovative Management Award of the Institute of Public Administration of Canada (IPAC)*” (Bernier et al., 2015).

In “Co-design, evaluation and the Northern Ireland Innovation Lab” by Whicher & Crick, (2019) it is stated that the failure or the success of policy labs depends on factors such as budget and governance models. Those factors also can be helpful or harmful in the integration of policy labs on the Public Sector. Authors analyzed in their research the Northern Ireland Public Sector Innovation Lab (iLab) in order for them to be able to run to their conclusions.

The following paper as you can see in the table above, is “An experimental evaluation tool for the Public Innovation Lab of the Uruguayan government”. Zurbriggen & Lago, (2019) developed an experimental tool for Public Sector’s Innovation Labs which helped them to understand and analyze “*the co-creation processes and be accountable to public authorities and society.*”. They summed up their research by mentioning that Innovation Labs in Public Sector have to think “themselves” as experimental and not only that they are a place for experiments.

Acker & Bouckaert, (2018) in their research paper “What makes public sector innovations survive? An exploratory study of the influence of feedback, accountability and learning” try to find out the reasons that determine the lifetime of an Innovation Laboratory in the Public Sector. Through their study they came to the conclusion that there is need of accountability, and feedback in order for an innovation lab to not have a short life frame. Although, feedback, accountability and learning (“FAL” as they call it) alone, do not guarantee that the innovation laboratory will survive. The way that the information is spread and its context, is also crucial (Acker & Bouckaert, 2018).

Finally, the eighth paper in the category “Analysis”, titled “Enabling, Managing, and Leveraging Organizational Learning for Innovation - A Case Study of the USAID Feed the Future Innovation Lab Program Network” is written by Gitleman, (2014). The author found out that knowledge, networking and motivation to achieve goals is very important.

As we can understand from all the papers and articles in the category “Analysis”, the most important factors that Public Sector’s Innovation Labs have to take into consideration is networking, deep and continuous knowledge, the importance of motivation that managers have to boost, and budget constraints.

3.5 “Comparisons” category

Table 28: Innovation in the Public Sector: Exploring the Characteristics and Potential of Living Labs and Innovation Labs

Practical Application	Country	Field
Public Sector	Belgium – Estonia	Living Labs

Summary of abstract

Several aspects and qualities are similar by both living labs and innovation laboratories. They are tied to the public organizations and have the ability to be viewed as soothing ways of dealing with current changes in the innovation environment as well as in community at large. Both rely on previous initiatives and traditions, but battle to create their unique distinct character. Since both notions are essentially practice-driven, their core concepts and foundations often are formed after the following reality: thinking rationally of present practice instead of painstakingly studying and forecasting future progress. Despite their commonalities, most academics see living labs and innovation labs as two distinct research paths. In this paper the researchers' begin with a critical evaluation of concerns and difficulties in the public sector. They examine existing terminology, predecessors, and the "state of the art" in line with the study investigation to see whether there are any links among the two ideas. Researchers offer a strategy for more cooperation, mutual exchange, and integration of practices within creative laboratories, which can be considered innovators, and living labs, which can be considered facilitators of innovation, depending on such observations. As a result, researchers contribute to the theoretical evolution of both ideas and provide a strategy for integrating the concepts and methods of living labs and innovation labs beyond.

Conclusions

1. Both can be viewed as strategies to cope with the evolving landscape as well as the evolving function and structure of development.
2. 'Private sector' notions cannot be simply imposed and implemented in a public setting; they must be transformed.
3. Both are practice-driven conceptions which have a more systematic approach to defining cooperative innovation in the public organizations, expanding on the ideologies of Open and User Innovation.
4. The emphasis on testing, a solid relation with ICT (either as enabler or as a result), and a cooperative, user-centric mindset are the main commonalities.
5. Innovation labs are only considered in the public or non-profit sectors. Living Labs have a wide spectrum of uses and are used for either business or public sector development.

6. They're both multifaceted.

7. Innovation labs are more compact and nimbler, but they often have a limited lifetime. More 'dynamic' are public-sector innovation laboratories.

8. The term 'Living' Lab refers to the data gathering and feedback for creative services approaches throughout time in a real-world setting. Long-term measuring attempts in innovation laboratories are rare (if they exist at all) and focus on the pre-design stage of the innovation journey.

9. The purpose of Living Labs is to grow and evolve as an institution through various innovation process. Until now, innovation labs have concentrated on the conceptualization and origin stages of invention, then abandoned the project.

