Barriers to public sector innovation in Switzerland: A phase-based investigation

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Abstract

Innovation processes are crucial to modernize business processes, products, and institutional arrangements in the public sector. However, many innovations in the public sector fail. Previous research has identified various barriers, yet still little is known about what barriers manifest during the various phases of the innovation process. Against this backdrop, in this study, we analyze the barriers to public sector innovation from a process perspective. We use the policy cycle as analytical framework. We conduct qualitative interviews (n=22) with Swiss practitioners to explore barriers to public sector innovation in individual phases of the innovation process. Thus, this study contributes to a better understanding of the barriers that can impede a successful public sector innovation process by shedding light on the barriers' dynamics and differences between national and regional levels.

Keywords: Public sector innovation, Innovation barriers, Innovation process, Policy cycle, Switzerland

Points for Practitioners:

- PSI barriers include a great variety that require public sector organizations to follow a professional innovation management approach.
- Reluctance to connect and insufficient and/or unclear room for maneuver appear to be the most critical barriers marked by great complexity.

- PSI barriers show different prevalence in each phase of the innovation process. It is crucial to address challenges in each stage appropriately. Understanding the prevalence of barriers in each phase helps define the appropriate strategy.
- The barriers must be considered during the complete innovation process without neglecting any phase requiring a strategic and long-term perspective in innovation management.

1 Introduction

Public sector innovation (herein after referred to as 'PSI') is essential to improving the efficiency and effectivity of public services, and to strengthen the state's capacity in dealing with complex challenges and wicked problem such as climate change, aging population, urbanization, natural disasters, and digital divide (Kaur, Buisman, Bekker, & McCulloch, 2022; OECD, 2019a; Osborne & Brown, 2013). To unfold PSI's potential, various approaches to understand and foster PSI have been developed. Recently, researchers have further conceptualized the 'innovative capacity' of public sector organizations (herein after referred to as 'PSO') that shed light on internal and external attributes required to foster innovations within the public sector (Kaur, Buisman, Bekker, & McCulloch, 2022; Boukamel, Emery, & Gieske, 2019; OECD, 2019a).

For the purpose of this study, we follow existing literature and define PSI as any organizational setting, service and/or policy, governance, or concept that cumulatively has the following characteristics: (1) novelty, as innovations introduce new approaches in the context where they are adopted; (2) implementation, as innovations must be put into practice; (3) impact, as innovations aim at better public results (Misuraca, et al., 2020; OECD, 2019a). Since PSI scholarship often follows reform movements, such as new public management, sustainability, or digital government (Cinar, Trott, & Simms, 2019; De Vries, Tummers, & Bekkers, 2018), the themes in focus differ (e.g., financial control, digitization) while the above-mentioned

characteristics remain the same. Despite significant effort to enhance innovations in the public sector, many of these initiatives fail (Kaur, Buisman, Bekker, & McCulloch, 2022; OECD, 2019a). Hence, scholars have turned their attention more to the study of barriers in PSI exploring barriers to PSI on different levels of analysis (e.g., organizational, individual) and domains (e.g., legal, technical, political) (Cinar, Trott, & Simms, 2019).

The innovation process includes various barriers that vary depending on the innovation phase (Sandberg & Aarikka-Stenroos, 2014; Hadjimanolis, 2003). Following this insight, a promising emerging research stream explores the barriers in the different innovation phases. Cinar and his co-authors, for example, explore conceptually (2019) and empirically (2021) barriers by process stage. Focusing on e-governance, Meijer (2015) identifies structural and cultural barriers and how they vary across the innovation process.

In this study, we follow this emerging stream of research and present the results of a case study examining the barriers to PSI from a process perspective at different stages of innovation in Swiss public administration. In terms of case study analysis, Switzerland is an intrinsic case (Mills, Durepos, & Wiebe, 2009). Mills, Durepos, and Wiebe (2009) define an intrinsic case as a case that is in some way original or outstanding and therefore particularly well suited for in-depth study. Switzerland is one of the most innovative countries in the world (e.g., World Intellectual Property Organization, 2022). However, innovation in the public sector is less successful in certain areas, as evidenced, for example, by the fact that public services are far from moving from an analog to a fully digital service model (Mettler, 2019). Switzerland's federal structure likewise makes it an interesting case worth exploring in more detail. Due to the federal system, innovation projects take place at different levels of government and independently. This allows us to examine barriers in a setting that innovation initiatives face at different levels of government.

To understand the barriers in the PSI process, we conducted 22 interviews with Swiss practitioners involved or leading innovation initiatives in the public sector at the national and regional levels to answer to following research questions:

RQ1: How prevalent are PSI barriers in the individual phases of the innovation process?

RQ2: What differences exist between PSI barriers at the national and regional levels?

We use the policy cycle as defined by Cairney (2019) as an analytical framework that depicts the different stages of PSI, and expands the perspective of previous studies that build on innovation process models from the public management literature (cf. Cinar, Trott, & Simms, 2019; Meijer, 2015). Our study makes three main theoretical contributions to the public management literature: First, our analysis confirms and further elaborates on the dynamics of barriers across phases and among each other. Barriers vary across the innovation process and influence each other (Hadjimanolis, 2003). As such, they "cannot be viewed as isolated obstacles to horizontal modes of governance" (Termeer, 2009, p. 314). Though, to date only a few studies have explored these dynamics and their impact on the innovation process for public sector (cf. Cinar, Trott, & Simms, 2021, Cinar, Trott, & Simms, 2019; Meijer, 2015). Second, our findings reveal differences between national and regional level, and explore the relationships in between. The state levels face characteristic challenges and are embedded in their specific constitutional governance model when innovating (Misuraca, et al., 2020) - while being influenced by each other (OECD, 2019a). Yet, most PSI research has focused on the national level only (OECD, 2019a), even though, "subnational governments have an increasingly important role to play in meeting ongoing global challenges" as the OECD concludes (2019a, p. 21). Third, our analysis reconfirms the barriers in itself that have been identified in precedent PSI studies. However, in contrast to previous process-oriented studies (e.g., Cinar, Trott, & Simms, 2019; Meijer, 2015) we also include process stages derived from

the public policy scholarship, such as “agenda setting” (Cairney, 2019, p. 27). This broader perception of the PSI process allows for the identification of phase-specific activities and related incidents of barriers that have been neglected to date.

