Policy Design and Practice

Routledge
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ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/rpdp20

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To cite this article: Lindsay Cole (2021): A framework to conceptualize innovation purpose in public sector innovation labs, Policy Design and Practice, DOI: 10.1080/25741292.2021.2007619

To link to this article: https://doi.org/10.1080/25741292.2021.2007619

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https://doi.org/10.1080/25741292.2021.2007619

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A framework to conceptualize innovation purpose in public sector innovation labs

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ABSTRACT

Public sector innovation labs (PSI labs) are a rapidly proliferating experimental response to the growing complexity and urgency of challenges facing the public sector. This research examines ways in which PSI labs are currently being conceptualized in relation to their values, purpose, ambition, definitions of innovation, methods, and desired impacts. Distinctions between PSI labs that work within dominant systems and paradigms to make them more efficient, effective, and user-oriented and PSI labs that have a more transformative intent, are made and problematized. This research used a constructivist grounded theory and participatory action research methodology, working with lab practitioners as well as with literature, to build a framework to support stronger conceptualization of PSI lab purpose and intended impact. This framework provides a structure for researchers and practitioners to engage in richer description, thinking, and comparison when designing, studying, and evaluating PSI labs. Although this research focused on labs in the public sector, the findings and framework are relevant to other types of innovation labs working in multiple sectors.

ARTICLE HISTORY
Received 9 January 2021
Accepted 12 November 2021

KEYWORDS
Public sector innovation; social innovation; innovation labs

1. Introduction

There is a rapid proliferation of Public Sector Innovation Labs (PSI labs) occurring around the world, with estimates that more than five hundred are now in operation, most of which have started within the last five years. Carstensen and Bason (2012) describe three generations of PSI labs, with an emerging fourth generation as:

1. Creative platform—focused on employee-oriented ideation processes that aim to create buy-in to trying new methods;
2. Innovation unit—focused on user-centred value creation and using a wider range of different innovation processes and methods;

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3. Change partner—centering both users and the organization, and working on transformation of core public sector organizational narratives and processes; and
4. Systemic co-design—works with complexity through systems practice and social innovation processes. Has an orientation beyond government itself, recognizing that working with complex challenges requires collaboration and co-creation with multiple partners in ways that share power and responsibility. Recognizes that the government has a variety of potential roles to play in enabling innovation (Blomkamp 2021; Hassan 2014; Zivkovic 2018).

The definition of a PSI lab is still contested, although they usually share the common elements of describing their relationship with government, their innovation ambition, their role in innovation processes, and the methods or techniques that they use. A good example of this is from Gryszkiewicz, Lykourentzou, and Toivonen (2016) who describe a PSI lab as "… a semi-autonomous organisation that engaged diverse participants—on a long-term basis—in open collaboration for the purpose of creating, elaborating, and prototyping radical solutions to open-ended systemic challenges (84)."

This research aims to generate a framework for conceptualizing PSI lab purpose that is grounded in, and useful to, practitioner experiences. The intention of the framework is to contribute to increasing the impacts of PSI lab change-making activities, and to PSI labs field- and movement-building. A broader aim is to encourage further research that focuses on constructing middle-range theory from action research in- and with PSI labs. There is an urgent need for Westminster-style and New Public Management-oriented governments to reimagine what they need to be in response to urgent issues like climate change, growing inequity, and other highly complex and entrenched systemic challenges. Current dominant governance approaches are not able to adequately respond to these complex challenges at the pace, scale, and extent required. The processes and outcomes generated by PSI labs are a promising response to these pressures if they continue to enhance the rigor and impacts of their work, particularly when they are thought of as a type of innovation infrastructure and as an education or rehearsal process for the public sector system.

This article discusses some of the ways that PSI lab purpose is being conceptualized in research and practice, and the challenges with these approaches. It is argued that a more rigorous and strategic approach to conceptualizing the purpose of PSI labs is necessary in general, and particularly for third and fourth generation PSI labs seeking systemic solutions to problematic behaviors, systems, structures, and paradigms of the public sector that make it difficult or impossible to make progress on their most complex challenges. In the absence of strengthened conceptualization, third and fourth generation PSI labs risk getting caught in a trap of generating novelty, creating innovation hype, and inadvertently perpetuating the systems and structures that hold these complex challenges in place. A research methodology that engaged middle-range grounded theory construction through participatory action research is described. The middle-range theory that resulted from the action research is a proposed framework for conceptualizing innovation purpose in PSI labs, which is described in some detail. Areas of further inquiry for researchers and practitioners concludes this article.