Table 29: When design meets power: Design thinking, public sector innovation and the politics of policymaking

Practical Application	Country	Field
Design - Design Thinking	Australia	Cooperation

Summary of abstract

In this study is investigated what exactly is novel regarding design thinking and contrasts it to logical and interactive policymaking techniques, noting the differences in their syllogisms, foundations, and the premise on which they speak truthfully. The influence of design thinking on policymaking in implementation is next examined, through using as an example the government sector innovation (PSI) laboratories. The article finds that design thinking has substantial problems with regard into interaction with legitimate power, but also there are chances for design thinking and policymaking to collaborate more effectively.

Comparisons

1. PSI labs have a minor effect on government by influencing decision-making methodological approaches.

2. PSI laboratories are typically focused on fixing specific delivering services challenges instead of producing advanced policies.

3. Labs are known for their "rapid experiments," however they lack both skills and power to affect solution growth and execution.
4. Quality service is the centre of design thinking.
5. Generating and communicating design abilities among and by institutions continues to be a significant problem for government sector development.
6. There could be substantial advantages for policy design and everyone touched by it if policymakers and creatives understand what to do to integrate design thinking methods and beliefs into policy and designers understand how to cope with the politics of the political system
7. Analysing the theoretical underpinning of design thinking in terms of determining if it is truly novel in policymaking or how it affects other methods to governing reveals both complementarities and conflicts.

The last category that we will present to our readers is “Comparison”. The “Innovation in the Public Sector: Exploring the Characteristics and Potential of Living Labs and Innovation Labs” paper, written by Schuurman & Tönurist, (2017), compares Living Labs and Innovation Labs. As you will see in the following pages, we determine each one of these terms for better understanding. The authors’ find many similarities between these two types of Labs but also some differences. A main difference is that *“Innovation labs are conceived exclusively in a public sector or third sector context. Living Labs have a broader application domain and are utilized for both private sector as well as public sector innovation.”* (Schuurman & Tönurist, 2017).

The second paper in this category, “When design meets power: Design thinking, public sector innovation and the politics of policymaking”, a research by Lewis et al., (2019) *“examines what is new about design thinking and compares this to rational and participatory approaches to policymaking, highlighting the difference between their logics, foundations and the basis on which they ‘speak truth to power’.”* (Lewis et al., 2019). To sum up their research, the authors claim that rational-process and participatory approaches to policy making are not the same as design thinking according to the past, since there is not any creativity.

In the following pages we are going to clarify some crucial terms. Also, we will present the differences and similarities of innovation laboratories in public and private sector. To continue, you will learn the main barriers and proposals for Public Sector's Innovation Labs in order for you to understand this field in depth.

4 Conclusions

The purpose of this dissertation was to explore the Public Sector's Innovation Labs. We conducted this research to know better their potentials, the challenges that they face, even the main reasons of why they are used to be compared with other types of labs.

After we concluded to thirty papers and articles for our research, from seventy-two that we found, we created an excel document categorizing them, according to their main goals. For our readers' and our own facility, each one of these five categories (Barriers, Proposals, Analysis & Proposals, Comparison, Analysis) had been colored differently. Those categories had the same number of columns which were seven and were referring to the most important parts of each paper or article, such as the conclusions, the field and the abstract.

In this paper, we explained our methodology and the way that it helped us come to our conclusions. Our findings were very clear and in many cases one finding was adding to another. For example, many of the barriers that were presented, were "resolved" by the findings of the category "Proposals" or "Proposals & Analysis". This was very helpful because it was a way of checking the authenticity of a claim or suggestion, by many papers. Another very common thing that we found through our research, is that many papers and articles, were concluded to the same or similar conclusions, which is again a way to verify the results.

As mentioned in previous chapter, there are several categories of labs. In the current dissertation we presented to our readers three of them: Living Labs; Public Sector's Innovation Labs; and Private Sector's Innovation Labs.

Living Labs in contrast to innovation labs are more digital and user oriented. Innovation labs are divided to public sector's and private sector's. So, since we clarified some of the basic terms of labs, we continued by comparing Public Sector's Innovation Labs and Private Sector's Innovation Labs, based on the literature.

The Private Sector's Innovation Labs are about private enterprises but the Public Sector's Innovation Labs are about the citizens and are functioning according to governments' guidelines. Public Sector's Innovation Labs have more restrictions than Private Sector's because of legal frameworks, even though this may seem weird.