The remainder of this study is structured as follows. In section 2 we summarize literature on the PSI process and the policy cycle as defined by Cairney (2019) to build the analytical foundation. In section 3 we describe the methodological approach. In section 4 we outline our results. In section 5 we derive theoretical and practical implications. Last, we describe limitations and need for further research.

2 Background

2.1 Public sector innovation process

In PSI literature the innovation process is described in a phase model, whereas each phase is related to specific activities and barriers that define the innovation process’ success (Cinar, Trott, & Simms, 2019; Meijer, 2015). Hartley et al. (2013, p. 822) describe it “as a complex and iterative process through which problems are defined; new ideas are developed and combined; prototypes and pilots are designed, tested, and redesigned; and new solutions are implemented, diffused, and problematized”. Similarly, public policy literature defines policy change as the introduction of a new policy and the revision of an existing one (Cairney, 2019). The policy cycle is a simple model to describe the stages of such a policy change as a continuous process beginning with “notional starting point at which policymakers begin to think about a policy problem to a notional end point at which a policy has been implemented and policymakers think about how successful it has been before deciding what to do next” (Cairney, 2019, p. 26). In this context, public policy is defined as the “sum total of government action” (Cairney, 2019, p. 18). This includes policy instruments that “turn a broad policy aim

into a specific action" (Cairney, 2019, p. 20), and include public budgeting, economic disincentives and incentives, regulations, legal penalties, providing public services and resources to stakeholders, and organizational change within the public sector including the introduction of new technologies (Cairney, 2019). It comprises both legislative and executive functions as for instance passing a law to establish a new public service and delivering this new public service to stakeholders through authorities.

Based on literature about PSI and policy change we derive a cyclic PSI process comprising six phases:

Agenda setting: As defined by Cairney (2019, p. 26) this phase is about "identifying problems that require government attention, deciding which issues deserve the most attention, and defining the nature of the problem". Literature on policy change see this phase as crucial for an innovation's success (Bacchi, 2009). There must be a consensus in the public discourse that the current policy is underperforming (OECD, 2009), and that there is a reason for change (Lidman, 2023). Cairney (2019, p. 28) stresses that "agenda setting involves a fundamentally important competition to exercise power to define issues as policy problems and establish their severity and cause". Eventually, the agenda setting concludes with the decision to tackle or not to tackle a specific problem.

Idea generation, debate, and selection: This phase comprises activities to generate and select innovation ideas to tackle a selected problem (Rogers, 2003). Literature on policy change stresses the importance of a profound debate involving the relevant stakeholders before selecting an innovation idea (Cairney, 2019). This necessitates "negotiation, compromise formation, and conflict settlement" (Sørensen & Torfing, 2011, p. 851). The debate helps create a consensus on the change path and build the perceived legitimacy (Cairney, 2019).

Development, design, and testing: In this phase the PSO crafts and tests a tangible solution based on the selected innovation idea (Meijer, 2015). PSI literature stresses the relevance of co-creation and end-to-end design across organizational silos which both require a high degree of collaboration in this innovation phase (Lidman, 2023; Mergel, 2018; Voorberg, Bekkers, Flemig, & Timeus, 2017).

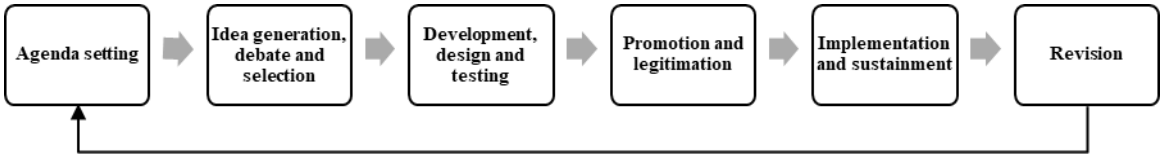
Promotion and legitimation: After having developed and tested a solution the formal and informal support for the implementation including the provision of means must be ensured (e.g., staffing, funds, legal foundations). These measures comprise "legislative approval, executive approval, seeking consent through consultation with interest groups, and referenda" (Cairney, 2019, p. 26). Both Cinar et al. (2019) and Meijer (2015) address the activities and barriers related to the creation of support of relevant stakeholders (i.e., promotion). Yet, based on the policy cycle we include 'legitimation' to stress the formal activities (e.g., budgeting).

Implementation and sustainment: This phase is related to activities to put the solution into action, to make it available for use for the relevant stakeholders (Cinar, Trott, & Simms, 2019; Meijer, 2015), and to routinize the innovation within the organization and with the relevant stakeholders (Cinar, Trott, & Simms, 2019; Stirman, et al., 2012). Accountability, a common understanding and the will to jointly implement the solution by all relevant actors are key (Cinar, Trott, & Simms, 2019; Cairney, 2019; Meijer, 2015). Further, the instruction of relevant stakeholders, especially employees and users, and respective marketing activities (Schedler, Guenduez, & Frischknecht, 2019; Savoldelli, Codagnone, & Misuraca, 2014) are important in this phase. PSI literature further stresses that an innovation is considered successful if the solution is diffused to other PSOs (Sørensen & Torfing, 2011).

Revision: The last phase closes and concurrently restarts the innovation cycle. The implemented innovation is evaluated in terms of the extent to which desired objectives have

been achieved, and whether the implementation was carried out as planned. Depending on the results the persons responsible decide whether to terminate, modify or maintain the innovation (Cairney, 2019).