2. Current approaches to conceptualizing public sector innovation labs

Researchers are beginning to catch up with the proliferation of PSI lab practice, with many focused on describing and categorizing the different types of PSI labs and the methods that they use (Gryszkiewicz, Lykourentzou, and Toivonen 2016; Lewis, 2021; McGann, Blomkamp, and Lewis 2018; Puttick, Baeck, and Colligan 2014; Schuurman and Tõnurist 2017; Tõnurist, Kattel, and Lember 2017). There are also several PSI lab case studies describing and comparing different enabling conditions, approaches, activities, and learning (Carstensen and Bason 2012; Kronsell and Mukhtar-Landgren 2018; Papageorgiou 2017; Timeus and Gascó 2018; Zivkovic 2018). This research is important, and at the same time the emerging needs of practitioners demand that researchers explore some additional questions including: framing their PSI labs as building social research and development infrastructure; understanding and engaging with power structures more strategically; thinking about their work as a form of ecosystem and/or movement building on shared issues; evaluating impact; and building competencies and capacities for innovation, amongst others.

The primary purpose of many PSI labs is often described as a need to innovate, improve practice, and add public value by bringing design, creativity and user-centeredness to the complex challenges of government (Carstensen and Bason 2012; Lewis, McGann, and Blomkamp 2019; Lewis, 2021; McGann, Blomkamp, and Lewis 2018; Puttick, Baeck, and Colligan 2014; Tõnurist, Kattel, and Lember 2017). Human-centred and service design tools and techniques developed and used by the business sector for the design of products and services were adapted and taken up for use in public sector contexts, with a corresponding innovation purpose oriented toward improving policy design processes and human experiences and interactions with the public sector (Bason 2010, 2017; Buchanan 2001; Blomkamp 2021; Jones 2014; Quayle 2017; Ryan 2014; Wascher et al. 2018). De Vries, Tummers, and Bekkers (2018) did a systematic literature review of 181 articles about PSI that found that 76% of these studies did not define innovation, and 35% did not name any goals for their innovation. A next generation of PSI labs is emerging, drawing from social innovation, systemic design, and co-design theory and practice and with an aim to better respond to complex, wicked, or systemic challenges in close collaboration with partners outside of government (Blomkamp 2018, 2021; CoLab 2016; Creative Reaction Lab 2019; Hassan 2014; Mark and Hagen 2020; Namahn, Shift, MaRS & Systemic Design 2019; Westley et al. 2016; Zivkovic 2018).

The "I" in PSI lab is contested, and "innovation" holds many different meanings. Several innovation inventories at a country level have attempted to define innovation through collecting and aggregating survey data from public sector staff working on innovation initiatives (Blomkamp 2018; Considine and Lewis 2007; Ricard et al. 2017). The Organization for Economic Cooperation and Development (OECD) Observatory of Public Sector Innovation (OPSI) has offered a framework, called facets of innovation, which describes different approaches to PSI: enhancement-oriented; mission-oriented; adaptive; and anticipatory (2018, Figure 1). Collectively, this literature points to the evolution of PSI labs toward a discernment of different types of innovation, each with different goals and purpose, and with appropriate (and different) lab approaches, methods, and desired outcomes skillfully curated based on what a PSI lab is attempting to do.

Many PSI labs focus on tools and techniques, which then often become a substitute for a clear and explicit articulation of how a PSI lab is theorizing or conceptualizing

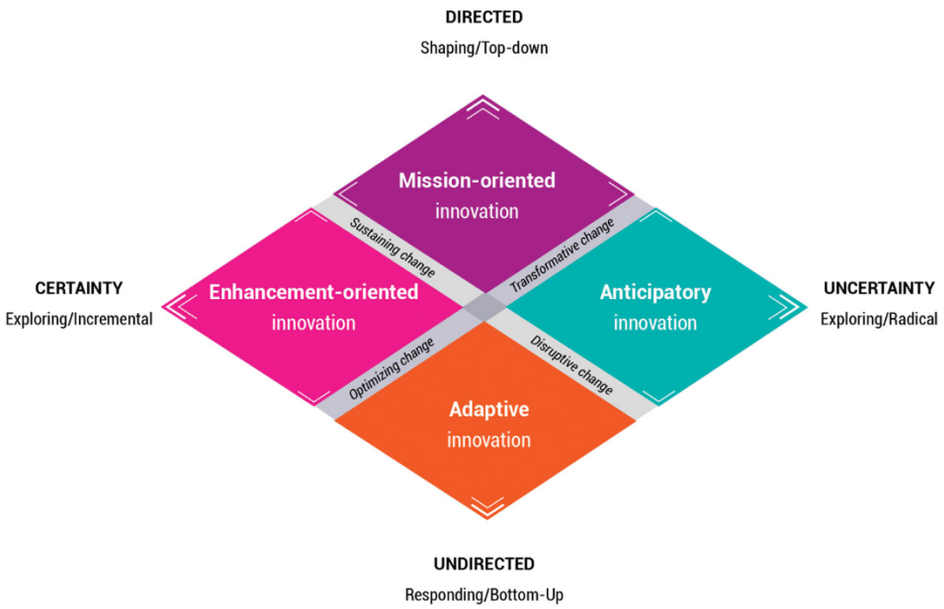

Figure 1. Facets of Innovation (adapted from OECD OPSI 2018).

their purpose and their work. Busy public sector actors that are trying to gain traction in their organizations look for support and short-cuts to get going faster, and to quickly show results. Some of the early labs responded to these needs by codifying and sharing the tools and techniques that they were using, with many following a human-centred design approach (Nesta 2014; Policy Lab UK 2019). Other PSI labs then picked these up and used them directly in their work, making these toolkits the default, implicit theory informing their work.

