

RESEARCH

Public Sector Innovation. What about Hybrid Organizations?

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Public sector innovation has been now widely studied. However, scholars barely consider organizational hybridity as an explanatory variable. Since many public sector organizations are no longer purely public (nor private), organizational hybridity may modify the drivers and processes of innovation. This empirical study, based on a survey, is designed to explore the relationship between organizational hybridity and the characteristics of public sector innovation. While there is no evidence that organizational hybridity affects the frequency and radicality of innovation, our study demonstrates how some dimensions of innovation capacity in the public sector are more or less salient within hybrid organizational settings.

Keywords: innovation; public sector; publicness; hybridity; innovation capacity

L'innovation des organisations publiques est aujourd'hui bien explorée et documentée. En revanche, l'hybridité de ces organisations est rarement prise en considération en tant que variable explicative. Or, de nombreuses organisations du secteur public ne sont plus tout à fait publiques (sans être complètement privées non plus), c'est ce qui est entendu par l'hybridité organisationnelle. Une hybridité susceptible d'impacter les moteurs et les processus d'innovation. Cette étude empirique, basée sur un questionnaire **et conduite en Suisse romande**, analyse la relation entre l'hybridité organisationnelle et les caractéristiques de l'innovation dans le secteur public. Nos résultats suggèrent que l'hybridité organisationnelle n'affecte ni la fréquence ni la radicalité de l'innovation. En revanche, il apparaît que certaines dimensions de ce qui constitue la capacité d'innovation des organisations publiques sont plus développées dans les organisations évoluant dans des contextes organisationnels hybrides.

Mots-clés: innovation; secteur public; publicitude; hybridité; capacité d'innovation

Innovationen im öffentlichen Sektor wurden schon umfassend untersucht. Allerdings betrachten Wissenschaftler organisatorische Hybridität kaum als erklärende Variable. Da viele Organisationen des öffentlichen Sektors nicht mehr rein öffentlich oder rein privat sind, kann die organisatorische Hybridität die Triebkräfte und die Prozesse von Innovation verändern. Diese empirische Studie, die auf einer Umfrage basiert ist, soll den Zusammenhang zwischen organisatorischer Hybridität und den Merkmalen der Innovation im öffentlichen Sektor untersuchen. Obwohl es keine Belege dafür gibt, dass organisatorische Hybridität die Häufigkeit und Radikalität von Innovationen beeinflusst, zeigt unsere Studie, wie einige Dimensionen der Innovationsfähigkeit im öffentlichen Sektor innerhalb hybrider Organisationen beeinflusst sind.

Schlüsselwörter: Innovation; Öffentlicher Sektor; **Öffentlichkeit**; Hybridität; Innovationsfähigkeit

Introduction

This article explores the differences related to innovation between state logic public organizations and hybrid organizations.

Public sector organizations (PSOs) are currently facing unprecedented challenges due to the imperative to tackle complex issues such as poverty, global warming, tax frauds or global security while undergoing budget austerity (de Vries, Bekkers, and Tummers 2016; Laegreid, Roness, and Verhoest 2011). For this reason, PSOs are increasingly enjoined to innovate. Innovation can be defined as the development and implementation processes through which new ideas, objects and practices are created, developed or reinvented, and which are new for the unit of adoption (Cinar, Trott, and Simms 2019).

During the last fifteen years, a considerable body of literature has been devoted to public innovation. Initially, the literature on public innovation did not differentiate innovation in the private or the public sector organizations, based on the assumption that both organization types were relatively similar. However, public innovation has progressively emerged as a field in its own right (Karo and Kattel 2016). Indeed, the main processes, actors, antecedents and outcomes of public innovation are now well described in recent literature reviews (Cinar et al. 2019; de Vries et al. 2016).

Nevertheless, this literature is based on a strict opposition between the public sector and the private sector, thus adopting a dichotomic “black-white” perspective. It therefore does not take into account the increasing grey area between these two spheres, a grey area made up of PSOs which have been more or less transformed during the last decades (Pollitt and Bouckaert 2011), especially under the New Public Management (NPM) trend. We refer to these organizations as the hybrid sector (Emery and Giauque 2014; Rainey 2011). Resulting from profound administrative reforms and liberalization initiatives, most OECD public sectors are massively populated by hybrid organizations nowadays. Hybrid organizations combine the classic features of PSOs—citizen ownership, political control, public value creation, in line with the Weberian model of the PSO—with market logics and their corresponding imperatives—competition, search for efficiency and customer-orientation.

Consequently, public innovation in hybrid organizations is very likely to differ from innovation in pure state logic organizations, particularly regarding their enhanced organizational innovativeness—i.e. the frequency of innovation initiatives – namely, the innovation rate (Arundel, Bloch, and Ferguson 2019), and their innovation capacity (Gieske, van Buuren, and Bekkers 2016).

