Fostering innovation through collaboration: A comparison of collaborative approaches to policy design

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Abstract

Wicked problems have forced policymakers to develop new strategies for policy design that deal better with complexity. Both cross-sectoral and multi-actor collaboration are presented by collaborative governance advocates as potential solutions. Nevertheless, even if both approaches have been theoretically linked to policy innovation, there is little empirical evidence to support those relationships and none that compare the innovative potential of different collaborative approaches. Using regression analysis, we analysed 529 policy strategies promoted by the Barcelona City Council as part of the *Pla de Barris* strategy to identify whose participation in policy design is more meaningful in terms of innovation. Within the public sector, both collaborative government and cross-sectoral collaboration appear to be related with policy innovation. However, when non-public actors —in particular, third-sector organisations— get involved in the policy design process (through co-creation), the innovative potential of the policy output increases significantly.

Key words: policy innovation, collaborative governance, collaborative innovation, policy design, complexity, wicked problems.

Introduction

In a context where societal problems are characterized by being “wicked” (Geyer & Rihani, 2010; Wagenaar, 2007) and governments’ power is increasingly fragmented and distributed (Rhodes, 2007), policy innovation—defined as new objectives, instrument and assessment tools that disrupt the common wisdom and established practice in a particular context in order to provide more effective solutions (Torfing, 2016)—has become an imperative. Policymakers need to come up with new policy strategies of intervention that deal better with complexity. Additionally, citizens are not only demanding to have more voice in decision-making processes but also have raised their expectations of governments’ actions (Bentzen et al., 2020). As a consequence, even if systematically exploring new directions for better policies and services is not something public administrations usually spend their time on (Bason, 2018), public managers are forced to renew their approaches and tools for policy design (Bason, 2017; Bourgon, 2011; Head, 2022).

In their own way, both Weberian bureaucracy and New Public Management have emphasised a culture of hyper-specialisation (B. Crosby et al., 2016a; Wagenaar, 2007). Nevertheless, today’s societal problems cannot be broken down into parts and solved by a single public organisation (Bason, 2010; Doz & Koskonen, 2014). Advocates of a paradigm shift towards networked or collaborative governance (Ansell & Torfing, 2014; Bingham et al., 2005; Emerson et al., 2012; Hartley, 2005; Osborne, 2006; Paquet, 2009) argue that addressing wicked problems requires collaboration among multiple actors. Incorporating diverse perspectives into the policy process is believed to stimulate creativity and generate synergistic results that would be impossible for those same actors to achieve on their own (Bason, 2010, 2017; Straus, 2002; Torfing, 2016). And that is why multi-actor collaboration is said to stimulate public innovation in general (Bason, 2010; Torfing, 2016), and particularly policy innovation.

Nevertheless, even if the relationship between collaboration and policy innovation has caught a lot of attention recently around the concept of "collaborative innovation" (B. Crosby et al., 2016b; Hartley et al., 2013; Nambisan, 2008; Sørensen & Torfing, 2011; Torfing, 2016), most of the contributions have been theoretical. Furthermore, among the few empirical ones (Bommert, 2010; Krogh & Torfing, 2015; Newman et al., 2001; Torfing, Krogh, et al., 2020), none compares the innovative potential of different collaborative arrangements —understood as different combinations of policy actors— in order to understand whose collaboration in the policy design process is more meaningful in terms of innovation. Consequently, it is difficult to offer policymakers specific advice on how to handle policy design from a collaborative approach.

In this article, we analyse the actors involved in designing 529 policy strategies promoted by the Barcelona City Council under *Pla de Barris* initiative. The goal is to determine whether some collaborative arrangements are more likely to result in policy innovation and identify which ones. Using regression analysis, we compare the innovative potential of these arrangements and complement existing qualitative evidence on collaborative innovation.

Results, first, corroborate that policy design processes involving several actors —whether public or non-public— are more likely to result in policy innovation than those involving a single specialized public actor. Both cross-sectoral collaboration and collaborative government appear to be powerful approaches to foster policy innovation within the public sector, without needing to open the policy design process to non-public policy actors. Nevertheless, when some of those non-public actors get involved, the innovative potential of the policy output increases significantly. Hence, with our research we hope to influence policymakers who are looking for new and better solutions to societal problems in the management of policy design processes.

Dealing with complexity from a collaborative approach

Since Rittel and Webber (1973) argued that technocratic approaches were no longer adequate to tackle some issues of social policy, a lot of attention has been paid to characterising societal problems and understanding this new and complex context. The proliferation of theoretical and empirical studies about “wicked problems” —understood as ill-defined problems, that cannot be definitively solved since they are dependent on “elusive political judgment for resolution” (Rittel & Webber, 1973:160)— evidences a general concern about complexity, as well as a need for new approaches to policymaking.