As the number of PSI labs grows, what is also emerging is more reflective practice and a stronger critique. Some practitioners are concerned with PSI labs being "innovation hype", and not resulting in meaningful and significant impacts (Kieboom 2014; Ryan and Koh 2018; Schulman 2013). Many labs have proven to have short life-spans, requiring reflection about how transformative their impacts can potentially be in a short period of time. Practitioners and researchers are beginning to question the significance of the impacts that PSI labs are capable of, as there are still very few examples of innovations occurring that moved beyond incremental improvements or enhancements of existing policies and programs and into more durable, systemic, and scalable change (Kieboom 2014; Schulman 2013; Westley and Antadze 2015). The domain of evaluating PSI lab processes, activities, and impacts is nascent, with very few labs using or sharing an evaluation framework. Some field-building organizations are only beginning to develop shared evaluation or impact frameworks for PSI labs, or for innovation labs more generally (Nesta 2018).

3. The problem with this approach to conceptualization

Amidst all of this activity, there is very little in practitioner or academic literature that makes explicit how PSI labs are conceptualizing their approaches to change, and how

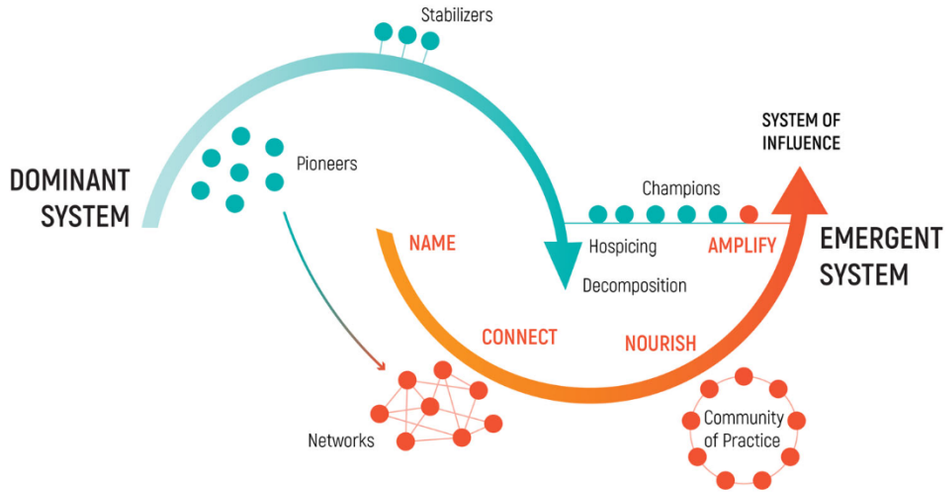

Figure 2. Two loops model, adapted from Wheatley and Frieze (no date).

this then shapes their strategy, activities, and impacts. The structural framing of a theory of change is helpful in exploring what is missing from this current approach. A theory of change specifies and explains assumed, hypothesized, and/or tested impact pathways, which describe the linkages between activities, interventions, and impacts as a working model of change or transformation (Jones 2021; Mayne 2015; Patton 2002). It is explanatory and predictive in nature, and can allow for non-linearity, influence of external factors, and unintended effects characteristic of complex systems (Mayne 2015). "The structure of the model forces one to consider just how it is expected that the intended results will be brought about: What is the causal process at work and what does it take to make it happen?" (Mayne 2015, 126). Resources that provide PSI lab practitioners with easier access to the depth, breadth, and complexity of potential ways to construct a theory of change based on what they are observing and experiencing in their real-world interventions might expand their approaches, strategic choices, evaluation and learning processes, and ultimately the impacts of their work.

A theory of change for a PSI lab might include a definition and directionality of innovation, consider the positionality of its main actors, describe its relationship with existing paradigms and power structures, make clear the assumptions and values at play, and consider aspects of structures, paradigms, and culture that enable or inhibit innovation. The current absent, partial, and/or implicit approaches to theorizing PSI lab work is unlikely to realize significant change in the public sector, and when a transformative change ambition is held by a third or fourth generation PSI lab this becomes even less likely. Without doing this work and thinking about stronger conceptualization of innovation, the current construct of policy and governance may be "incapable of conceptualizing transformation … on the scale and at the rate required" (Shove 2010, 1283). Wheatley and Frieze (no date) two loops model (Figure 2) frames a dominant system and an emergent system, and also points to the potential of innovation efforts inadvertently upholding the dominant system through their efforts.