Additionally, Public Sector's Innovation Labs are a monopoly, contrary to private innovation laboratories and do not have great functional structure. As we read in many papers, the structure of Public Sector's Innovation Labs, has to be changed in order for it to be more beneficial. An example and proposal for an optimized structure of Public Sector's Innovation Labs, could be the governments' support for the managers and their goals.

Another barrier that PSI Labs are facing besides, the bad functioning structure, is the technological lack of knowledge. They have to start adapting to the new living era which is all about technology in order to be beneficial for the citizens and add value on their lives. To continue with this fact that was spotted in multiple papers, that there is need for more tech-oriented employees, since the technology changes fast and is a huge pylon for success

Additionally, we understood that besides the lack of knowledge in technology from the employees, there is a great amount of lack in promoting each project. There is no communication for the projects that have taken place, or are currently in progress, which means that the citizens are uninformed.

This, may have to do with the fear that governments and managers have of risk taking. They are afraid of failure and the reaction of the media in any potential failure that they prefer to not take any risk or communicate the projects to the public. Of course, besides the media, the fear of risk taking is very connected with politics. At this stage, we have to say that the non-risk-taking, is not helping labs to be actually innovative. Many papers and articles mention that there networking is necessary but none pays attention to that.

These two categories of labs (Public and Private Sector's) can cooperate for better results but there have to be changes from the legal framework. Another thing about cooperation, is that they can also work with universities, especially Public Sector's Innovation Labs.

From all the above we concluded that Public Sector's Innovation Labs, even though they have many barriers, they have also many potentials. As the most papers/articles have mentioned one of the biggest barriers is governments' bureaucracy. Besides that, it was repeatedly mentioned that there are financial restrictions and as mentioned before, fear of taking risks because of potential backfire from the media. There is too much paperwork and budgetary restrictions that the time that could be beneficial for the continual of a project, is being wasted.

Also, the employees of Public Sector's Innovation Laboratories are lacking motivation due to the fact that they do not get credits for their work.

There are many potentials and opportunities for Public Sector's Innovation Labs, but the governments have to be more open minded, more tech-oriented, user-centered and able to take risks. If governments' start doing all the above, the Public Sector's Innovation Labs, would be actually more innovative and helpful for the citizens' greater good. There is room for improvement, but the governments have to stop fearing the media, any potential failure or that a project can harm politics' career.

In addition, the managers have to be more present to each project, in order to pay close attention to each step and check what the employees may need to be more efficient. They have to start thinking out of the box, such as governments themselves. According to our findings, managers have to motivate the employees for delivering better results in the projects, since it is found as we have already mentioned that the employees are unmotivated.

We clarified the main aspects of the Public Sector's Innovation Labs, but we believe that it is important for future researchers to do the same with the Private Sector's Innovation Labs.

5 Bibliography

- Acker, W. Van, & Bouckaert, G. (2018). *What makes public sector innovations survive? An exploratory study of the influence of feedback, accountability and learning* Wouter van Acker and Geert Bouckaert. 2011. <https://doi.org/10.1177/0020852317700481>
- Agolla, J. E., & Van Lill, J. B. (2017). Insights into Kenya's public sector innovation: The case of managers. *International Journal of Innovation Science*, 9(3), 225–243. <https://doi.org/10.1108/IJIS-11-2016-0049>
- Arrona, A., Franco, S., & Wilson, J. R. (2020). Public innovation through governance in place-based competitiveness policymaking: The case of Bizkaia Orekan. *Competitiveness Review*, 30(2), 119–136. <https://doi.org/10.1108/CR-03-2018-0023>
- Barnes, J. (2015). *The Rise of the Innovation Lab in the Public Sector*. 22.
- Batt-Rawden, K. B., Björk, E., & Waaler, D. (2017). Human factors in the implementation and adoption of innovations in health care services. A longitudinal case study on the introduction of new technology. *Innovation Journal*, 22(3), 1–25.
- Bernier, L., Hafsi, T., & Deschamps, C. (2015). Environmental Determinants of Public Sector Innovation: A study of innovation awards in Canada DETERMINANTS OF PUBLIC SECTOR. *Public Management Review*, 17(6), 834–856. <https://doi.org/10.1080/14719037.2013.867066>
- Bondeson, A. (2016). *Opportunities and challenges in the management of an innovation laboratory: A case study of Semcon Innovation Lab*.
- Boukamel, O., & Emery, Y. (2017). Evolution of organizational ambidexterity in the public sector and current challenges of innovation capabilities. *Innovation Journal*, 22(2).
- Carstensen, H. V., & Bason, C. (2012). Powering collaborative policy innovation: Can innovation labs help? Helle Vibeke Carstensen & Christian Bason. *The Innovation Journal: The Public Sector Innovation Journal*, 17(1), 2–27.
- Criado, J. I., Dias, T. F., Sano, H., Rojas-, F., Silvan, A., Filho, A. I., Criado, J. I., & Dias, T. F. (2021). Public Innovation and Living Labs in Action: A Comparative Analysis in post-New Public Management Contexts Public Innovation and Living Labs in Action: A Comparative Analysis in post-New Public Management Contexts. *International Journal of Public Administration*, 44(6), 451–464. <https://doi.org/10.1080/01900692.2020.1729181>
- Criado, J. I., & Guevara-Gómez, A. (2021). Public sector, open innovation, and collaborative governance in lockdown times. A research of Spanish cases during the COVID-19 crisis. *Transforming Government: People, Process and Policy*, December. <https://doi.org/10.1108/TG-08-2020-0242>
- De, Q., Fdvh, W. K. H., Dv, V., Dv, Z., Ri, L., Hvwdeolvkphqw, W. K. H., Srolf, I., Xqghu, O. D. E., Qdph, W. K. H., & Lqdxjudwhg, D. E. Z. D. V. (n.d.). (*QKDQFLQJ & RXQWU \/\ V & RPSHWLWLYHQHV V ZLWK. 0*.
- Dividends, D. (n.d.). *Best Practices and Lessons Learned in ICT Sector Innovation: A Case Study of Israel.pdf*.