Unfortunately, scholarly studies barely tackle this issue. The main objective of this article is therefore to investigate the following main research question: How is PSOs' innovativeness associated with organizational hybridity? More specifically:

1. How is PSO innovation rate associated with organizational hybridity?
2. How is PSO innovation capacity associated with organizational hybridity?

Theoretical Background

Organizational hybridity and innovation

Long inspired by the Weberian ideal type (Weber, 1956), PSOs have been faced with the need to perform and to develop a customer-oriented culture without endangering the democratic basis and the legality of their actions (Guay, 1997). In several countries, this transformation process has ultimately led to the privatization of PSOs, notably in Anglo-Saxon states (Kuhlmann, 2010; Ongaro, 2009). Nevertheless, in many cases, we are now witnessing the emergence of new forms of PSO, which have been *modernized* according to the typology of C. Pollitt and Bouckaert (2011), but not privatized. This uneven modernization has turned many PSOs into more or less hybrid as regards their culture, practices and principles, therefore neither completely public nor utterly private. Hybrid PSOs have been the subject of a growing body of literature. Trying to define the concept of organizational hybridity, many authors of this scholarly stream have mobilized the concept of *post-bureaucracy* (Olsen, 2006), others the *neo-Weberian state* (Christopher Pollitt & Bouckaert, 2004), and others again the *new public service* (Denhardt & Denhardt, 2003), *Public Value Management* (Stoker, 2006) or *New Public Governance* (S. P. Osborne, 2006). In the Swiss context, examples of Hybrid PSOs encompass either autonomous entities, such as the Geneva Airport, or state-owned limited companies under public law (e.g., the Swiss Federal Railways and the Swiss Post) or private law (e.g., the air navigation service provider Skyguide). A clear divide here, between these State-Owned Enterprises (SOE) and PSOs is the importance of public intervention in the modalities of public service provision, namely designing, building, financing, operating, and ownership of the infrastructure (Athias, Macina, & Wicht, 2019). Note that beneath this spectrum lie the three pillars of dimensional publicness: ownership, funding, and control (Andrews, Boyne, & Walker, 2011).

Thus, following the introduction of values and methods typically used by private companies in highly competitive environments, PSOs have been deeply transformed, even if such transformations have not always been successful (Giauque & Emery 2016a).

At the origin of the NPM movement, several pro-reform authors claimed that an entrepreneurial spirit was needed within the public sector (Hood, 1991; Schedler, 1995) in order to “let the managers manage” and improve PSOs’ capacity to address the (new) challenges of the society. Concerning the impacts of such changes on the innovation capacity of PSOs, we are left with speculation, since almost no research has been conducted on this topic (Fuglsang & Møller, 2014; Jay, 2013; Vickers, Lyon, Sepulveda, & McMullin, 2017).

In the same vein, there are many arguments supporting the hypothesis of a positive relationship between hybrid PSOs (i.e. classic PSOs with entrepreneurial ways of functioning) and innovation rate and innovation capacities. Indeed, innovation capacity might well be an offspring of the managerial mutations in the public sector, of which the most relevant are summarized below.

The first of such mutations is the attempt to modify the typical legally-bounded and rule-oriented culture of the PSO by introducing new values such as customer orientation, quality and cost consciousness, responsiveness, entrepreneurship and accountability. All these values may affect the degree of bureaucratisation and lead to behavioural changes in public employees and managers, leading them to be more proactive, less rule-oriented, while being motivated to deliver better services to citizens (Newnham, 2018; Thom & Ritz, 2013).

Secondly, the NPM movement has placed an important emphasis on outputs and greater room for manoeuvre for public managers so as to reach specific objectives settled by politicians. In fact, managerial and operational flexibility was one of the pivotal ideas of the NPM movement, guided by the reasoning that public managers were in a better position (compared to the political layer) to know how to optimize their businesses. Consequently, autonomy and leeway granted to public sector managers may be positively related to these managers’ innovation-oriented behaviours (Giauque & Emery 2016b; Hablützel, 2013).

A third change is the strong effort/investment in public managers’ training and development, aimed at boosting their leadership capacities in most OECD administrations. In particular, a transformational leadership style (Moynihan & Van Wart, 2013; Pieterse, Van Knippenberg, Schippers, & Stam, 2010), instead of the classic “command and control” leadership, may positively influence the innovation-oriented behaviours of both public managers and their subordinates (Lewis, Ricard, & Klijn, 2018).