Linear and standardised procedures are no longer useful to answer most societal problems (Head, 2022). The cross-cutting character of wicked problems directly challenges the simplistic sectoral approach that has characterised public sector bureaucracy (B. Crosby et al., 2016a), even after New Public Management (NPM) reforms (Wagenaar, 2007). In fact, “the strong focus of NPM on managerialism, budget discipline, performance targets and the use of conditionals rewards” seems to have strengthened administrative silos (Torfing et al., 2020:128). However, wicked problems cannot be broken down into component parts; they demand to be analysed holistically and they require cross-sectoral solutions (Agranoff, Robert, 2003; Weber & Khademian, 2008), since in complex systems, the whole exhibits properties that cannot be explained by understanding its parts separately (Kauffman, 1995 cited in Wagenaar, 2007).

Therefore, public managers and policymakers are forced to renew their approaches and tools (Bason, 2017; Bourgon, 2011; Head, 2022). Policy design —defined as the effort to develop effective policies through the application of knowledge about policy means (Howlett, 2014) —requires considering a broader range of contingencies and interrelated factors. This complexity compels decision-makers and public managers to work unitedly, rather than from disciplinary silos (Doz & Koskonen, 2014). Addressing problems comprehensively calls for a kaleidoscopic perspective (Kanter, 1988). This is why

proponents of a paradigm shift in public management, toward what has been called networked governance (Hartley, 2005), collaborative governance (Ansell & Torfing, 2014; Emerson et al., 2012; Paquet, 2009), or new public governance (Bingham et al., 2005; Osborne, 2006), argue that past reforms failed to translate organisational and procedural innovations into policy innovation (Fung & Wright, 2003; Torfing, 2016).

Innovation is defined as the development of "new and creative ideas that disrupt the common wisdom and established practice in a particular context in order to provide more effective solutions" (Torfing et al., 2020:399, citing Torfing, 2016). However, when focusing on the public sector, Torfing (2016) distinguishes between product, service, process, organisational, governance, policy and discourse innovations. A seven-categories typology that he proposes to collapse into three broader ones, since in practice they tend to overlap: service innovation, organisational innovation, and policy innovation, defined as "new objectives, instruments, and assessment tools" (2016:37). Thus, following Torfing (2016), we define policy innovation as new objectives, instrument and assessment tools that disrupt the common wisdom and established practice in a particular context in order to provide more effective solutions. A definition that, similarly to that of Paz and Fontaine (2018:3) —"the introduction of disruptive, original, hitherto unseen and disturbing practices that permanently alter the fundamentals of a policy by moving away from its core *status quo ante*"— emphasizes three aspects: (1) novelty, (2) in a specific context, (3) concerning some of the components of a public policy. A change that, though it must be implemented to take effect, first must occur during the policy design phase. If the ultimate goal is to handle complexity better, innovation (disruption) needs to happen when the problem is being framed and the solution is proposed.

In that direction, if the fragmented specialisation culture is perceived by collaborative governance researchers as one of the main barriers to policy innovation, both cross-sectoral and multi-actor collaboration are presented as potential solutions. In fact, they are not mutually exclusive, and they both imply collaboration, defined as "a temporal

process through which a plurality of actors work together in an organized way to transform problems and opportunities into joint solutions that rest on provisional agreements that are formed despite the persistence of various forms of dissent" (Torfing, 2016:64). Cross-sectoral approaches focus on collaboration among public organisations (such as departments, agencies, and units) particularly in problem-framing. In contrast, multi-actor collaboration emphasises the participation of non-public actors (citizens, third sector organisations, academia, and private companies), which can result in a wide range of combinations between public and non-public actors involved in policy design.

Nevertheless, even if both approaches have been theoretically linked to policy innovation (Bason, 2018; Torfing, 2016), there is few empirical evidence sustaining that relationship and none comparing their innovative potential. Is intersectorality *enough* for policy innovation? Are policy design processes involving non-public actors always more likely to result in policy innovation than those managed by public organisations? Without specific comparative information on the innovative potential of those different collaborative arrangements it is difficult to offer policymakers specific advice on how to handle policy design processes from a collaborative approach and how to foster policy innovation.

Empirical evidence

Most of the literature defending a causal relationship between collaboration and innovation dates from the 90s (Borins 1998; Roberts and King 1996; Roberts and Bradley 1991; Van de Ven et al. 2008), when collaborative governance was not even a concept. Furthermore, with the exception of Roberts and Bradley' (1991) qualitative longitudinal study, none of those researches focused on policy innovation. For a long time, the attention was oriented towards public sector's capacity for innovation (its determinants, barriers, risks and facilitators) and, thus, towards organizational innovation (Ansell & Torfing, 2014; Arbolino et al., 2019; Arundel et al., 2019; Bason, 2010; Bhatta,

2003; Borins, 2001; Daglio et al., 2014; Damanpour, 1991b; Eggers & Singh, 2009; Mulgan, 2007; Mulgan & Albury, 2003; Van de Ven et al., 2008).