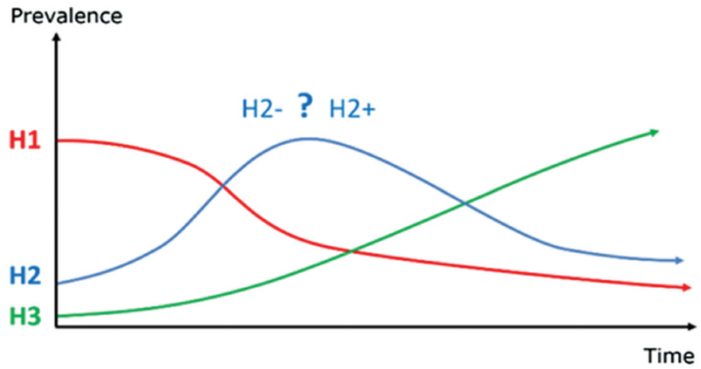

Figure 3. Three Horizons Model of innovation (Sharpe et al. 2016).

Sharpe et al. (2016) three horizons model suggests that there are three potential pathways for innovation (Figure 3). Horizon 1 (H1) is a dominant, common, and declining pattern shaping the issue at hand, and horizon 3 (H3) as an emerging possible future pattern. Horizon 2 (H2) is the pattern of disruptive, transitional activities influencing the issue, making the space for innovation—the space which many PSI labs occupy. H2 can either be appropriated by H1 to maintain the dominant pattern (H2-), or enrolled in H3 to help it to emerge, amplify, and grow (H2+) (Sharpe et al. 2016).

4. The potential for a conceptual framework for PSI lab purpose

Shove (2010) suggests that the social change theory that policy makers choose is not random, and that inquiry into the ways that governments maintain problematic infrastructures and institutions through these choices is needed. PSI labs can, and should, draw from a much larger selection of theoretical frameworks to inform strategy and action than they currently are. This is especially true if a third or fourth generation PSI lab holds a disruptive, discontinuous, and/or transformative intent. Complexity science, emergence, transformation theory, Indigenous ways of knowing and being, systems thinking, sustainability transitions, systemic and strategic design, feminism, transformative learning, adaptive and collaborative leadership, collective impact, critical race theory, and others can all become a large set of theories to inform this PSI practice (Archer and Cameron 2013; Geels, 2011; Gunderson and Holling 2002; Heifetz, 1994; Heifetz, Grashow, and Linsky 2009; Kahane 2017; Kania and Kramer 2013; Kegan and Lahey 2009; Lichtenstein 2014; Meadows 2008; Mezirow 2000; O'Sullivan, Morrell, and O'Connor 2002; Quayle 2017; Scharmer 2016; Westley et al. 2011). The challenge then becomes the very broad and deep understanding of these different theories that would be required to adeptly, strategically, and skillfully put them into practice in the work of a PSI lab in order to increase the learning and impacts resulting from its work. This research focuses on the question of how might we more strongly conceptualize the purpose for PSI labs generally, and why might this be particularly important for third and fourth generation labs to do in order to enhance their strategy and impacts in more systemic and co-creative ways.

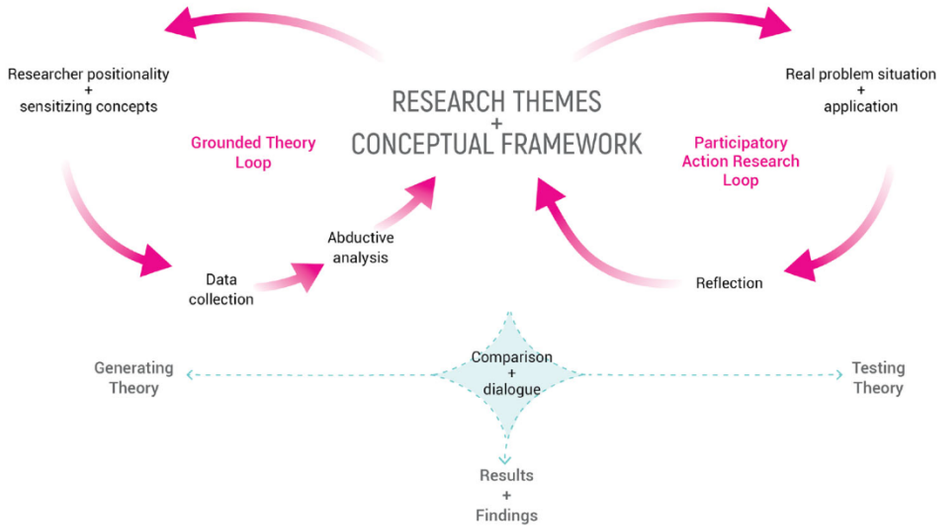

Figure 4. Constructivist grounded theory and participatory action research method.

5. Research methodology

Kincheloe et al. (2017) say that "a critical research bricolage attempts to create an equitable research field and disallows a proclamation to correctness, validity, truth and the tacit axis of Western power through traditional research … Without proclaiming a canonical and singular method, the critical bricolage allows the researcher to become a participant and the participant to become a researcher" (253–254). This research used a bricolage approach that incorporated a collection of methodologies that allowed for multiple truths to coexist, invited a researcher with an active role in the research questions, and co-created knowledge production with community.