Flattening the organizational structures and creating semi-autonomous units with dedicated budgets to reach predetermined objectives has also gained impetus during recent decades. These typical features of reformed public agencies have been the subject of many research projects (Arundel, Casali, & Hollanders, 2015; Laegreid, Roness, & Verhoest, 2011), a trend frequently associated with an increase in the competition between public services providers, which in turn may also positively influence innovation in hybrid PSOs.

A further change lies in the attempts made so far by public administration reformers to streamline and introduce more flexibility in the core processes of PSOs, simplify the business of citizens, shorten processes’ duration and reduce the number of requested documents. In other words, the aim is to limit the red tape and bureaucratic layer, likely to dampen any innovation process (Bakici, Almirall, & Wareham, 2013).

In the same vein, the introduction of reward systems in many countries may stimulate public managers and employees at all levels to increase their contribution to the missions of their organization and their dedication to their customers. Consequently, they may be more receptive to innovation, or even stimulated to pro-actively contribute therein (Ceylan, 2013).

In addition, the emergence of new technologies and their massive implementation in PSOs in almost every country under the banner of digitalization (Dunleavy, Margetts, Bastow, & Tinkler, 2005) may contribute to boost innovation (capacity) within the public sector.

Finally, post-NPM approaches inspired by the *new public governance* movement underlining, among other things, the necessity to develop networks with different categories of stakeholders, and involve them -notably their customers or clients- in strategic and operational decision processes (Lewis et al., 2018). Also, the introduction of less hierarchical and more horizontal ways of functioning, the increase of participating actors and the densification of their interactions, both inside and outside the organization, are all factors inclined to influence innovation in PSOs positively.

Of course, many other arguments could have been mobilized to support our main hypothesis that the hybridity of PSOs may be positively associated with innovation. Because hybridity results from the coexistence of different logics, values and practices, emanating from both the public and the private sector, politicians, public managers and public employees have to find innovative ways to combine these potentially contradictory elements (Vickers et al. 2017). This is echoed in institutional theories insofar as

organizations are deemed to evolve via their capacity to satisfy complex and paradoxical needs creatively. For instance, the state logic may place more emphasis on systemic challenges and public value creation (Moore 2014), while the market perspective may rest on commercial opportunities, financial efficiency and their related operational requirements. These tensions are themselves an important source for the development of individual and collective innovation capacities.

Innovation rate and innovation capacity of PSOs

Innovativeness—i.e. the organizational propensity to generate innovation—has barely been conceptualized. Nevertheless, bodies of literature exist on both the frequency with which a PSO innovates (innovation rate) and the collective capacity to innovate in PSOs (innovation capacity).

The innovation rate is used in many studies concerned with measuring (i.e. quantifying) innovation output in the public sector (Arundel et al. 2016; EC 2010). Based on the management literature, at least five types of public innovation can be distinguished: product innovations, process innovations, organizational innovations, conceptual innovations and marketing innovations (Walker 2014). The innovation rate usually refers to the proportion of public sector organizations which have initiated or implemented at least one type of innovation during the last two years. Studies on public innovation measurement worldwide usually show an innovation rate of between 70 per cent and 90 per cent, which is surprisingly high in comparison to the private sector (Arundel et al. 2016; EC 2010). Although the innovation rate of one country's public organizations is difficult to interpret, this rate offers an easy threshold for comparing different sectors within this country.

However, these high rates can be biased, since they do not distinguish radical from incremental innovations. Although incremental innovation is often considered as innovation (Bugge and Bloch 2016), it is difficult to distinguish it from the concepts of change or (continuous) improvement. Consequently, some authors argue that innovation must be intrinsically radical (Osborne and Brown 2013). Therefore, the innovation rate measurement should be adapted to capture only innovation—i.e. only radically new practices that amount to a discontinuity with the past.

Because managers in Hybrid PSOs enjoy increased leeway than their traditional public sector counterparts, and because hybrid organizations reduce the degree of bureaucratisation and provide flexibility, autonomy and a favourable setting for building up an entrepreneurial ethos, the innovation rate should, *ceteris paribus*, increase with organizational hybridity. That said, it is also plausible that the personal characteristics of managers themselves, such as their level of education, previous experience in the private sector, and attitudes to risk, or else their workforce experience with innovation, may reinforce an organization's innovation rate (Boyne, Gould-Williams, Law, & Walker, 2005; Damanpour & Schneider, 2006). In the absence of data on the above-mentioned variables, the following hypothesis should be considered with the related precautions:

H1: Organizational hybridity is positively associated with the innovation rate of a PSO.

Elsewhere, public sector innovativeness also refers to organizational innovation capacity. Innovation capacity is defined as an organizational capacity (also labelled “capability” or “capabilities” in the literature) whose specific outcome is innovation (Andrews, Beynon, & McDermott, 2015). Organizational capacities are ‘socially complex routines that determine the efficiency with which firms physically transform inputs into outputs’ (Collis, 1994, p. 145).