Figure 1: Six-phases of the PSI process



2.2 Barriers to public sector innovation

Scholars have identified and categorized various barriers to PSI from different perspectives and backgrounds. In their recent study, Cinar et al. (2021), for example, differentiate barriers into five categories: organizational (e.g., rigid organizational structure), contextual (e.g., lack of standardization), interaction-specific (e.g., lack of trust between actors), process-stage-related (e.g., lack of commitment for implementation), and innovation characteristics related (e.g., switching costs), and resource related barriers. De Vries et al. (2018; 2016) classify in their literature reviews antecedents of innovation in an individual (e.g., perceived peer pressure), organizational (e.g., risk culture), environmental (e.g., competition) and innovation-characteristics-related (e.g., ease of use) level. Other authors have focused on content-related domains instead (Kaur, Buisman, Bekker, & McCulloch, 2022; Akhmadi & Tsakalerou, 2020; Schedler, Guenduez, & Frischknecht, 2019). For instance, Schedler et al. (2019) identify the following clusters of barriers: legal foundations (e.g., constraining effects of laws), technical infrastructure (insufficient IT infrastructure), cost-benefit relationships (e.g., lack of political motivation), policy coherence (e.g., lack of willingness to cooperate), legitimacy (e.g., insufficient citizens' acceptance), and innovativeness (e.g., risk avoidance). Similarly, Al-Noaimi et al. (2022, p. 216) define barriers related to five themes: "championing individuals

as innovation culture", "structuring competencies through innovative collaboration", challenging political regulations using innovation", "enabling environments for innovation stamina", and "knowing within innovation dilemma". Lastly, certain authors such as D'Este et al. (2012, p. 482) differentiate by the impact of barriers. They make a distinction between revealed and deterring barriers. Deterring barriers encompass "the obstacles that prevent firms from committing to innovation", and revealed barriers reflect "the degree of difficulty of the innovation process". Scholars further explore which factors influence in the barriers' relevance, such as innovation type (e.g., Mu & Wang, 2022), and how organizations and individuals deal with barriers (e.g., Demircioglu, 2018).

Innovation is based on an iterative and complex process that implies dynamic and variation of barriers according to its phases (Sandberg & Aarikka-Stenroos, 2014; Hadjimanolis, 2003). To date only a few studies have analyzed PSI barriers from a process perspective to capture this dynamic and variety (Cinar, Trott, & Simms, 2021). In a case study on an e-government project in Netherlands, Meijer (2015) explores and clusters PSI barriers in structural and cultural barriers. He elaborates on the large variety of barriers identified in the PSI process, and the dynamic prevalence of barriers in certain PSI phases and relevant strategies to overcome these barriers. In a literature review Cinar et al. (2019) systematically categorized study results as organizational, interaction-specific, process stage related, and innovation characteristics related barriers. They applied a process model comprising four phases: (1) idea generation and selection, (2) development and design, (3) implementation, and (4) sustainment. Their findings stress the different notion and dynamic of PSI barriers across specific interactions (e.g., towards citizens, towards business as contractors), innovation types and process phases. In a most recent study, based on this literature review, Cinar et al. (2021) explored PSI barriers with a survey in Italy, Japan, and Turkey built upon a process model with two stages: development and design, and implementation. Their results demonstrate the dynamics of PSI barriers at different stages

of the innovation process, the interrelationships between them, and uncover tactics used to address the barriers.

We contribute to these studies by investigating barriers to PSI in the Swiss context.

3 Research data and method

3.1 Case selection

Switzerland is one of the most innovative economies in the world. On a regular basis it ranks on the first place in international benchmarks such as the Global Innovation Index published by the World Intellectual Property Organization (2022). This position is backed by an effective government, innovation-friendly policies, a broad ICT usage and most importantly a strong innovation linkage marked by university-industry collaboration and cluster development. As a result, Switzerland's knowledge and technological output (e.g., patents) as well as creative output (e.g., media and entertainment) is outstanding compared to other countries.

However, innovation in the public sector is less successful, as evidenced, for example, by the fact that public services are far from moving from an analog to a fully digital service model (Mettler, 2019). Switzerland's regular position on the last ranks of e-government benchmarks such as the eGovernment Benchmark by the European Commission (2022) is a stark contrast to its prominent position as a country. In 2022 Switzerland was on rank 28 out of 35 European countries including upper middle-income countries such Albania, Serbia, and North Macedonia. Even though scoring high in the category 'user centricity' comprising online availability, mobile friendliness, and user support, Switzerland falls behind regarding 'transparency' and 'key enablers'. Those categories address areas that require common ground across PSOs in Switzerland such as eID, authentic sources, transparency in service delivery and personal data usage. Further, the e-government landscape in Switzerland is marked by different maturity levels between regions (Schmid, Urben, & Vatter, 2018) and between the

three state levels as indicated by a survey with Swiss public sector leaders conducted by PricewaterhouseCoopers and the University of St. Gallen (Singler, et al., 2023).

'Grey literature' reports such as the eGovernment Benchmark cited in the paragraph above might lack scientific foundation and precision. However, the results are in line with research studies reporting similar observations about the state and challenges of e-government and PSI in Switzerland (Boukamel & Emery, 2019; Schedler & Guenduez 2023; Schedler, Guenduez, & Frischknecht, 2019). For instance, Schedler et al. (2019) conclude that, among others, the lack of compatible IT structures and technical standards, the federal system, and the autonomy of authorities impede innovations in the Swiss public sector.

Recently, Swiss politicians and public servants have launched several initiatives to overcome these shortcomings regarding e-government. Notably, two new cross-state level organizations have been established to better steer, and coordinate e-government activities and standardization (i.e., Digital Public Services Switzerland[1] and eOperations Schweiz AG[2]). Another program launched aims at a more harmonized data management across the state levels (Federal Statistical Office, 2023).

This stark contrast between the country's innovativeness and the public administration's shortfall, and its distinct federal structure make Switzerland an intrinsic case (Mills, Durepos, & Wiebe, 2009) for studying barriers to PSI.

3.2 Data collection

Qualitative semi-structured interviews (Myers & Newman, 2007) were conducted between July 2020 and August 2020. Interviews allow to access the experiences and interpretations of the interviewees in an effective way (Gill, Stewart, Treasure, & Chadwick, 2008). The purpose of these interviews was to review the different PSI process phases and the barriers identified in

the literature, and to expand on these findings by examining what barriers are encountered in each phase at the national and regional levels in the Swiss public administration.

We selected participants by using a combination of purposive sampling and snowball sampling (Etikan, Musa, & Alkassim, 2016). Purposive sampling allowed us to select interviewees who were experienced with PSI. They should have been well-informed or experienced about the phenomenon under investigation. Thus, they should have been involved in innovation projects either leading it or being part of it experiencing all PSI phases. They should have an in-depth understanding of potential barriers that can arise in each innovation stage, and be willing to share their knowledge and experience (Etikan, Musa, & Alkassim, 2016). Based on these criteria, we defined an initial list of potential interviewees, and contacted them via email or telephone to an interview. Further, snowball sampling allowed us to identify additional interviewees who were recommended by our initial participants if meeting the criteria above. In total, 22 interviews were conducted whereof 17 have been identified by purposive sampling and 5 by snowball sampling. This approach was appropriate for our study, as we were interested in obtaining the perspectives of participants with well-developed views on the research topic (Minichiello, Aroni, Timewell, & Alexander, 1995).