Participatory action research (PAR) and constructivist grounded theory (CGT) were the backbone research methodologies in this bricolage (Figure 4). PAR and CGT are appropriate for community-engaged social innovation inquiry as they can handle researchers who hold standpoints, a social justice orientation and perspectives, and a desire to produce radical, democratizing transformation as long as these are transparent, made explicit, and are a part of a reflective process (Charmaz 2014; Denzin and Lincoln 2017). These methodologies do not require a neutral, objective observer, and invite the researchers' perspectives on data and analysis as relevant to the course of inquiry. Applied and action-oriented knowledge generation and mobilization is built in, along with transparent and open co-production of knowledge with/by those who are most impacted by the challenges being researched.

This dialogue between PAR for theory testing, and CGT for middle range theory building was engaged with in three cycles between October 2016 and December 2020 (Charmaz 2014; Charmaz 2017a, 2017b; Kemmis 2008; Merton 1968; Reason and Bradbury 2008; Strauss and Corbin 1990; Swantz 2008). Literature review informed the construction of theory as well as action research practice and interventions. Participatory action co-researchers were connected with the primary research site at the City of Vancouver Solutions Lab, secondary action research sites at the Laboratoire

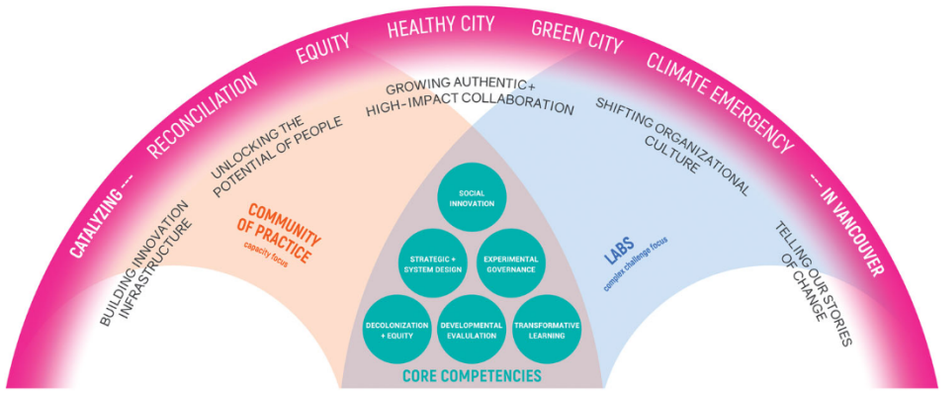

Figure 5. City of Vancouver Solutions Lab 3.0 Theory of Change.

d'innovation urbain de Montreal and the British Columbia Government Public Service Innovation Hub. Additional expert interviews with practitioners from PSI labs and network-serving organizations were also conducted, totaling 85 co-researchers from 25 organizations in seven countries contributing to this work. The data from interviews, observation, evaluation, and reflection generated rich qualitative data to work with. Freeman (2017) and Maclure's (2013) work focused on modes of thinking and coding qualitative research, along with Saldaña's (2016) CGT coding guidance, shaped the processes of moving from detailed coded data and into higher orders of pattern-finding, generalization, and abstraction leading to the creation of this new assemblage—the conceptual framework proposed here. A draft of this conceptual framework was taken back to action co-researchers and expert practitioners in a final cycle of discussion and feedback, and revised into the version shared here.

6. Action research activities and findings

The City of Vancouver Solutions Lab (SLab) was the primary action research site for this work, and was where the most substantial action research interventions and theory testing was undertaken. The experimentation and learning with SLab was then shared with the other action co-researchers and expert practitioners in order to encourage additional action research interventions related to conceptualizing innovation purpose in PSI labs, and to share learning and insights. This section shares activities and findings from action research with a focus on the SLab, and aims to provide some richer description of how action research led to the construction of the conceptual framework shared in the next section.

SLab is a small PSI lab within a city government, with a mandate to design and facilitate experimentation and learning processes on complex civic challenges collaboratively with City staff from multiple departments and community partners. Between October 2016 and December 2019 it went through three iterations, each of which was characterized by increasingly strong approaches to conceptualizing its work with an aim to increase impacts. By the third iteration, a theory of change for SLab had been developed, tested, and refined (Figure 5). This captured the priority policy areas (the top edge), SLab's contributions to change (the next layer in), the two areas of work/

activites (CoP and labs), and the core competencies and capacities that it was focused on building and practicing (the six circles).

Over this time period, nine labs on different complex challenges ran for 8−14 months, each with a team of 10−20 City staff and community partners working co-creatively together. In 2018 the community of practice (CoP) began, and focused on building capacities and competencies of City staff, and then later community partners as well. Throughout this time period, SLab also developed, tested, refined, and codified the frameworks, tools and techniques, facilitation processes, and other practices that were used in its work, which were shared as an open access resource in 2020. In order to understand and learn from the activities and impacts of SLab, a utilization focused evaluation, including both summative and developmental evaluation (DE) approaches was used (Antadze and Westley 2012; Cabaj 2017a, 2017b; Moore 2017; Patton 1978, 2011; Reynolds et al. 2016; Williams and Imam 2006). This approach to evaluation was a significant choice in leading to stronger conceptualization of PSI lab work for SLab, and for the conceptual framework.