From a theoretical perspective, comprehensive frameworks of innovation capacity for public sector organizations have been scarce so far in the management scholarship. The existing studies scrutinize specific aspects of innovation capacity, such as collaboration (Sorensen & Torfing, 2016), leadership and networks (Lewis et al., 2018), technological capacity (Lember, Kattel, & Tõnurist, 2018), inter-organizational learning (Hartley & Rashman, 2018) or institutional culture (Boukamel & Emery, 2018).

Among the few papers directly addressing the concept of innovation capacity in the public sector, two approaches can be distinguished:

- On the one hand, innovation capacity is perceived as a unidimensional concept. This conception is particularly active in studies considering public innovation capacity according to the dynamic capability framework (Choi & Chandler, 2015; Maijanen & Jantunen, 2016; Piening, 2013) or with an organizational ambidexterity lens (Boukamel & Emery, 2017).
- On the other hand, scholars also consider innovation capacity a multi-dimensional concept. This is notably the case for Gieske, van Buuren, and Bekkers (2016), which proposes an integrative

framework. Indeed, the authors consider innovation capacity a multi-level (implying individuals, organizations and networks) and a multi-faceted concept. The facets include, firstly, connective capacity to establish and maintain connections between different contents and actors; secondly, ambidextrous capacity to balance exploitation and exploration activities; and, finally, learning capacity to create, acquire, combine, code and apply knowledge and to adapt organizational routines accordingly.

To put it concisely, PSOs are bound to innovate in their endeavour to make sense of their ongoing hybridity. It should be noted that in many cases, external factors such as citizen demand for service innovations, as well as the involvement of customers or end-users in the co-creation of service innovations have been found to support PSOs' innovation capacities (Hartley, Sorensen, & Torfing, 2013; Svensson & Hartmann, 2018). Population or public service customers' participation has not been measured as such in the current study. Yet, we can reasonably assume that this is more so in Hybrid PSOs (comparatively to state logic PSOs) since they may show a higher sensibility to public scrutiny, and feedback on their performances, based on NPM principles.

This drives us to our second hypothesis:

H2: Organizational hybridity is positively associated with the innovation capacity of a PSO.

The two above-mentioned conceptualization of innovation capacity are interrelated. The innovation capacity in PSOs is often considered an antecedent of innovation output. A PSO can innovate using its capacity to do so. However, innovation outputs are also possible without capacity. For instance, innovation may be the consequence of an external pressure (e.g. political) that forces an organization to change its practices or functioning radically based on an innovation developed in another context (Andersen & Jakobsen, 2018). Innovation can also be developed through outsourcing to labs or consulting experts without any internal capacity to innovate.

Therefore, innovation is also possible without innovation capacity; however, many scholars suggest that this does not lead to the same quality of innovation. Firstly, thanks to their innovation capacities, PSOs will be more able to seize every opportunity to innovate in relation to their effective needs (Bryson, Ackermann, & Eden, 2007): consequently, a PSO is less likely to innovate solely because innovation sounds good (Berkun, 2010). Innovation capacity will thus lead to innovations that are more relevant to the context of their emergence. Secondly, the actors of an organization will be more receptive to an innovation if they can contribute to its realization. Thus, a PSO innovating by itself (instead of outsourcing) will probably generate more legitimate innovations developed by committed employees. Thirdly, internal capacities, such as learning or feedback capacities, have been shown to generate more sustainable innovations (van Acker & Bouckaert, 2018). Without their innovation capacity, PSOs will probably produce short-sighted innovations.

Finally, since innovation capacity leads to in-house innovations, notably with internal collaborations, it may enhance organizational learning—learning how to innovate by innovating (Piening, 2013)—which is hardly possible when innovation is totally outsourced.

Although the positive effects of innovation capacity on innovation output quality are still to be empirically proved, many authors consider the innovation capacity of PSOs an asset for producing the expected public values (Farazmand, 2009; Gieske et al., 2016; Meijer, 2018; Moore & Hartley, 2008).

Method

Sample and procedure

To address our research questions, we collected data from a recent survey targeting public sector top managers (N = 147, response rate 13%) in Switzerland. In concrete terms, all the managers of the 7 French-speaking cantons (Jura, Neuchâtel, Vaud, Geneva, Bern, Fribourg and Valais), and also those of large French-speaking municipalities were approached, according to the availability of their email address. Note that the case collection was not carried on industry or sector wise. The responding organizations were in fact considered as either Classic PSOs or Hybrid PSOs afterwards. While being interesting in terms of spatial coverage, this purposive selection obviously precludes potentially useful data from the German speaking regions of Switzerland. In consequence, our study may have some representativeness issues.