In total, 22 semi-structured interviews were conducted. The participants spread across the national and regional level of government. Interviews were also conducted with external experts who advise and support innovation projects at all state levels (see, Table 1). To capture a broad range of innovations we further strived for including different actors in different positions each being involved or leading in rather institutional, technological, cultural or policy changes. Thus, participants included 4 general managers, 10 Chief Digital Officers (CDO) and Chief Information Officers (CIO), 2 program managers, 2 government members, 1 Chief Human Resource Officer, 1 Innovation Manager, and 2 external experts. The interviews lasted for 45-70 minutes (Ø 55.5 min) each and were conducted using videoconferencing tools.

Recording was used to provide a complete account of what was said during the interviews (Walsham, 1995).

Table 1: Overview of interviews

Type of organization / occupation	General management	CDO / CIO	Program manager	Government member	CHO	Innovation manager	External experts	n
National government	1	2	1					4
Regional government	3	6		2	1	1		13
Cross-state level organization		2	1					3
External experts							2	2
n	4	10	2	2	1	1	2	∑ 22

To ensure comparability and consistency, we followed a semi-structured interview guide (Newcomer, Hatry, & Wholey, 2015). Our interview guide included two specific themes. These included (1) the phases of the innovation process and (2) the challenges that occur during the implementation process. In this way, we were able to capture their understanding and interpretation of the process, the barriers they consider to be significant, and the phases in the process where these barriers occur. Our interview questions were built upon these themes (e.g., what stages of innovation do you think public sector projects go through, when you reflect on your experience?). During the interviews, however, we asked more specific questions to clarify the participants' responses (e.g., what was the most critical barrier in this final phase of the innovation process?). This procedure enabled us to conduct all the interviews following a consistent structure while asking questions to access more information about the participants' specific experiences and knowledge (Newcomer, Hatry, & Wholey, 2015).

3.3 Data analysis

We applied a qualitative, interpretative research approach (Walsham, 1995). The interviews were transcribed to increase accuracy of the analysis. The interview data was analyzed with the qualitative analysis software NVIVO 10. The unit of analysis was the interview transcript.

Otherwise, the coding count could have led to a biased view if a particular code occurred more frequently in one interview and less in others.

The iterative analysis process started with an open coding stage, followed by a grouping of codes, and finally the identification of common themes following the thematic analysis approach by Braun and Clarke (2006). The process of linking codes (i.e., barriers) to each phase of the innovation process occurred in three overlapping phases: First, we coded interview participants' perceptions of specific barriers they experienced in PSI. Second, we grouped the codes and identified emergent themes in the data. Third, the analysis was complemented by a close look at how interviewees narrate the innovation process and connect barriers to the six phases of the PSI process derived from the literature. The iterative process allowed for continuous adaptation of the phases of innovation derived from the literature based on real-world experience. Lastly, in line with White and Marsh (2006, p. 36) we have investigated the frequency of codes across barriers and phases in order to explore their "existence, intensity and relative importance". In total, we count 232 codes. Table 2 gives an overview of the code distribution. Such quantification is commonly used in content analysis (Bengtsson, 2016), and also suggested for thematic analysis (Boyatzis, 1998), whereas in the latter "the unit of analysis tend to be more than a word or phrase, which it typically is in content analysis" (Braun & Clarke, 2006, p. 98). Bengtsson (2016, p. 12) summarizes the benefits of this two-folded approach as follows: "By combining the quantification with a qualitative approach, the magnitude of the individual phenomena studied appears more clearly (Berg, 2001; Morgan, 1993)".

4 Findings

Table 2 summarizes our findings. It lays out the enriched PSI barriers and advanced PSI process based on our interview results and their mapping to the PSI process. In total we have defined six phases and identified six barriers. The barriers are relevant across the PSI process yet become manifest in different ways in each phase. Table 3 summarizes the major differences between the national and regional levels.

4.1 Insufficient commitment to change

Insufficient commitment to change has been acknowledged as a major barrier to innovation in our interviews. Commitment is required across the PSI process from all relevant stakeholders, including, among others, politicians, management, staff, and citizens. For example, it comprises the political decision to tackle a problem, and the acceptance by employees and citizens to use a new application. The barrier is marked by two aspects.

'Perceived illegitimacy of change' can be nurtured by several factors. For instance, a conflict of interest due to diverging policy priorities impede consensus on the need to change and its direction. One interviewee elaborates on conflicts in priorities: '*And anyway, someone always finds a more important problem to solve with that money instead"* (general management, regional government). Path dependencies, cost-benefit doubts, lack of trust and low expectations towards government, and a negative societal and organizational attitude towards innovation in general also impair legitimacy. One interviewee states: *"Also society needs to change. If they want the administration to be innovative, they need to accept failures"* (CDO, regional government). Further, following the institutional isomorphism as defined by Di Maggio and Powell (1991) organizations engage in what is considered legitimate in their institutional environment as one interviewee outlines: *"If you are the first canton to introduce a new idea, it's always tough to convince everyone"* (government member, regional government). Last, legitimacy of an innovation might be hampered by innovation

characteristics as defined by Rogers (2003) or the involvement and empowerment of stakeholders. One interviewee gives an example referring to a referendum in Switzerland about an electronic identity "*We will fail to introduce this [E-ID]. People don't trust our solution […]. We should have done the consultation much earlier"* (CIO, regional government).

'Insufficient motivation for change' can occur even if stakeholders perceive a change as legitimate. We found three major reasons. First, a lack of leadership support. One interviewee explains: *"It's critical that I feel that the government supports the change and sets a good example. That they push employees to try something new, and tolerate mistakes"* (CDO, regional government). Such a lack might be rooted in a perceived illegitimacy of change, but also in a deficiency of personal resources, knowledge and skills, and a fear of reputational risks. Second, inadequate performance and risk management systems incentivizing innovation-avoiding behavior, as one interviewee highlights: *"Unfortunately, the dominant strategy in public administration is to do business-as-usual. Low risk brings high reward"* (general management, regional government) Third, a *"healthy respect"* (program manager, national government) for the size, complexity and fragmentation of public services and decision-making processes, the uncertainty of outcomes and acceptance by users harming the motivation for change. This leads to demotivation as one interviewee explains: *"You can change the law. It's feasible. But it's a lot of work, and a risky journey. I understand why many shy away from it"* (CDO, regional government). Another interviewee further outlines: *"You must convince the parliament and the public with many meetings, press conferences, round tables, consultations, with lobbying in other words"* (general management, regional government).