The key learnings from the SLab evaluation were further developed through work with the two secondary action research sites, dialogue with expert practitioners, and literature review. These learnings led to a stronger conceptualization of innovation in SLab, as well as to the more generalized conceptual framework shared next. These learnings included the following.

6.1. Innovation purpose

The term innovation was used broadly/vaguely, often without a clear and explicit definition, purpose, or values described. This resulted in innovation theater, lack of strategic focus or outcomes, unintended and undesirable results, and muddiness about vision, goals, and intentions of innovation. It was most often focused at the scale of the public sector organization, or department, and much less often acknowledged the personal or systems scales. The potential role for PSI labs to "rehearse the new," and to create experiences that show the gaps between what is happening now and what is possible and needed, was identified.

6.2. Efficiency- or transformation oriented

PSI labs did not often make their orientation to change clear, expressing if they were focused on working on simple or complicated challenges concerned with making the existing/dominant system more efficient, effective, or user-friendly, or if they held a more transformative, disruptive, or discontinuous intent that looked beyond the dominant system and worked with complex challenges (Figures 2 and 3 are helpful here). The tools and techniques used by a PSI lab were often a partial proxy for a more robust theory of change (e.g. human-centred design techniques, digital techniques).

6.3. Strategic innovation and learning

Innovation was often a one-off, marginal, and haphazard activity. It was often not strategic, and operated without appropriate enabling conditions, systems, structures,

supports, incentives, or learning practices to systemically and reliably generate, test, and scale promising solutions. There was interest in the conception of labs as an education process for the system, and a structure that exposes people to the processes and experiences of innovation in order to make them real for them.

6.4. Power + privilege

Commitments to justice, equity, diversity, decolonization, reconciliation and/or inclusion were often viewed as discrete policy targets and action items rather than as fully embedded in, and integral to, innovation. Engaging with the systems and structures of power inherent in a political organization was often absent or ineffective.

6.5. Competencies and capacities

Professional development for the majority of staff trended toward skill-building and focused on efficiency and effectiveness, rather than on staff development and supports to work with complexity. There tended to be an underinvestment in the development of staff generally, and also more specifically in the competencies and capacities required for innovation. Responsibility for innovation leadership was often understood as top-down and/or based on specialized skills or abilities.

6.6. Collaboration

The public sector tended to keep themselves at the center of power, decision-making, and shaping agendas or areas of interest and focus. This limited the potential for co-creative, collaborative, and collective approaches that are often core to innovation efforts, and that may unlock larger scale transformation.

6.7. Evaluation and impact

Understanding and measuring impacts and outcomes of PSI lab interventions was in early development. Often the focus remained on pragmatic, quantitative outcome measures focused on specific projects or activities (e.g. number of workshops run, number of participants, number of prototypes developed) even though practitioners understood that this was not a full or adequate reflection of the types of change that they were working toward or achieving.

6.8. Time

Public sector staff were regularly forced to attend to the urgent rather than the important which often resulted in short-term fixes rather than systemic solutions. This resulted in feeling like there was never sufficient time to be reflective and strategic, to think and work systemically, to adequately understand and collaborate with stakeholders, or to imagine, develop, and test potentially game-changing solutions.

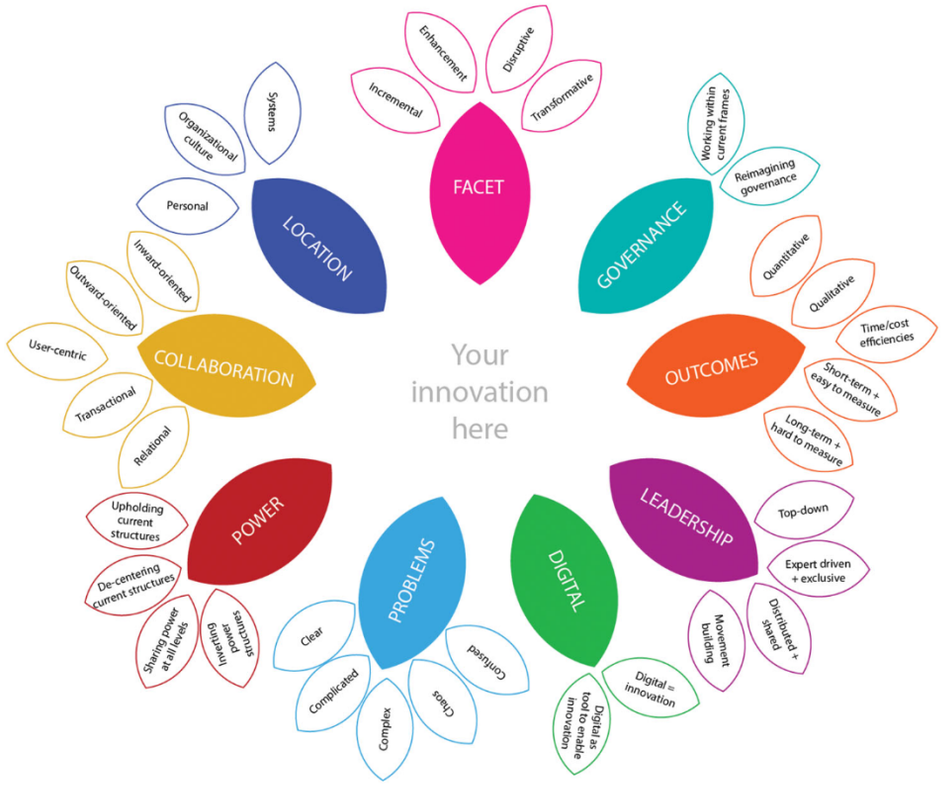

Figure 6. Theorizing Innovation Flower.