Some years later, the notion of "collaborative innovation" —defined as a "collaborative approach to innovation and problem solving in the public sector that relies on harnessing the resources and creativity of external networks and communities" (Nambisan, 2008:11)— synthesized the academics and practitioners' interest in enhancing public innovation through collaboration. However, on the one hand, its literature remains mostly theoretical and descriptive (B. Crosby et al., 2016b; Hartley et al., 2013; Nambisan, 2008; Sørensen & Torfing, 2011; Torfing, 2016) and the few existing empirical analysis are based on case studies (Bommert, 2010; Krogh & Torfing, 2015; Newman et al., 2001; Torfing, Krogh, et al., 2020). On the other hand, if it has already been stated that "it is difficult to separate the process of collaboration from the innovative results and their problem-solving effects" (Torfing et al., 2020:401, citing Innes & Booher, 1999) the notion of "collaborative innovation" makes it even harder.

That partially explains why those analysis tend to treat collaborative approaches "as a whole", at least on what concerns its link with policy innovation. Even if some publications distinguish different kinds of institutional collaborative arrangements and theoretically link them to policy innovation (Eggers & Singh, 2009; Hartley et al., 2013), none compare their innovative potential. Therefore, there is a need for empirical evidence considering the diversity of public and non-public agents' arrangements behind the category of "collaborative approaches" and analysing the innovative potential of the different combinations.

Research question and hypotheses

As exposed, theoretical literature clearly explains why today's societal problems cannot be solved through the isolated efforts of a single authority (Bason, 2018; B. Crosby et al., 2016a) and, hence, require collaboration. It is the integration of different perspectives what stimulates creativity and produces synergistic results that would be impossible for

those same actors to achieve on their own (Bason, 2010, 2017; Straus, 2002; Torfing, 2016). Furthermore, the constructive management of differences brings on a better understanding of the problem at hand, enhances mutual learning and facilitates the generation of new ideas that, based on a broad set of experiences, disturb each other's perceptions of the world (Torfing, Krogh, et al., 2020). That is why we expect collaborative approaches to policy design to be more likely to result in policy innovation than traditional specialized ones.

However, since collaboration can take place in extremely different conditions among very different actors (Torfing, 2016), in order to provide specific recommendations for policymakers we need to understand whose participation in the policy design is more meaningful in terms of innovation. We need to analyse **whether some collaborative arrangements have more innovative potential than others and identify which ones.** Based on the mentioned theoretical literature, we propose various hypotheses about which arrangements are more likely to lead to policy innovation, helping to identify which policy actors should get involved in the policy design process.

First, though, we verify that policy design processes involving several actors (either public or non-public) are indeed more likely to result in policy innovation than policy design processes involving a single public actor **(H1)**. And make sure that we obtain the same result when only public actors are involved in the design process, since the literature is clear when stating that contemporary policymaking surpasses formal organisational boundaries (Jones et al., 1997; Shearer et al., 2016; Sørensen & Torfing, 2009). Namely, we verify that policy design processes involving several public actors are more likely to result in policy innovation than policy design processes involving a single public actor **(H2).** According to Bason (2018:109), "the actual policy or service design must inevitably be the result of multiple departments, agencies and other actors working closely together in new ways, achieving their results through others, not only on their own".

However, what has been called “joined-up”, “collaborative” or “networked” government (Bason, 2010; Eggers & Singh, 2009; Mulgan, 2009) —that is to say, different forms of collaboration among public organisations— can take too many shapes: collaboration may take place between very different public actors. Thus, to provide specific recommendations we need to understand who must collaborate with who. Theoretical literature clearly points to hyper-specialisation culture as a barrier for both solving complexity management and fostering policy innovation (Bason, 2018; Eggers & O’Leary, 2009; Eggers & Singh, 2009). On the one hand, an integral understanding of problems requires a kaleidoscopic vision (Kanter, 1988), which can hardly come from a single disciplinary silo. On the other hand, innovation is positively correlated with specialization diversity (Damanpour, 1991b; Kimberly & Evanisko, 1981). Therefore, we expect policy design processes involving public actors from different disciplinary silos to be more innovative than those approached from a sectoral perspective. Furthermore, sectorial collaboration could easily fit into what NPM defined as corporate management approach —consisting on putting “an executive director in charge of several related silos in order to promote intra-organizational coordination” (Torfing et al., 2020:131)— and it has already been stated that NPM failed to address wicked problems (B. Crosby et al., 2016a; Wagenaar, 2007). Namely:

> ***H3****: Cross-sectoral policy design processes are more likely to result in policy innovation than sectoral ones.* In other words: *policy design processes involving several public actors representing different disciplinary silos are more likely to result in policy innovation than policy design processes undertaken by different public actors from the same silo.*