'Insufficient commitment to change' has been mentioned most often by our interviewees in 'agenda setting' (n=4.3%), 'implementation and sustainment' (n=5.6%), and 'revision' (n=4.3%). In contrast, we only found few mentions for other phases (n=0.9%, n=0.4%, n=2.2%). When comparing the national and the regional levels we observed one major

difference. Representatives of the regional level put strong emphasis on efficiency gains and financial pressure to legitimate innovations as one interviewee elaborates: *"Processes [in Swiss public administration] are already very efficient. That's a big hurdle to justify changes"* (CDO, regional government). A regional politician explains: *"To innovate public administration you need factual constraints, and in my career, I only experienced a factual constraint when you need to save money"* (politician, regional government).

4.2 Lack of strategic perspective and guidance

Our interviewees highlight strategic planning and steering of PSI with a long-term and holistic perspective. However, to date "innovation in the public sector is often undertaken on an ad hoc basis" (Arundel, Bloch, & Ferguson, 2019, p. 794). The barrier comprises two aspects.

'Poor understanding of needs and possibilities' refers to knowledge about stakeholders' needs, societal problems and potential solutions to address them. It is the starting point of a strategic innovation process (OECD/Eurostat, 2018). However, in our interviews we found that PSOs struggle to build this knowledge. This might be caused by a lack of means (e.g., resources to involve stakeholders), or "a culture that prioritises the expertise of professionals to the exclusion of other sources of insight, including research and residents themselves" (OECD, 2019a, p. 23). One interviewee complains about this lack: *"There are still too many people who think they know by heart what citizens want"* (CDO, regional government). Another one stresses: *"The responsible persons don't know about the technological opportunities available already today to improve their services"* (CDO, regional government).

'Ineffective innovation management' comprises two elements. First, the lack of a long-term perspective articulated in strategic priorities for innovation as outlined by one interviewee: *"It's because leadership doesn't steer, doesn't set the course, especially with regard to new technologies"* (CDO, national government). Second, the absence of a governance that allows

for a strategic innovation management covering all steps from identifying problems and generating ideas to establishing and financing new solutions. One interviewee points out that *"we need a management system to steer important innovations. Public sector, especially the Swiss federalism, is too complex. Innovation happens too random"* (government member, regional government).

Our interviewees have mentioned 'lack of strategic perspective and guidance' most often in 'agenda setting' (n=3.4%), and 'idea generation, debate, and selection (n=3.0%). The barrier has also been mentioned in other phases (n=1.3%, n=2.2%, n=2.2%, n=1.7%) which indicates its broad relevance for PSI. Yet only 13.8% of codes across all phases account for this barrier. The barrier is equally prevalent at the national and regional levels with no major differences.

Table 2: PSI barriers within the PSI process

BARRIERS TO PUBLIC SECTOR INNOVATION		PUBLIC SECTOR INNOVATION PROCESS PHASES						
Second-order categories	**First-order categories**	**Agenda setting**	**Idea generation, debate, and selection**	**Development, design, and testing**	**Legitimation and promotion**	**Implementation and sustainment**	**Revision**	**TOTAL**
Insufficient commitment to change Accept the problem and be willing to change	Perceived illegitimacy of change Insufficient motivation for change	*4.3%*	*0.9%*	*0.4%*	*2.2%*	*5.6%*	*4.3%*	*17.7%*
Lack of strategic perspective and guidance Plan and steer the change	Poor understanding of needs and possibilities Insufficient innovation management	*3.4%*	*3.0%*	*1.3%*	*2.2%*	*2.2%*	*1.7%*	*13.8%*
Reluctance to connect Be open and capable to collaborate and exchange	Overstated self-reliance, and mistrust in partners Huge efforts for coordination and involvement due to complexity, fragmentation and interdependencies	*1.3%*	*4.3%*	*6.0%*	*5.2%*	*4.7%*	*1.3%*	*22.8%*
Insufficient resources and capabilities Have the necessary means to change	Insufficient availability of resources and capabilities Insufficient flexibility of resources and capabilities	*0.4%*	*1.7%*	*2.6%*	*1.3%*	*3.0%*	*2.6%*	*11.6%*
Insufficient and/or unclear room for maneuver Have the room to experiment and change	Limiting cultural traits Limiting formal arrangements	*1.7%*	*3.9%*	*6.5%*	*1.7%*	*0.9%*	*4.3%*	*19.0%*
Inert and avoiding behavior regarding decision-making and accountability Take decisions and responsibility for change	Cultural traits diffusing responsibility Formal arrangements diffusing responsibility	*1.7%*	*1.3%*	*3.0%*	*3.4%*	*3.9%*	*1.7%*	*15.1%*
TOTAL		*12.9%*	*15.1%*	*19.8%*	*15.9%*	*20.3%*	*15.9%*	*100%* *(=232 codes)*

Remarks:
(1) Average / median per barrier and phase: 2.8% / 2.4%
(2) Average / median per barrier: 16.7% / 16.4%
(3) Average / median per phase: 16.7% / 15.9%

Table 3: Summary of major differences between the national and regional levels

Barriers	National level	Regional level
Insufficient commitment to change Accept the problem and be willing to change	Rather emphasizing internal 'turf fights', personal interests of leadership and politicians resulting in low commitment to change	Strong emphasis on efficiency gains and financial pressure as a necessity to legitimate innovations
Lack of strategic perspective and guidance Plan and steer the change	No major differences	
Reluctance to connect Be open and capable to collaborate and exchange	Less important; rather inward-oriented (i.e., departmental silos)	More important; very outward-oriented requiring the involvement of a more diverse set of stakeholders (e.g., other regions, municipalities, companies, citizens)
Insufficient resources and capabilities Have the necessary means to change	Less important in general; stressing flexibility of resources rather than availability	More important regarding availability of both financial and personnel resources (e.g., challenges to recruit qualified personnel)
Insufficient and/or unclear room for maneuver Have the room to experiment and change	More important; strong emphasis on 'bureaucracy' as a hurdle both culturally (e.g., risk aversion) and formally ('red tape')	Less important in general due to smaller size and lower complexity of regional organizations; perceived pressure to be frugal limiting room for maneuver more strongly
Inert and avoiding behavior regarding decision-making and accountability Take decisions and responsibility for change	No major differences	

4.3 Reluctance to connect

'Reluctance to connect' refers to intra- and inter-organizational collaboration, information exchange and learning within the public sector and with third parties. It involves the horizontal dimension (e.g., disciplines, functions, organizations at the same level) often linked to "silo-shaped organization and institutional partitioning", and the vertical dimension addressing hierarchies and distance of power (Boukamel & Emery, 2019, p. 30). This further includes the relationship between different state levels. The barrier is based on two aspects.