The contacted top managers are all directly subordinated to the political (executive) level, and are in charge of managing different units at different levels of the state. Due to the federalist structure of the country, and the managerial independency of each public organization (see, for example, Ladner, Soguel,

Emery, Weerts, and **nahrath** (2019), our final sample is composed of a rich variety of more or less hybrid organizations, without being, as such, representative of the Swiss public sector.

The questionnaire was elaborated by capitalizing on previous innovation surveys in the public sector (Gallouj & Zanfei, 2013; Gallup, 2011), and covers such topics as drivers and barriers, processes and actors of innovation. Specific hypotheses were defined and statistically tested, all inspired by the same overall hypothesis: that innovation characteristics of hybrid PSOs are notably different between state logic and market logic organizations.

Measures

Dependent Variable 1: Innovation Rates

We relied on the existent measures of innovation rate (Arundel, Bloch, & Ferguson, 2019), focusing on the organization unit managed by the respondent. An exemplary question about the innovation rate was: *'Did your unit have an innovation during the last two years?'* Consequently, innovation rate here is a self-rated variable, based on the provided definition of innovation (see above). To evaluate innovation radicality, we asked respondents to focus on the main innovation (in terms of impact) implemented within their unit implemented the last two years. Then we asked whether this innovation was meant to *'replace or improve an existing service, product or process'* or *'create an entirely new service, product or process'*. Note that the number of observations is lower for the radicality item, comparatively to the innovation rate item, because only respondents who had answered yes to the innovation rate question were allowed to answer the radicality question.

Dependent Variable 2: Innovation Capacity

As mentioned before, public innovation capacity measurement scales are scarce. Based on the literature on innovation capacity (Gieske et al., 2016; Meijer, 2018), we included a number of items in our survey. However, these two studies, from which our items stem, do not include some important potential dimensions of innovation capacity, such as risk (Stephen Osborne, Brandsen, Mele, Nemec, & Flemig, 2019), leadership (Miao, Newman, Schwarz, & Cooper, 2018) or technology (Lember et al., 2018). Consequently, we added items related to these dimensions. This gave us a body of ten questions around the innovation capacity of each respondent's unit that we built based on a literature review. The questions and their sources of inspiration are indicated in **Table 1**. All ten items were evaluated on a Likert scale ranging from one (totally disagree) to four (totally agree), with a 'not relevant' option.

As previously stated in the literature section, public innovation capacity is inconsistently conceptualized as a multi-dimensional or unidimensional construct. In this article, we test our hypotheses with both models: in a first model, we aggregated all the items in one variable following the unidimensional conception of innovation capacity. The Cronbach's alpha for the unidimensional scale is 0.892. In a second model, a factor analysis (principal component analysis) was conducted in order to get the specific dimensions of innovation capacity and ascertain that the resulting variables have construct validity. We therefore used a Varimax rotation with Kaiser normalization method. The Kaiser-Meyer-Olkin test yielded a score of 0.883. The results of the factor analysis are reported in **Table 1** below.

Table 2 also shows the ten items loading onto the two factors resulting from the analysis. By deleting a few items due to low or incorrect factor loadings, these two components explain 68.77 per cent of the variance. The two factors retrieved by exploratory factor analysis seem to distinguish two complementary organizational capacities. The first can be perceived as an internal capacity to innovate (we called it "entrepreneurial"). The second is externally oriented (we called it "connection capacity") and echoes previous work on innovation capacity models (Boukamel, Emery, & Gieske, 2019; Gieske et al., 2016).

Independent variable: organizational hybridity

There is hardly any acknowledged measurement scale (or even framework) for organizational hybridity *per se*. It was therefore useful to resort to the literature on organizational publicness to make up a construct of organizational hybridity. This construct combines features of political, economic, public outreach and value-oriented publicness (Kouadio, 2019; Rainey, 2011). Besides, a robust strategy involves a large and representative array of public employees from many different organizational types. Ideally, these employees are located in the same industrial activities/sectors with varying levels of publicness (Rainey, 2011). However, this strategy requires resources that are not always at the disposal of researchers, let alone the difficulties related to being able to secure high response rates. The interested reader may want to read the related work by Rainey (2011) on the challenges in the literature posed by mobilizing multiple strategies to evaluate organizational publicness.

Table 1: Items, sources and factor analysis of innovation capacity.