Still, many authors claim that public sector innovation requires collaborative interaction between public and private actors (Bommert, 2010; Borins, 2001; Eggers & Singh, 2009; Nambisan, 2008). Even if there is no empirical evidence comparing the innovative potential of only-public and public-private networks, a high diversity of actors is positively

associated with radical innovation (Dente et al., 2012; Howlett, 2002), and it is plausible to expect that the divergence of interests, experiences, ideas, skills and resources will be higher between public and private actors than among the firsts. In fact, according to Torfing et al. (2020:402), “since public employees often think along similar lines, it is even better [to stimulate out-of-the-box thinking] if private for-profit or non-profit organisations are included in the collaborative arena”. As a consequence, we hypothesise that:

> ***H4:*** *Policy design processes involving non-public actors are more likely to result in policy innovation than policy design processes undertaken by several public actors.*

According to co-creation researchers, however, it is the participation of users or citizens in the policymaking what has the potential to generate new policy solutions to complex societal problems (Ansell & Torfing, 2021; Bentzen et al., 2020; B. Crosby et al., 2016a; B. C. Crosby & Bryson, 2010; Torfing et al., 2021). Even so, despite being insistently claimed, the innovative potential of co-creation —understood as "a joint effort of citizens and public sector professionals in the initiation, planning, design and implementation of public services" (Brandsen et al., 2018:3)— has little empirical support, since much of its research remains theoretical and descriptive (Verschuere et al., 2012). Still, based on the few existing case studies, which point to a positive relationship between co-creation and policy innovation (Brandsen et al., 2018; Nabatchi et al., 2017), and taking into account the also positive relation between diversity and innovation (Dente et al., 2012; Howlett, 2002) we hypothesise that:

> ***H5:*** *Policy design processes involving citizens are more likely to result in policy innovation than policy design processes in which they are not involved.*

Moreover, we have decided to explore the innovative potential of other types of non-public actors, such as third-sector organisations, neighbourhood associations and

private companies, with the aim of understanding how policymakers can spur policy innovation by inviting the most meaningful actors to take part in policy design processes.

We propose a regression analysis to compare the innovative potential of those different collaborative approaches. Thereby, we not only provide empirical evidence sustaining the relation between networked government, cross-sectoral collaboration and public – non-public collaboration with policy innovation, but we also identify which collaborative arrangements are more meaningful —in terms of innovation— and complement existing evidence on the relation between collaboration and policy innovation with a quantitative analysis, which are scarce.

Case selection and data operationalisation

To empirically test our hypotheses and understand the way the different collaborative arrangements relate to policy innovation, we use the programme *Pla de Barris* as a case study. Promoted by the Barcelona City Council, *Pla de Barris* is a macro-strategy against urban segregation that brings together hundreds of public policy interventions in very different policy domains —education, sustainability, public space, social economy, housing, employment, community action, gender equality, among others— to be implemented in the 10 poorest neighbourhoods of Barcelona. Some of those policy interventions were designed and directly promoted by the City Council and others were the result of bottom-up processes and collaborations with many other policy actors (other public entities, third-sector organisations —which are service-oriented entities that are neither public nor private—, neighbourhood associations, non-organised citizens and private companies). Thereby, acting mostly as a 150 million euro fund to spend in 4 years (2016-2020), the strategy ended up covering 529 policy interventions[1].

What is meaningful for the purposes of this research is that some of those 529 policy interventions were designed by a single unit (department, area or agency) of the City Council and others were the result of a collaborative arrangement among either public agents (only) or public agents together with different non-state actors. Indeed, this case is a good example of the fact that, even within a public administration that has a consolidated participatory tradition and is strongly committed to collaborative governance (Parés et al., 2015), collaborative policy design initiatives coexist with traditional policy design processes (Torfing, 2016).

The analysis is based on the monitoring data collected by a team of project managers over the 529 policy interventions funded by *Pla de Barris*. Thus, there was no selection. Since our interest lies in the design phase, we considered all the interventions that were ready to start its implementation phase, whether the implementation was successful or not. For each one we know which actors participated in the design process, and we have a detailed description of the resulting policy intervention, as well as other features, such as its domain, timings and budget. From the list of participating actors, we can infer the type of collaborative arrangement. Therefore, **independent variables** were operationalised as follows:

> **RQ1–H1:** *collaborative approach (two or more policy actors involved, either public or not) vs. a single public actor involved*
>
> **RQ2–H2:** *collaborative government (several public actors involved) vs. a single public actor involved*
>
> **RQ2–H3:** *cross-sectoral approach (several public actors from different policy domains involved) vs. sectoral approach (several public actors from a single policy domain involved)*
>
> **RQ2-H4:** *collaborative government (several public actors involved) vs. co-creation (public and non-public actors involved)*

RQ2–H5: *co-creation with each type of non-public actor separately*

Operationalising the **dependent variable** (policy innovation) is not an easy task, since it is difficult to separate the process of collaboration from the innovative results and their problem-solving effects (Torfing et al., 2020, citing Innes & Booher, 1999). That is why we use Torfing et al. (2020) criteria-based assessment tool —specifically designed to distinguish measurement of process (collaboration) from measurement of outputs (innovation)— to code policy innovation[2]. They propose four indicators to measure the degree of innovation, scored on a scale from 1 to 5:

(1) the depth of innovation at the ideational level, understood as the degree of newness of the ideas the innovation is built on.