'Overstated self-reliance, and mistrust in partners' create an unwillingness to connect with other actors. First, this might be caused by the fear of losing control, autonomy and resources when cooperating and creating dependencies. One interviewee elaborates on this challenge: *"There are 90 independent kingdoms [authorities] in the federal administration. It's in their DNA to fight for every Franc and every centimeter of freedom"* (CDO, national government). Second, cultural traits as outlined before by Boukamel and Emery (2019) foster a perceived need for self-reliance, and therefore impede the willingness to collaborate and involve other actors. The insufficient involvement of relevant stakeholders, especially citizens, has been

highlighted as a major barrier. Third, the lack of a common understanding among actors of the desired change (e.g., vision, goals) and of mutual benefits, both requiring a long-term and holistic perspective, foster the avoidance of collaboration. One interviewee explains: *"That was a deliberate choice to not include the municipalities now. Otherwise, we would still be discussing"* (general management, regional government).

'Huge efforts for coordination and involvement due to complexity, fragmentation and interdependencies' are a major barrier even if PSOs are willing to collaborate as one interviewee outlines: *"The biggest challenge for public administration to be innovative is that you are part of something very huge and complex. If you want to change only one thing you need to consider laws, other departments, the municipalities, the federation. And these clarifications need energy and compromises"* (general management, regional government). To tackle public sector's complexity, fragmentation, and interdependencies PSOs need to invest attention and resources in coordination and the involvement of relevant stakeholders. The efforts for coordination might be further triggered by a lack of legal, processual, and technical interoperability and standardization that in turn require coordination efforts to be established.

'Reluctance to connect' has been mentioned most often across all phases (n=22.8%). Except for 'agenda setting' (n=1.3%) and 'revision' (n=1.3%) we have counted for each phase significantly more codes than on average (n=4.3%, n=6.0%, n=5.2%, n=4.7%) indicating a great relevance of this barrier. When comparing the national and regional level we found a more nuanced and intense discussion at the regional level. Whereas national representatives emphasize internal departmental silos, regional representatives consider a more diverse set of stakeholders when elaborating barriers. For instance, one interviewee explains: *"It's not only with the federation, other cantons, and the cities. Also with the private sector, science, associations, civil society. The discussion has become much more confrontative"* (general management, regional government).

4.4 Inadequate resources and capabilities

Capabilities determine an organization's ability to engage in innovation-related activities and comprises the required organizational competencies, experience, knowledge, and resources (OECD/Eurostat, 2018). We identify two relevant aspects.

'Insufficient availability of resources and capabilities' addresses the challenge to deploy the required resources and capabilities to engage in innovation-related activities, including financial funds and personnel, competencies and knowledge, information technologies, and data. One interviewee points out: *"You have increasingly more tasks, and innovation is an additional one. The big question is: Do I have the people and the money to do it?"* (CDO, regional government). The inability to deploy and develop resources and capabilities jointly with other actors exacerbate this challenge.

'Insufficient flexibility of resources and capabilities' refers to an organization's ability to configure its resources and capabilities (and related partnerships) to meet changing needs. Such flexibility becomes manifest for instance in reallocating and carrying over unused funds, in redeploying and reskilling staff or in the establishment of a cloud- and API-based IT architecture to increase technological adaptability. One interviewee outlines regarding IT: *"We have so many old systems in place. They can't be updated, you can't build interfaces to other systems, nothing"* (CDO, regional government). Another one elaborates on personnel and financial funds: *"Well, the availability of [financial and human] resources in connection with the political process is a difficult situation. And that makes it very inert"* (general management, national government).

We have counted the least mentions across all phases for this barrier (n=11.6%). Only for 'development, design, and testing' (n=2.6%), 'implementation and sustainment (n=3.0%), and 'revision' (n=2.6%) we found a medium count. At the regional level resources are considered

a more critical barrier than at the national level, a conclusion that is also drawn by our interviewees: *"However, as a small city the lack of resources is quite often a problem"* (program manager, national government). Another regional representative highlights that *"we have big problems to recruit skilled staff"* (CDO, regional government).

4.5 Insufficient and/or unclear room for maneuver

We define the room for maneuver as the factual and perceived degree of freedom PSOs and their members have to challenge their existing situation, experiment with new ideas, and implement innovations. We have clustered the relevant factors in 'limiting cultural traits' and 'limiting formal arrangements'. Moreover, uncertainty about the room for maneuver discourages PSOs and their members to engage in innovation-related activities, especially regarding legal foundations as one interviewee states: *"Innovativeness in the public administration is about understanding which parts you can touch, and which parts better not"* (chief human resource officer, regional government).

'Limiting cultural traits' have a major impact on the room for maneuver while also affecting other barriers (i.e., insufficient commitment to change). First, these traits restrict the quantity and quality of change (incl. the means to facilitate change) that appear appropriate to a PSO, its members and relevant stakeholders. One interviewee claims for instance*: "And many ideas are not tried out because people are afraid to make mistakes. Zero-error culture. For me these cultural aspects are very very relevant for innovation"* (CDO, national government). Another interviewee elaborates on how it should be: *"We need a mindset that works like this: 'Oh, our plan didn't work out. Ok, let's prepare a new plan.' Unfortunately, people do not work like this"* (chief human resource officer, regional government). Our interview results support a previous study with Swiss public servants by Boukamel and Emery (2019) who synthesized

five cultural traits that impede PSI: (1) risk aversion, (2) path dependency (incl. low commitment to learning and openness to new ideas), (3) hierarchy and limited autonomy, (4) consensus-seeking and conflict avoidance, and (5) discretion and anonymity.