- Enhancing Country's Competitiveness with Innovation Policy Lab A case study of Thailand Innovation Policy Accelerator (THIPA)*. (n.d.).
- Ferrarezi, E., Brandalise, I., & Lemos, J. (2021). Evaluating experimentation in the public sector: learning from a Brazilian innovation lab. *Policy Design and Practice*, 4(2), 292–308. <https://doi.org/10.1080/25741292.2021.1930686>
- Ferreira, M., & Botero, A. (2020). Experimental governance ? The emergence of public sector innovation labs in Latin America sector innovation labs in Latin America. *Policy Design and Practice*, 3(2), 150–162. <https://doi.org/10.1080/25741292.2020.1759761>
- Fu, G. Y., Isaev, M., Ku, L. P., Mikhailov, M., Redi, M. H., Sanchez, R., Subbotin, A., Cooper, W. A., Hirshman, S. P., Monticello, D. A., Reiman, A., & Zarnstorff, M. (2007). The City as Living Laboratory: Empowering Citizens with the Citadel Toolkit. *Fusion Science and Technology*, 51(2), 218–231. <https://doi.org/10.13182/FST07-A1300>
- Gitleman, L. (2014). 済無No Title No Title No Title. *Paper Knowledge . Toward a Media History of Documents*.
- Gough, S., & Rose, P. (2014). Exploring the intersection of design, agile and lean. In *Touchpoint* (Vol. 6, Issue 1).
- Hum, R., Thibaudeau, P. A., & Thibaudeau, P. (2019). *DRS Digital Library Learn X Design 2019 Taking the Culture out of the Lab and Into the Office : A “ Non-Lab ” Approach to Public Service Transformation Taking the Culture out of the Lab and Into the Office : A “ Non-Lab ” Approach to Public Service Transf.* 9–12. <https://doi.org/10.21606/learnxdesign.2019.09011>
- Kallio, K., Lappalainen, I., & Tammela, K. (2013). Co-innovation in public services: Planning or experimenting with users? *Innovation Journal*, 18(3), 1–16.
- Komatsu, T., Salgado, M., Deserti, A., Rizzo, F., Komatsu, T., Salgado, M., & Deserti, A. (2021). Policy labs challenges in the public sector : the value of design for more responsive organizations. *Policy Design and Practice*, 4(2), 271–291. <https://doi.org/10.1080/25741292.2021.1917173>
- Lehtinen, J. (n.d.). *Exploring Public Sector Innovation Challenges through a Case Study of New Zealand ' s Service Innovation Lab Department of Design*.
- Lewis, J. M., Mcgann, M., & Blomkamp, E. (2019). *When design meets power: Design thinking, public sector innovation and the politics of policymaking.* xx(xx), 1–21. <https://doi.org/10.1332/030557319X15579230420081>
- Lewis, J. M., Ricard, L. M., & Klijn, E. H. (2018). How innovation drivers, networking and leadership shape public sector innovation capacity. *International Review of Administrative Sciences*, 84(2), 288–307. <https://doi.org/10.1177/0020852317694085>
- Martin, G., Dale, A., & Stoney, C. (2017). *Social Innovation Labs in Canada*.
- Muirhead, L., & Mosse, R. (2018). Integration of Art of Hosting methodologies and principles into the Social Innovation Lab practice: A case study from a Social and Public Innovation Lab in New Brunswick, Canada. *Proceedings of Relating Systems Thinking and Design (RSD7) 2018 Symposium*, 49–59.
- Panopoulou, E., Tambouris, E., Zotou, M., & Tarabanis, K. (2009). *Electronic Participation*