(2) the depth of innovation at the level of practice, defined as the degree of newness of implementation features (mainly service production and delivery).

(3) the character of the innovation, "defined in terms of whether the innovation as a whole can be characterised as radical or incremental" (2020:403).

(4) the reputation of the innovation, relating to external recognition of the innovative character.

However, we only use two of them (indicators 1 and 3) since we focus on the design phase and do not consider implementation, and, thus, we couldn't gather reputation information either. The two indicators are added forming an innovation index (1-10) that is used to construct a dummy variable: policy interventions rating 6 or more are considered innovative and receive value 1, while the rest receive value 0. Examples of innovative policy interventions include the creation of a new public figure —the "industrial estates agent"— that applies a "community" logic to facilitate the relationship among industrial agents and strengthen the industrial fabric of some neighbourhoods (scored

10), a regularisation programme for undocumented people (scored 9) or a “library of things”, designed to lend everyday objects (scored 8). By contrast, already-existing interventions—such as healthy eating workshops, improvements in school infrastructure or sports promotion for the elderly in public parks—have not been identified as new policy solutions. Figure 1 in the Appendix shows the distribution of the dependent variable before converting it into a dummy.

Other variables of the monitoring dataset collect different profile features of the policy interventions, some of which will be used as controls: the neighbourhood where it takes place, the main policy domain to which it relates (education, social services, urbanism, or economics) and the degree of political sensitivity (of the intervention). We would have liked to include additional controls (for example the budget of each policy intervention or some contextual variables), but the dataset did not allow for it.

[Insert Table 1 here]

Table 1 shows the descriptive statistics of the dependent, independent and control variables. Since all of them are dummies or categorical variables, we show the categorization of policy interventions (in percentage and in number of observations) for each variable. The table shows that only 25% of policy interventions can be considered innovative. Additionally, most policy interventions are designed with more than one actor, indicating the government’s commitment to collaborative approaches. Almost half of the policy interventions belong to the social sector and in almost 70% of them there are less than two management areas involved, which we use as a proxy for political sensitivity (the more areas involved, the more salient is the policy). Finally, the policies seem to be rather balanced across neighbourhoods.

Method

We use regression analysis to test the different hypotheses with the following specification[3]:

$$Y_{ij} = \alpha + \beta_1 x_{1ij} + \beta_2 j + \beta_k Z_n + u_i$$

where Y_{ij} is the dependent variable—a dummy variable which takes value 1 if the policy design process *i* in area *j* is defined as innovative (i.e., there is policy innovation according to the definition in Table 1) and value 0 otherwise—and x_{ij} is the independent variable, which takes on a different shape depending on the hypothesis, representing different approaches to policy design:

- For H1, x_{1ij} is a dummy which takes value 0 if there was a single public actor involved in the policy design process *i* in area *j,* and value 1 if there were two or more policy actors involved (either public or non-public actors).

- For H2, $x_{1ij}$is a dummy which takes value 0 if there was a single public actor involved in the policy design process *i* in area *j*, and value 1 if there was public collaboration (collaborative or networked government), i.e., two or more *public* actors involved.

- For H3, $x_{1ij}$is a categorical variable which takes value 0 if there was sectoral collaboration in the policy design process *i* in area *j* (more than one public actor from the same policy domain involved), 1 if there was only one public actor involved, and 2 if there was cross-sectoral collaboration (several public actors from different policy domains involved). Thus, sectoral collaboration is the baseline category.

- For H4 , x_{1ij} is a categorical variable which takes value 0 if there was *only* public collaboration in the policy design process *i* in area *j*, 1 if there was no collaboration at all (i.e., a single public actor involved) and 2 if there was public - non-public collaboration (regardless of the nature of the non-public-actor). Hence, the baseline category is 'only public collaboration'.

- For H5, the model takes this shape:

$$Y_{ij} = \alpha + \beta_1 x_{1ij} + \beta_2 x_{2ij} + \beta_3 x_{3ij} + \beta_4 x_{4ij} + \beta_2 j + \beta_k Z_n + u_i$$

  where each variable—from x_{1ij} to x_{4ij}—is a series of dummy variables for each type of non-public actor: citizens, third sector organizations, neighbourhood associations and private companies.

We have added neighbourhood dummies *j* to control for neighbourhood effects and a series of controls Z, which include the sector of the policy strategy (whether it is an urban, educative, economic, or social policy) and the political relevance of the policy intervention, proxied by the number of management areas involved in the design process. In addition, for Model 5 we have added a dummy variable to control for whether one or several public actors are involved in the co-creation approach.