Items ('Do you agree with the following assertions: the teams in your unit...')	Items taken from or inspired by	Component 1 <i>Entrepreneurial capacity</i> [56.87%]	Component 2 <i>Connection capacity</i> [11.91%]
Have critical reflections on their routines	(Bontis, Crossan, & Hulland, 2002; Gieske, van Meerkerk, & van Buuren, 2018; Hildén et al., 2014)	0.699	0.357
Are able to innovate despite the constraints of their usual mission	(Bass, Avolio, Jung, & Berson, 2003; De Hoogh, Den Hartog, & Koopman, 2004; Gieske et al., 2018)	0.861	0.253
Propose ideas which imply risks	Brown and Osborne (2013); Flemig, Osborne, and Kinder (2016); Townsend (2013)	0.809	0.241
Are easy with uncertainty	(Brown & Osborne, 2013; Flemig, Osborne, & Kinder, 2016; Townsend, 2013)	0.805	0.167
Encourage each other to innovate	(Fernandez & Moldogaziev, 2013; Lewis et al., 2018)	0.870	0.152
Rely on innovation leaders from every hierarchical level	(Fernandez & Moldogaziev, 2013; Lewis et al., 2018)	0.699	0.181
Easily adapt to technological changes	(Lember et al., 2018)	0.708	0.436
Build and maintain sustainable relations with other organizations	(Gieske et al., 2018; Hildén et al., 2014; Van Meerkerk & Edelenbos, 2014)	0.135	0.869
Build and maintain sustainable relations with other services from the same organization	(Gieske et al., 2018; Hildén et al., 2014; Van Meerkerk & Edelenbos, 2014)	0.238	0.858
Get informed about new technologies	(Lember et al., 2018)	0.471	0.533

Table 2: Hybridity as per sector of activity.

Sector	Hybridity index	Clustering	N
Justice and security	1	State logic	38
Foreign affairs, diplomacy and defence	1	State logic	
Spatial planning and environment	1.44	State logic	
Agriculture and forest policies	1.44	State logic	
Road infrastructure, construction and transport	1.67	State logic	
Employment policy	1.78	Not clustered	58
Early childhood and youth policy	1.89	Not clustered	
Health and social policies	2.56	Not clustered	
Education and research	2.67	Hybrid	51
Cultural policies	2.78	Hybrid	
Energy	2.89	Hybrid	
Economic policy	2.89	Hybrid	
Sport	3.22	Hybrid	

For the purposes of this paper, we did not collect organization level data to assess hybridity in each investigated organization. Rather, our evaluation relies on the hybridity of our respondents' sector of activity. Using a five-point Likert scale, the three research team members individually estimated each sector's hybridity regarding the following three criteria: public funding commitment, competitive pressure and

universal public value goals, all in the Swiss context (zero: complete state logic, five: complete market logic). Subsequently, each sector was collocated with a hybridity index formed by the mean of the three estimated criteria. **Table 2** shows the results following the assessment of organizational hybridity for our sample. Knowing that this is a subjective assessment, to avoid including questionable data we did not consider the “fuzzy” sectors (which are neither clearly hybrid nor state logic sectors). Finally, we produced a dichotomous variable with five state logic sectors (N = 38) and five hybrid sectors (N = 51).

Data analysis

We compared the two groups of organizations (hybrid versus state logic) regarding their respective means of: (1) innovation output (innovation rate and innovation radicality), (2) innovation capacity as a unidimensional concept, and (3) innovation capacity as a multi-dimensional concept (based on the two factors defined by the factor analysis). Specifically, we mobilized the unpaired t-test to test the statistical significance of the mean differences.

Findings

The results are presented in **Table 3**.

Innovation output

The survey results show that the innovation rate is high in both groups (84% for the state logic PSOs and 96% for the hybrid ones). Respondents in both groups consider their organization innovative. It is noteworthy that these rates are similar to rates found in countries other than Switzerland, confirming the rate found at the European public sector level, between 60 per cent and 90 per cent (Arundel, Bowen Butchart, Gatenby-Clark, & Goedegebuure, 2016; Arundel & Huber, 2013; Commission, 2010).

However, these high innovation rates must be put into perspective with the innovation radicality filter, which showed that only a low rate of respondents who declared innovation (11% of 84% in state logic organizations, 27% of 96% in hybrid organizations) also reported having introduced a radical innovation. This result suggests that many respondents consider improvement to be innovation despite various authors' endeavours to differentiate the two concepts (Stephen Osborne et al., 2019; S. Osborne & Brown, 2013).

The results show no significant difference between state logic and hybrid organizations regarding either the innovation rate or the innovation radicality. In other words, hybrid organizations do not innovate more frequently or more radically than their state logic counterparts. This result does not support Hypothesis 1.

Innovation capacity

The results also show that hybrid organizations have a higher innovation capacity than state logic organizations when innovation capacity is considered as a unidimensional concept. It is noteworthy to retain that the absolute means could not be interpreted per se, as what we use here is an exploratory measure of innovation capacity, and so hardly comparable to any existing benchmark.

Table 3: Differences between state logic and hybrid organizations regarding innovation output and innovation capacity. Note: Unpaired t-test indicates statistical difference between means: *p > 0.05.