'Limiting formal arrangements' are often referred to as "rigid legal and bureaucratic regulations" or "red tape" (OECD, 2019a, p. 25). Examples are restrictive tendering regulations, constraints in dealing with data, performance management systems or complex institutional processes for decision-making (e.g., between state levels, referenda). These formal arrangements affect the limiting cultural traits and vice versa. One interviewee points out: *"Eventually, it's all about creating the room in which people subjectively and objectively have the permission to try out new things. Because the norms how to do things are extremely strong in the public administration just like in other big organizations. That's why people need the permission to do things differently, even regarding small things"* (external expert). However, our interviewees highlight that the way people handle formal arrangements is important, too: *"To avoid change the easiest thing is to use laws as an excuse"* (CDO, regional government).

'Insufficient and/or unclear room for maneuver' has the second highest count across all phases (n=19.0%). It has been mentioned most often by our interviewees in 'idea generation, debate, and selection' (n=3.9%), 'development, design, and testing' (n=6.5%), and 'revision' (n=4.3%). In other phases the barrier shows rather low counts (n=1.7%, n=1.7%, n=0.9%). Even though, both national and regional representatives consider it important, we found that this barrier is considered less critical at the regional level due to smaller size and lower complexity as one interviewee states: *"On municipal level it's quite easy to try something new. On cantonal level it takes already more muscles, and on federal level it's very difficult"* (CDO, regional government). In contrast, regional representatives stress financial aspects once again as an important factor that limits the perceived room to maneuver: *"People expect the public*

administration to be frugal. It's not your money, but the people's money" (chief human resource officer, regional government).

4.6 Inert and avoiding behavior regarding decision-making and accountability

The limiting cultural traits and formal arrangements that lead to an insufficient room for maneuver can also create a situation of diffused decision-making and accountability. As a result, decision-making in PSOs is slow and marked by a reluctance to take responsibility and leadership by the organization and individuals. For instance, one interviewee states: *"Every department starts passing the buck when it comes to the implementation"* (general management, national government). Another one stresses the lengthy processes until decisions are taken: *"From the point you have an idea until the moment you're allowed to implement it and got the budget, it takes another 1.5 to 2 years"* (general management, regional government). The effect is further triggered by the size, complexity and fragmentation of public services and its decision processes. One interviewee sums up the barrier's criticality as follows: *"The fear to decide, if this doesn't change it will be very difficult"* (chief human resource officer, regional government).

We identify two relevant aspects: *'cultural traits diffusing responsibility'* and *'formal arrangements diffusing responsibility'* that are similar to those for 'insufficient and/or unclear room for maneuver'. One interviewee summarizes this barrier concisely: *"Every new project must be approved by several heads and boards. It takes so much time and adds no value. It's just formalism. And actually, it's only about avoiding any responsibility. If your project fails, you can say: Hey, you guys approved it, too"* (general management, national government). As a result, *"even with important topics such as cyber security we need years to define only responsibilities"* (politician, regional government). Our interviewees also elaborate on the

reasons for this behavior marked by terms such as *"consensual system and collegial responsibility"* (general management, national government), and *"blurred division of tasks between the federation and the cantons for digital topics"* (program manager, cross-state level organization).

We found 'inert and avoiding behavior regarding decision-making and accountability' rather equally distributed with a tendency towards the later phases (n=1.7%, n=1.3%, n=3.0%, n=3.4%, n=3.9%, n=1.7%) where decisions about solution, fundings, and implementation must be taken. When comparing the national and regional level we did not observe any major difference.

5 Discussion and contribution

This study set out to better understand PSI barriers from a process perspective. To date, only a few studies have analyzed PSI barriers from a process perspective (Cinar, Trott, & Simms, 2021; Cinar, Trott, & Simms, 2019; Meijer, 2015). We enrich these studies by applying the policy cycle as defined by Cairney (2019) and by exploring the nature and occurrence of barriers along the PSI process in Switzerland. We have focused on the impact on the willingness and ability of PSOs and their members and stakeholders to carry out activities related to each phase of the PSI process. For this purpose, we have analyzed literature on PSI barriers to reflect to current state of research. To enrich the existing literature, we have conducted 22 semi-structured interviews with Swiss practitioners.

5.1 Theoretical implications

This study makes three main contributions. First, our analysis confirms and further elaborates on the dynamics of barriers across phases and among each other found in previous studies

(Meijer, 2015). In the (1) ‘agenda setting’ and (6) ‘revision’ the ‘insufficient commitment to change’ and ‘lack of strategic perspective and guidance’ are the most often mentioned barriers. These phases require a consensus among relevant actors that there is a need for change, and which change path to follow (Cairney, 2019). In turn, this requires joint strategic perspectives und objectives among actors which if lacking have been found a major barrier in previous studies (Cinar, Trott, & Simms, 2019; Stewart-Weeks & Kastelle, 2015), often amplified by a lack of coherence and continuity of innovation approaches and priorities over time (Lewis & Mikolajczak, 2023). Thus, Swiss PSOs are confronted with specific challenges due to federalism, departmentalism, direct democracy and citizen participation, consensual system, and consociationalism (Singler, 2023). Both in the (2) ‘idea generation, debate, and selection’ and (3) ‘development, design, and testing' the ‘reluctance to connect’ has been found a major barrier in Switzerland. Cooperation is essential in consensual, federalist and departmentalist systems as in Switzerland (Misuraca, et al., 2020), yet equally inherent are huge efforts of coordination and the fear of losing control, autonomy and resources when cooperating (Schedler, Guenduez, & Frischknecht, 2019). Further ‘insufficient room for maneuver’ is an often-mentioned barrier strongly triggered by cultural traits specific to Switzerland such as conflict-avoidance as investigated by Boukamel and Emery (2019). The later in the process the more important accountability becomes because final decisions regarding financing and implementation need to be taken. Therefore, in the (4) ‘promotion and legitimation’ and (5) ‘implementation and sustainment’ the ‘inert and avoiding behavior regarding decision-making and accountability’ occurs as a major barrier. Especially institutional settings like the Swiss one requiring the involvement of a plurality of actors whilst having a highly distributed accountability across state levels and departments (Schedler, Guenduez, & Frischknecht, 2019; Cairney, 2019) accentuate this challenge. Our findings further demonstrate that the barriers are highly interdependent. For instance, a low commitment to innovate may lead to reluctant

investments in innovation-related resources and capabilities and vice versa. These findings enrich conclusions by Cinar et al. (2021) stressing the dynamics of barriers across phases and among each other. D'Este et al.`s (2012) distinction between revealed and deterring barriers provides an additional perspective on these dynamics. The barrier 'insufficient commitment to change' can be classified as deterring barrier, and the other barriers in this study as revealed barriers. As outlined above, our results show that the deterring barrier is influenced by the revealed barriers and vice versa. This finding contributes to the understanding of D'Este et al.'s (2012) conclusion that certain barriers have both deterring and revealed effects.