Results

The results show that in general, collaborative approaches to policy design are positively associated with policy innovation. Model 1 from Table 2 suggests that when policy design processes involve several actors—as opposed to traditional approaches, which involve a single specialised administration—the probability of policy innovation increases by almost 27pp. Furthermore, Model 2 confirms that collaboration amongst public actors is enough to foster policy innovation since, comparing collaborative government to the

traditional approach, the likelihood of policy innovation increases by 18pp when two or more public actors are involved.

Models 3 to 5 unpack different ways of collaborating. Focusing on public actors, collaboration amongst units from different policy sectors (the so-called cross-sectoral approach in Model 3) seems to increase the likelihood of policy innovation. Policy design processes involving actors from different sectors are 15pp more likely to result in policy innovation than policy design processes in which actors come from the same policy sector.

Finally, the inclusion of non-public actors also give rise to a higher probability of policy innovation (Models 4 and 5). Policy design processes involving non-public actors (be it citizens, private companies, third-sector organisations or neighbourhood associations) are 16pp more likely to result in policy innovation than those involving *only* public actors (Model 4). Nevertheless, when we unpack the category of non-public actors (Model 5), the results suggest that it is organized-citizenry (third-sector organisations and neighbourhood associations) which make a difference to policy innovation. Their involvement increases the probability of policy innovation by 15pp. Conversely, involving non-organized citizens does not lead to an increase in the probability of policy innovation, and the same holds for the involvement of private companies.

[Insert Table 2 here]

The results are similar when we change the dependent variable from a dummy to a continuous one[4], as shown in Table 2A in the Appendix. The results are robust for all models except for Model 5. In the alternative specification, policy design processes involving neighbourhood associations, and third sector organizations are not significant anymore (at a 5% significance level).

Table 3 summarises the level of support for each hypothesis.

[Insert Table 3 here]

Discussion

Enhancing collaborative innovation has become a key aspiration of public organisations in many Western countries (Sørensen & Torfing, 2016: 146, citing HM Government, 2010; Sunstein, 2012), mainly because collaboration has often been prescribed as a means for solving wicked problems and facing complexity (Scott & Thomas, 2016). Instead of simply choosing among existing tools and solutions, designers should consider the range of feasible options (Howlett, 2014) and encourage the creation of policy alternatives. And this exercise of thinking "outside the box" is supposed to be easier and more fruitful when it is a team effort. That is why this study aimed at examining this relationship—between collaboration and policy innovation—and providing quantitative evidence supporting it.

According to Sørensen and Torfing (2016), both collaborative and innovation processes are difficult to trigger in the public sector without proper management. More specifically, Crosby et al. (2016: 2) propose that, when facing wicked problems, "public managers should serve as orchestrators of networked interaction and mutual learning: acting as conveners, stewards, and catalysts of collaborative innovation". However, for policymakers to foster "collaborative innovation", they must first understand which actors need to get involved in the collaboration process in order to maximize the likelihood of innovative policy outputs. By analysing and comparing the innovative potential of different collaborative arrangements we expect to provide them specific evidence to handle policy design processes and encourage policy alternatives.

However, we first reassure that collaborative approaches are indeed more likely to result in policy innovation than the traditional ones, even if collaboration takes place amongst public actors. Since policy design processes involving more than two public actors are

almost 17pp more likely to result in policy innovation than those involving a single public actor, and that probability raises to 27pp when non-public actors are involved, we confirm that "innovation is seldom the result of the efforts of a single actor" (Sørensen & Torfing, 2016:152, citing Csikszentmihalyi, 1996).

Horizontal specialised sectorisation between policy domains—characteristic of traditional approaches—has been associated with policy stability (Bason, 2018). Consistently, our results confirm that **cross-sectoral approaches** to policy design are significantly linked to policy innovation. Policy design processes involving actors representing different policy sectors are 15pp more likely to result in policy innovation than those processes in which the actors involved belong to the same policy sector. This result confirms that what has been called the "silo trap" not only prevents collaboration (Sørensen & Torfing, 2016), but also innovation. This is a significant finding if we consider that both governments and public administrations continue to be organised in policy domains and that NPM reforms enhanced administrative silos (Torfing, et al., 2020).

Furthermore, the fact that the control variable "policy domain" is also significant reveals that, as Howlett (2002) has already demonstrated, policy domains are linked to specific policy subsystems, which in turn are related to policy innovation. Still and so, collaboration within a policy domain—for example between two or more education policy actors—is still more likely to result in policy innovation than traditional single-actor policy design processes. More specifically, sectoral processes are almost 11pp more likely to result in policy innovation than those involving a single public actor. That result clearly confirms that innovation is rarely generated by a single actor because it requires new ideas; and even if the societal problem continues to be framed within a specific policy sector, collaboration may foster creativity. Understanding how radical those ideas and the resulting policy alternatives might be is beyond the scope of our analysis and should be explored further.