	State logi organizations (obs = 38)		Hybrid organizations (obs = 51)		t-Test
	Mean	s.d.	Mean	s.d.	
Innovation output (0 to 1)					
Innovation rate (n = 89)	0.84	-0.37	0.96	-0.196	0.078
Innovation radicality (n = 73)	0.11	-0.315	0.27	-0.447	0.079
Innovation capacity (1 to 4)					
One block concept (n = 89)	2.56	-0.669	2.83	-0.501	.032*
Multidimensional concept – entrepreneurial dimension (n = 89)	2.38	-0.682	2.76	-0.584	.006*
Multidimensional concept – connection dimension (n = 89)	2.95	-0.77	2.98	-0.517	0.819

The splitting of innovation capacity into two complementary concepts shows that whereas hybrid organizations exhibit a significantly better entrepreneurial dimension than state logic organizations, we do not find any statistical difference between the two groups regarding the connection dimension. For these reasons, we consider Hypothesis 2 partially confirmed.

Discussion

This article has examined whether PSOs' innovativeness is associated with organizational hybridity. It has offered an empirical analysis, showing that while the hybrid and state logic sectors are alike regarding innovation outputs, they can somewhat differ vis-à-vis innovation capacity. More specifically, we have demonstrated that hybrid organizations are more innovative regarding their entrepreneurial capacity. Conversely, they have no assets vis-à-vis their connection capacity.

Our results have several theoretical and practical implications.

Theoretical implications

First of all, our findings show that hybrid organizations do not innovate either more frequently or more radically than their state logic counterparts (or at least, the surveyed managers report that they do not innovate less frequently). Even if the innovation rate cannot be interpreted as an objective measure of innovation (because self-reported and thus dependent on the respondent's perception), it appears as relatively high in both groups. This suggests that it is probably not that the hybrid organizations innovate as little as state logic organizations, but rather that the state logic organizations innovate as much as the hybrid organizations. This is a counter-intuitive result, since many studies suggest that the flexibility and autonomy granted to employees and managers in hybrid organizations could lead to an acceleration of innovation (Emery & Giauque, 2016; Lægreid, Roness, & Verhoest, 2011).

Because managers enjoy increased leeway in the public sector, and because hybrid organizations provide the setting to build up an entrepreneurial ethos for public employees, the innovation rate is expected to increase with organizational hybridity. Furthermore, the bureaucratic structure and red tape of state logic organizations (Bakici et al., 2013) seem not to impede them in their innovation efforts. In brief, the explaining power of hybridity in relation to innovation seems to be limited.

Had we limited our study to the innovation output, we could have concluded that there is no relevance in distinguishing innovation between hybrid and state logic organizations. However, we extended the analysis to the innovation capacity of both types of organization. The results show that innovation capacity is differently distributed between the two groups. Indeed, hybrid organizations have a higher innovation capacity. When splitting the concept of innovation capacity into two parts, the entrepreneurial and the connection capacities, we observe that this superiority is mainly due to what we have called hybrid organizations' higher entrepreneurial capacity. This entrepreneurial asset of hybrid organizations reflects the spirit of more than two decades of NPM-like reforms in the public sector in Switzerland (Delley, 1994; Thom & Ritz, 2013). These reforms emphasized the need for increased leeway for public managers (Giauque & Emery 2016b; Hablützel, 2013), the empowerment of organizational structures (Arundel et al., 2015; Laegreid et al., 2011) and a transformational leadership style instead of command and control (Moynihan & Van Wart, 2013; Pieterse et al., 2010). This entrepreneurial spirit, born with NPM, seems deeply to differentiate hybrid from state logic organizations.

In contrast, our results reveal that the connection capacity is not higher in hybrid organizations. This is an interesting finding if we consider that hybrid organizations, resulting from both NPM and post-NPM transformation of the public sector, are supposed to increasingly involve stakeholders in their functioning, and more generally foster connection and collaboration with external actors (Lewis et al., 2018).

Putting all these findings together, our results reveal a paradox: state logic and hybrid organizations produce innovation (output) equally, but hybrids have a higher innovation capacity. This enables us to consider three possible explanations.

Firstly, we can assume that while innovation exists similarly in both types of organization, it is developed through different mechanisms. Specifically, innovation in hybrid organizations may be made possible by internal innovation capacities. Conversely, in state logic organizations, where these internal capacities are claimed to be less developed, innovation could be the result of external pressures, or even external capacities. Andersen and Jakobsen (2018), for instance, have shown that external pressures coming from the surrounding environment can originate from the political level, thus forcing organizations to innovate. Our findings may be a basis for extending their study by calling for new investigations into the role of political pressures in public innovation. In particular, this future research could focus on hybrid organizations, which

are supposed to be less vulnerable to political pressures, thus being in a favourable position to innovate, given their enhanced internal capacities.