Second, we found different notions of PSI barriers at the national and regional levels. Even though, the barriers are prevalent at both levels they differ in certain aspects. Those differences originate in the federalist and consociational setting in Switzerland. As a result, the regional level, both cantons and municipalities are more strongly exposed to and dependent on various stakeholders and other PSOs that need to be involved in administrative and political processes (Schedler, Guenduez, & Frischknecht, 2019). Against this background, 'reluctance to connect' is a more critical and outward-oriented barrier to the regional level, whereas the national level perceives the barrier more inward-oriented (i.e., departmental silos). The smaller size of regional governments compared to the national government has ambiguous effects on PSI barriers. On the one hand, due to more restricted financial means, regional governments are stronger affected by insufficient resources, and need to put more emphasis on efficiency gains when legitimating innovations (Misuraca, et al., 2020). On the other hand, less complexity due to smaller size allows for more room to maneuver and reduces "red tape" (OECD, 2019a, p. 25). These findings contribute to PSI literature by analyzing barriers on different state levels, an analytical perspective that has been neglected to date.

Third, our analysis reconfirms the barriers in itself that have been identified in precedent PSI studies such as lack of leadership (e.g., Misuraca, et al., 2020). We enrich these findings by

enhancing the perception of the PSI process resulting in the identification of further phase-specific activities and related incidents of barriers. Most importantly, compared to previous process-oriented studies (e.g., Cinar, Trott, & Simms, 2019; Meijer, 2015) we include the 'agenda setting'. Our findings stress that many innovations already fail in this phase because of the inability to create the required consensus on the need for change and its prioritization as discussed in the policy change literature (Cairney, 2019), a challenge accentuated in institutional settings like the Swiss one. Likewise, barriers in the 'revision' phase have been disregarded to large parts. Our findings emphasize the reluctance to accept a failure (Mulgan & Albury, 2003) as a major barrier in this phase.

While our findings are built upon on Switzerland as an intrinsic case, existing literature supports their relevance from an international perspective. First, the underlying concepts (i.e., policy cycle, PSI process, PSI barriers) have been found applicable for a wide range of countries (Cairney, 2019; Cinar, Trott, & Simms, 2019). Second, many barriers that we have identified were found in other countries as well, such as insufficient leadership commitment (e.g., Park, Cho, & Lee, 2021). However, while supporting the general validity of barriers across countries, previous studies found differences between countries regarding the distribution and relevance of barriers across the PSI process (Cinar, Trott, & Simms, 2021; Misuraca, et al., 2020). These findings imply, for instance, that in majoritarian and centralized countries, 'reluctance to connect' is a relevant but a less important barrier in specific process phases than in consensual and decentralized countries such as Switzerland.

5.2 Implications for practice

Our study provides useable insights for practitioners. First, our study shows which types of barriers are present in each phase of the PSI process. It is crucial to address challenges in each

stage appropriately. Here, our results can provide guidance on which strategies may be appropriate at which stages. For example, our study underscores that many initiatives fail at the 'agenda setting' due to a failure to establish a clear understanding and consensus on the need for change. Based on these insights, more effective communication and engagement strategies can be developed to address concerns at this initial stage. Other strategies may be more appropriate at other stages of innovation as other barriers become more prevalent. Second, our results stress the need in the public sector practice for innovation management with a strategic and long-term perspective as already suggested by Arundel et al. (2019). Based on the PSI process developed, and barriers mapped and investigated in this study practitioners have the means to plan and steer innovations more comprehensively.

5.3 Limitations and future research

We close the study by emphasizing four limitations and avenues for future research. First, future studies should collect and analyze both qualitative and quantitative data to validate the developed barriers and PSI process in other contexts. The study builds upon qualitative data drawn from 22 interviews with practitioners engaged in innovation processes in Switzerland, with specific institutional and economic characteristics (e.g., federalism, consensual system, high income), and chosen by purposive sampling and snowball sampling. As such, our findings are context-bound and subject to limited generalizability (Yin, 2003), and call for a broader representative examination. Similarly, the literature supporting our qualitative analysis is mostly based on qualitative research in OECD countries (Cinar, Trott, & Simms, 2021; Arundel, Bloch, & Ferguson, 2019; De Vries, Tummers, & Bekkers, 2018), a shortcoming researchers recently have started to tackle (e.g., van Der Wal & Demircioglu, 2020). Consequently, there is a need for research that analyze the innovation process and the barriers in contexts that are underrepresented in the literature to date, such as in many African and

Asian countries. Second, our participant sample comprises roles with diverging occupational characteristics that might result in different needs and means for innovation (e.g., politician, CDO). While the goal of this study is to capture a broad range of perspectives, differences between these roles should be explored in future studies. Third, future research might further investigate the dynamics between barriers and across phases. Even though our findings give first insights, more empirical data is necessary to develop a more comprehensive understanding of dynamics. Last, future research can also explore which strategies are effective in overcoming barriers at each innovation stage. These insights will lead to a better understanding of what it takes for PSI to succeed and last.

6 Endnotes

1. Digital Public Services Switzerland is the organization of the Confederation, the cantons, and the municipalities for the expansion of digital government services. It steers, plans, and coordinates the joint e-government activities at the three state levels (Digital Public Services Switzerland, 2023).
2. eOperations Schweiz AG is a company owned by the federal government, the cantons, and certain municipalities with the purpose of facilitating joint IT procurement and service delivery in the e-government area (eOperations Schweiz AG, 2023).

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Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.