Hence, in accordance with collaborative government defenders, **collaboration among public actors** is more than enough to foster public innovation. This is an important finding, mainly for two reasons. On the one hand, even if we have moved well past the idea that public innovation is an oxymoron, by emphasising the importance of involving non-public agents in the policymaking process, both collaborative governance and collaborative innovation researchers usually underestimate the innovative potential of public-public collaboration. Therefore, these results support the idea that "the public sector has always produced a considerable amount of policy and service innovation" (Sørensen & Torfing, 2016:149, citing Ehrenreich, 1985; Dean, 1991; Borins, 2001; Hartley, Sørensen & Torfing, 2013) by emphasising its capacity to do so on its own.

On the other hand, recognising the innovative potential of public-public collaboration implies that policy makers and policy designers committed to finding new and better solutions to societal problems do have different options when taking a collaborative approach. Frequently, literature on collaborative governance seems to claim that the more actors involved in the policy process, the better. Since the idea is to avoid privileging a specific group of actors, the solution seems to call for including all the relevant actors (Ansell & Gash, 2007; Scott & Thomas, 2016; Sørensen & Torfing, 2016). However, involving too many people may render the design process much more complex. According to Ansell et al. (2020:571), wide inclusion of actors in collaborative processes "increase transaction costs, reduce the quality of deliberation, muddy negotiations or produce "least common denominator" bargaining outcomes". Therefore, acknowledging the innovative potential of public-public collaboration may help policy designers to choose when to open the policy design process and, especially, to whom.

In that sense, **involving non-public actors** in the policy design process increases its probability of resulting in policy innovation: design processes including non-public actors are 16pp more likely to result in policy innovation than those involving *only* two or more public agents. According to Scott and Thomas (2016:9), "by involving external

stakeholders, public managers can redefine policy problems and thereby alter or expand the existing scope of action". Non-public agents' perspectives would help them to better understand both the problem trying to be solved and the contextual conditions, as well as to identify those solutions more likely to work on the ground and gain support for their implementation (Ansell et al., 2017; Scott & Thomas, 2016).

However, in the same way that actors involved in the policy design process have different levels of influence on policy formulation (Howlett, 2014), they seem to have different levels of capacity to innovate. That is coherent with our interest to distinguish between non-public actors and explore whose collaboration matters more in terms of innovative potential. Note that we are not discussing how to democratise the policy design process. Our main interest lies in identifying who should be part of it, in order to maximise the innovative potential of the policy output. The typology of policy actors considered—companies, third-sector organisations, neighbourhood associations and non-organised citizenship—was already predefined in the *Pla de Barris* monitoring database. Thus, we were not able to modify it.

According to the results, the involvement of **third-sector organisations and neighbourhood associations** in the policy process is what makes the difference in terms of innovative potential of the policy output. The probability of policy innovation increases by 15pp when they participate in the policy design process. By contrast, the results for companies[5] and non-organised citizens are not conclusive. This is a relevant finding since co-creation studies rarely distinguish among stakeholders or policy actors. The little existing empirical evidence supporting a positive relationship between co-creation and policy innovation (Bason, 2017; Gillinson et al., 2010; Van Gestel & Grotenbreg, 2021) does not explore each type of policy actor's contribution. Furthermore, available empirical evidence on co-creation is almost exclusively based on single or small-n case studies. Nevertheless, this result, and especially the role of neighbourhood

associations and third sector organizations does not seem to be robust to different specifications of the dependent variable, which suggests we should take the evidence provided as a first step to encourage more research in this direction.

The robustness check does confirm the little relevance of citizens when it comes to increase policy innovation. One possible explanation for the non-significant effect of **(non-organized) citizens'** involvement is heterogeneity. Third-sector organisations tend to be experts in their field of intervention and hold well-defined values and ideas. Neighbourhood associations, on the other hand, were originally created to pressure the City Council to improve services and facilities (Martín-Gómez, 2020), and —even if they adapted to the new dynamics of policymaking— continue to hold very specific interests. Non-organised citizenry, however, is extremely diverse, not only in terms of socioeconomic profile, but also in terms of values, interests, and ideas. And collaborative policy design, as collaborative innovation, requires generating some sort of joint-ownership (Torfing, 2016): a joint commitment with shared goals, that is crucial to bridging cognitive differences. In fact, there is an academic debate on whether collaboration is associated with consensus (Straus, 2002) or constructive management of differences (Gray, 1989). We agree with the advocates of the latter approach that "total consensus is often achieved by getting everybody to agree on the lowest common denominator" (Sørensen & Torfing, 2016:155), which tends to favour incremental adjustments rather than innovation.