If innovation in hybrid organizations is particularly driven by their internal capacities, it could also be assumed that state logic organizations develop more external capacities, as manifested in the outsourcing of some of their activities. In that case, they might innovate as frequently as hybrid organizations, yet with a lower quality—that is, less relevant for the context, less sustainable, allowing less chance for organizational learning, and therefore producing less public value than hybrid organizations' innovations (Farazmand, 2009; Gieske et al., 2016; Meijer, 2018; Moore & Hartley, 2008; Piening, 2013). The assumption that state logic organizations are more prompt in outsourcing innovations might be supported by their possibly high connection capacities. Obviously, our assumptions on the different ways both types of organization innovate demand further analyses.

A second explanation pertains to the better innovation capacity in hybrid organizations with a similar innovation output level (rate). This can be explained by the time lapse between the development of organizational innovation capacity and its resulting in innovation *per se*. In short, hybrid organizations' innovation capacity might be recent (linked to the NPM and post-NPM eras). It follows that these capacities may not have developed enough to drive innovation effectively. Unfortunately, our cross-sectional data cannot provide give any clue to this question.

Finally, the third explanation is related to the possibility of a given organization scoring high on an innovation capacity index yet not using or activating innovation effectively. This can be explained by the fact that innovation capacity *per se* does not lead to innovation. In other words, innovation capacity is an organizational capacity that can be owned but not always be activated. Similar to the literature dealing with individual capacities, it has been demonstrated that capacities must be activated through the corresponding motivations and opportunities to perform (Boselie, Dietz, & Boon, 2005; Guest, 2011).

Current conceptualizations of public innovation capacity seldom relate innovation outputs and organizational outcomes, let alone the reasons that an innovation capacity may be activated. This article also contributes to the current development in PSO innovation capacity theory (Boukamel et al., 2019; Gieske et al., 2016), firstly because we propose a series of ten items to empirically measure innovation capacity, thus exploring further the conceptual validity of innovation capacity, despite the exploratory nature of our study. And secondly, we suggest that innovation capacity can reliably be defined as a multidimensional concept. Accordingly, our analyses reveal an innovation capacity concept with two dimensions (i.e. entrepreneurial and connection capacities). The connection capacity is also identified in several recent papers (Boukamel, Emery, & Gieske, 2019; Gieske et al., 2016).

Practical implications

It follows from our findings and their discussion that public managers and employees must understand that the word “innovation” is often used in reference to incremental change and improvements, not always radical ones. In fact, incremental innovation may be more pervasive in the public sector compared to radical innovation, especially in Switzerland. While both types of innovation should be taken more seriously, public practitioners should not implement any innovation without a clearly identifiable goal—namely, an intention to create public value. Consequently, public managers are encouraged to develop their organizations' innovation capacity instead of fueling any given innovation project.

Another practical implication of the current study is that, with a better understanding now of how a hybrid setting might impact innovation processes, public managers and employees need to address innovation differently according to the degree of hybridity of their organization. For instance, in a more hybrid context, managers may be prone to rely on the organization's internal capacities. It follows that in state logic organizations, practitioners should be aware that innovation probably results from external pressure, which calls for a high connection capacity to be maintained.

Besides, PSOs' innovation capacity seems to be more developed in hybrid settings. This means that public managers and employees should reduce their efforts to develop further the innovation capacities of their organizations: they may better concentrate on the factors which activate this capacity, as well as on the effects for the public service delivery, when innovations become more frequent and are of high quality.

Limitations and future research avenues

Like most scholarly research, our study suffers from a number of limitations, some of them more or less unavoidable given the exploratory approach adopted here. Our first limitation is related to the fact that we use a self-reported measure of the investigated organizations' innovation capacity, whereas objective

instruments could have been more pertinent. Self-reported measures are known to be fraught with social desirability bias. However, our respondents were in a privileged position to acquaint us with what really happens in their organizations.

Moreover, the hybridity scale mobilized here, which is based on triangulation of the authors' perceptions of the hybridity of the activity fields of our respondents, may need further refinement. We could, for instance, use a scale based on how the public managers and their subordinates really feel about that hybridity—i.e. a perceptual dimension of hybridity.

Finally, our respondents belong exclusively to the managerial levels of the surveyed organizations. If we plan to extend the external validity of our findings, it may be useful to include other stakeholder ranks in subsequent studies.

Despite the above-mentioned limitations, the findings of this study offer important insights on the relationship between organizational hybridity and innovation capacity in the public sector.

Competing Interests

[[COMPETING INTEREST STATEMENT TO BE PROVIDED]]

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