(Vol. 5694). <https://doi.org/10.1007/978-3-642-03781-8>

- PNUD. (2017). Growing Government Innovation Labs: An Insider's Guide. *FutureGov*, 46. <https://www.wearefuturegov.com/%0Ahttp://www.eurasia.undp.org/content/dam/rbec/docs/undp-innovation-lab-report.pdf>
- Santarsiero, F., Lerro, A., Carlucci, D., & Schiuma, G. (2021). *Modelling and managing innovation lab as catalyst of digital transformation : theoretical and empirical evidence. January*. <https://doi.org/10.1108/MBE-11-2020-0152>
- Schuurman, D., & Tönurist, P. (2017). Innovation in the Public Sector: Exploring the Characteristics and Potential of Living Labs and Innovation Labs. *Technology Innovation Management Review*, 7(1), 7–14. <https://doi.org/10.22215/timreview1045>
- Stoll, A., & Andermatt, K. (2021). Tab the lab : a typology of public sector innovation labs. *IRSPM Conference 2021, Virtual, 20 - 23 April 2021, August*. <https://digitalcollection.zhaw.ch/handle/11475/22436>
- Tönurist, P, Kattel, R., & Lember, V. (2015). Discovering Innovation Labs in the Public Sector. *Working Papers in Technology Governance and Economic Dynamics*, 61, 1–36. https://www.academia.edu/19006451/Discovering_Innovation_Labs_in_the_Public_Sector?email_work_card=view-paper%0Ahttp://hum.ttu.ee/wp/paper61.pdf
- Tönurist, Piret, Kattel, R., & Lember, V. (2017). Innovation labs in the public sector: what they are and what they do? *Public Management Review*, 19(10), 1455–1479. <https://doi.org/10.1080/14719037.2017.1287939>
- Whicher, A., & Crick, T. (2019). Co-design, evaluation and the Northern Ireland Innovation Lab. *Public Money and Management*, 39(4), 290–299. <https://doi.org/10.1080/09540962.2019.1592920>
- Zivkovic, S. (2018). *Systemic innovation labs : a lab for wicked problems*. <https://doi.org/10.1108/SEJ-04-2018-0036>
- Zurbriggen, C., & Lago, M. G. (2019). An experimental evaluation tool for the Public Innovation Lab of the Uruguayan government. *Evidence and Policy*, 15(3), 437–451. <https://doi.org/10.1332/174426419X15537488717501>
- (Acker & Bouckaert, 2018; Agolla & Van Lill, 2017; Arrona et al., 2020; Barnes, 2015; Batt-Rawden et al., 2017; Bernier et al., 2015; Bondeson, 2016; Boukamel & Emery, 2017; Carstensen & Bason, 2012; Criado et al., 2021; Criado & Guevara-Gómez, 2021; De et al., n.d.; Dividends, n.d.; *Enhancing Country's Competitiveness with Innovation Policy Lab A Case Study of Thailand Innovation Policy Accelerator (THIPA)*, n.d.; Ferrarezi et al., 2021; Ferreira & Botero, 2020; Fu et al., 2007; Gitleman, 2014; Gough & Rose, 2014; Hum et al., 2019; Kallio et al., 2013; Komatsu et al., 2021; Lehtinen, n.d.; Lewis et al., 2018, 2019; Martin et al., 2017; Muirhead & Mosse, 2018; Panopoulou et al., 2009; PNUD, 2017; Santarsiero et al., 2021; Schuurman & Tönurist, 2017; Stoll & Andermatt, 2021; P Tönurist et al., 2015; Piret Tönurist et al., 2017; Whicher & Crick, 2019; Zivkovic, 2018; Zurbriggen & Lago, 2019)