7. A conceptual framework for shaping PSI lab purpose

A new theory-informed and practitioner-friendly framework to succinctly differentiate between the choices and approaches to conceptualizing innovation purpose in PSI labs is proposed here (Figure 6). The framework was created as both an action research and practitioner-oriented response to the research question that shaped this inquiry: how might we more strongly conceptualize the purpose for PSI labs, and why might this be important for enhancing their strategy and impacts? How might 1st, 2nd, 3rd, and 4th generation PSI labs conceptualize innovation differently, depending on their purpose and goals? This conceptual framework is designed to be used for a PSI lab as a whole entity, and also for specific innovation initiatives, as different initiatives within the same PSI lab may hold a variety of innovation purposes or ambitions. It is also relevant for labs working in contexts outside of the public sector.

The framework is shaped like a flower, with a center where a short description of the particular innovation effort is located. There is then a circle of nine main petals describing key elements to consider when an initiative is theorizing its approach. Each of these nine petals then has two to five sub-petals which nuance the main petals. These can be used to facilitate strategic choice-making about the ways in which an

innovation process is being considered, designed, facilitated, delivered, and evaluated and are in response to the learning from action research and expert practitioners shared earlier. These main- and sub-petals are described in some detail here.

1. Location: Where is your innovation initiative focusing its change efforts? The other petals and sub-petals can all be considered from each of these three locations discreetly, or together.
2. Personal = focused on individual agency, learning, action, reflection, and change from within.
3. Organizational culture = focused on changes in the ways that organizations work, and organizational culture is shaped and maintained.
4. Systems = focused on systems-level changes on the issue or topic that the initiative is focused on, or more broadly on the role of the public sector in society.
5. Facet: What innovation ambition does your initiative hold? (OECD 2018)
6. Enhancement-oriented = how might we do X better?
7. Mission-oriented = how might we achieve X?
8. Adaptive = how might our evolved situation change how we do X?
9. Anticipatory = how might emerging possibilities fundamentally change what X could or should be?
10. Governance: What paradigm of governance is your innovation initiative working within?
11. Working within current frames = the dominant regimes of traditional public administration, new public management, and colonial constructs currently operating in most European and Western governments. Typically: hierarchical; having a division of labor; rules focused; rigid; expert-orientation; efficiency and effectiveness focused; performance management and competition oriented.
12. Reimagining governance = practices, approaches and ideas drawing from: Indigenous governance; feminist; collaboration; collective governance; networked governance; flexible information flows; building trust; enhancing democracy; embracing innovation; different forms of leadership; new forms of community engagement; and empowered citizenship.
13. Outcomes: How does your innovation initiative understand and measure impacts and outcomes, and on what time horizon?
14. Quantitative = numbers-based measures, where discreet questions and values can give you the information you need.
15. Qualitative = use of social science research methods, where data is collected through observation, interviews, print materials, creative productions, etc. and then themed or coded to generate findings.
16. Efficiency-seeking = focused on finding resource efficiencies in the form of time and cost savings and process improvements.
17. Short-term = outcomes are realized quickly, easily, are simple to measure and understand, and it is clear when something is "complete".
18. Long-term = outcomes may be messy, less linear, cause and effect not clearly linked, and not very straightforward, and a more patient and flexible approach to measurement is necessary over a longer time horizon.

19. Leadership: What conception of leadership does your innovation initiative embody and enable?
20. Top down = leadership is concentrated as one moves up a hierarchy. Those closer to the top are the "leaders," and they tend to exercise leadership via exercising power over, and this hierarchical structure is how agency is allocated and distributed. This can be internalized within individuals, work within particular organizations, and also replicated more systemically in society.
21. Expert driven + exclusive = leadership requires a particular kind of expertise with a unique and specialized skill set, a specific set of tools and techniques that are different than common practice, and often relies on special access to permission and/or positional power to create a space for these experts to work within. Often has its own culture and language, and barriers to entry.
22. Distributed + shared = leadership is variable, is focused on "power in and with," and resides in many different places in an organization or system. Leadership behaviors from many different cultures, traditions, and practices are recognized and supported.
23. Movement building = leadership is actively cultivated in a diversity of people, roles, departments, and across organizational boundaries. Leadership as enablement- and outward oriented. Inclusive and cross-sector approach, draws on movement building and social change theory and practice.
24. Digital: How does your innovation initiative think about technology?
25. Digital = innovation = technological and digital solutions are the innovations themselves.
26. Digital as a tool to enable innovation = technological and digital solutions are used as a part of a comprehensive solution set; it isn't about digital for digitals' sake, but rather focused on the role that technology might play.
27. Problems: What types of challenges does your innovation initiative focus on? (Corrigan 2020; Snowdon and Boone 2007).
28. Clear = problems are ordered, meaning they are knowable, predictable, and ultimately solvable, and have fixed constraints. Can often be handled through application of best practice.
29. Complicated = problems are ordered, often with a large number of interacting components, and have governing constraints (i.e. laws, procedures). Can often be resolved with application of expert knowledge.
30. Complex = problems are unordered with enabling constraints, meaning they are unknowable, unpredictable, and have emergent and self-organizing properties. This can be due to the nature of the problem itself, and/or also to the social complexity or level of (dis)agreement about the problem. No one really knows what is going to work, or has an answer to these types of problems.
31. Chaotic = problems are unordered and do not make much sense, and first need to be stabilized before determining what might come next.
32. Confused = problems can be aporetic, meaning a paradox or something unresolved, or confused, meaning that the problem is not understood usually due to a failure to see beyond habits of thinking.

33. Power: How does your innovation initiative address power, considering personal, organizational culture, and systems levels?
34. Upholding current structures = Those who hold race, class, sex, gender, ability and other unearned privileges continue to be in leadership and decision-making roles, and their positionality and privilege is not challenged during the innovation initiative. Systems and structures based on this construct of power are also maintained.
35. De-centering current structures = The experiences of those holding unearned privileges is de-centered, with space made in the innovation process for those who have been historically and structurally marginalized or oppressed.
36. Sharing power at all levels = Innovation process is intentionally designed so that leadership, decision-making, and participation is inclusive and shared. The innovation directly probes, tests, and challenges the power dynamics at play in the organizations and systems that the innovation is working to change by activating a different approach.
37. Inverting power structures = Those that hold the positions of power, responsibility, accountability and decision-making consist entirely of those that have been traditionally and structurally marginalized or oppressed by the system they are working to change, and the innovation is also actively engaged with changing the larger systems and structures that it is connected to, and/or modeling and practicing an entirely different and emergent system and structure.
38. Collaboration: How does your innovation initiative conceptualize working with others?
39. Inward-oriented = changing the approaches and processes of a discreet department, organization, or team within the public sector.
40. Outward-oriented = co-creative with multiple partners, stakeholders, organizations and people with a shared interest and common challenge.
41. User-centric = aims to improve the experiences of those most directly affected by a challenge by putting their experiences and interests at the center of the innovation process.
42. Transactional = short-term, efficient, goal-oriented, often extractive approach to working with people.
43. Relational = long-term, high trust, process-oriented, empathic approach to collaboration through ongoing relationship building.

By questioning the underlying and often unstated assumptions, values, and ambitions of PSI labs, and by taking a stronger approach to conceptualizing their purpose, PSI labs of all types can likely have greater impact. Each of the main- and sub-petals in the framework provokes important thinking, strategy development, communication, and decision-making for PSI lab practitioners to make. PSI labs must collectively become more explicit about their purpose and theories of change, and from this foundation then share their activities and learning in order to more rigorously compare approaches and results, and build the fields of research and practice.

8. Conclusion + areas for future research

The nature of many urgent and complex challenges facing the government, like climate change, growing inequality, systemic and structural oppression, and others require governments to make strategic choices about how to spend limited time and resources. Public sector innovation labs with change and transformation ambitions are a promising response, and their rapid proliferation is a signal that there is interest and readiness for an experimental approach to governance. In order to realize this potential, and ensure that third and fourth generation PSI labs do not inadvertently perpetuate the problematic systems, structures, and paradigms that they aim to shift, more attention needs to be paid to understanding how change happens within the public sector, and the particular role that these systemic change oriented PSI labs might play in catalyzing this change.

There are several promising lines of inquiry for future research resulting from this research. PSI labs can test the framework proposed in this paper to see if it results in promising direction and insight for their experimentation and learning. The choices of main- and sub-petals can be experimented with and further developed in order to provide further nuance to the strategic choice-making that PSI labs might take, and the implications of these choices. The tensions and conflicts between the choices that this framework provokes, and the relative importance of different choices, can be explored in both theory and practice. The factors and contexts that influence different choices, emphasis, and strategy will also be important to consider. Overall, there is a need for more collaboration between researchers, individual PSI labs, and field-building organizations that take their lead from research questions generated by practitioners. Research can better support the knowledge needs of practitioners by taking action research approaches, and constructing grounded theory in response. Researchers can explore, understand, and then translate and make accessible relevant theory and academic literature to PSI lab practice.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Behavioral ethics research board (BREB)

This research was reviewed and approved by BREB at the University of British Columbia, reference number H17-02282.

Funding

This research was supported by the Social Sciences and Humanities Research Council (SSHRC) Doctoral Fellowship, as well as the University of British Columbia Public Scholars Initiative and Four Year Fellowship.

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