In sum, when we unpack the category of "non-public policy actors" we can identify that not all of them have the same innovative potential, largely due to an existing tension between innovation and agreement (Page & Kern, 2016). Some researchers have proposed to resolve this tension by adhering to "principled engagement" (Emerson et al., 2012; Emerson & Nabatchi, 2015; O'Leary & Vij, 2012; Page & Kern, 2016), understood as a process in which people with differing ideas and goals work "across their respective institutional, sectoral, or jurisdictional boundaries to solve problems, resolve conflicts or

create values" (Emerson et al., 2012:10). This process, however, seems to be easily to put into practice with organized policy actors.

In this light, it is surprising that the control variable "political relevance of the policy intervention" is not significant, since, according to Ansell et al. (2017), crafting innovative policies is fundamentally a political, rather than technocratic, process. Even if the political context (debates, conflicts, pressures, short timescales…) is expected to influence the potential for policy innovation, the number of managerial departments involved in the policy design process does not appear to be linked to the innovative character of the policy output. However, it is also possible that our variable is not a good proxy for political relevance. It would have been interesting to use other variables related to political context and relevance, but unfortunately the database did not have any.

The analysis has some limitations. First, *Pla de Barris* is a municipal strategy that caters to the needs of the city of Barcelona, and therefore to a very specific context. While Barcelona might bear some resemblance to other European cities in terms of its social fabric, different varieties of capitalism and of welfare states within Europe limit the generalisation of the results to other contexts. Second, the analysis focuses on the combination of actors participating in the design process and does not consider other aspects of collaboration that might be relevant. Third, the data may hide some information which could be interesting to unpack. We are referring to the neighbourhood fixed effects, which are statistically significant, suggesting that some factors such as historical context or demographics might be relevant to processes of policy innovation and thus could be of interest to policy makers. And fourth, the quantitative analysis does not address issues of causality. From the data available we cannot know the exact timing at which policy actors entered the policy design processes, and therefore, it could well be that policy design processes which seemed more innovative from the start attracted more policy actors. Nevertheless, we think this is quite unlikely, since when policy design processes have been in motion for a while, there are entry barriers for new actors.

Additionally, it could be said that complex problems not only demand innovation but also attract more attention and thus we are observing a spurious relationship between innovation and collaboration when actually these two are brought about by the complex nature of the problem. However, a twofold argument must be considered: first, since New Public Management continues to be the default paradigm (Torfing et al., 2020), wicked problems continue to be handled traditionally in many contexts. Second, even in a context displaying New Public Governance tendencies as Barcelona city, the control variable for political relevance of the policy intervention —which should capture this "attractive" character of complex problems— was not significant.

Conclusion

Despite the increasing attention paid by both academic researchers and Western governments to collaborative innovation, public innovation remains underexplored as a tool for changing policies and services (Sørensen & Torfing, 2016). Policymakers are compelled to update their approaches to policy design to more effectively address complexity. However, before determining when and how to introduce new instruments, they must first understand the range of available approaches (Howlett, 2014).

Through our research we aim to provide specific guidance to policymakers seeking new and improved solutions to societal problems in the management of policy design processes. To do so, this article, first, contributes to confirm with empirical quantitative evidence that collaborative approaches to policy design are indeed more likely to foster policy innovation than traditional ones. As it has largely been expressed in the literature, innovation is rarely generated by a single actor because it requires new views and ideas.

Collaboration, however, can take place among different types of actors and the innovative potential of different collaborative arrangements had not been empirically analysed, nor compared. That is the main contribution of this research. As hypothesized,

both cross-sectoral collaboration and collaborative government appear to be powerful approaches to foster policy innovation within the public sector. Overcoming the “silo trap” and complementing specialisation culture by undertaking deliberative processes with other policy actors seem to be an effective way to promote policy innovation. Thus, as suggested by collaborative governance researchers, those policy designers looking for creative solutions to wicked problems can start by carefully promoting cross-boundary collaboration between either public or public and private actors in networks and partnerships (Torfing, et al., 2020). Nevertheless, in the same way that not all the actors involved in the policy design process have the same level of influence on policy formulation, not all of them have the same capacity to innovate. Therefore, those actors holding well-defined values, interests and ideas should be prioritised when the innovative potential wants to be maximised.

Finally, we think this study points to avenues for further research, in at least three directions. First, innovation and quality are far from being synonyms. A policy can be innovative and at the same time be poorly designed. Hence, considering that bad designs are one of the main causes of policy failure in the implementation phase (Ansell et al., 2017), more attention should be paid to the relationship between innovation and quality at the time of designing the policy. Second, innovation does not guarantee avoiding policy failure. We have focused on the phase of policy design, and therefore, more research on the relationship between innovation and policy success would complement the evidence provided in this article to guide policymakers and especially policy designers in the management of complexity. And third, having proved the relevance of non-public actors, we think it could be of interest to explore the innovative potential of each type of actor in order to better understand their influence and thus make more precise recommendations to policy designers.

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Figures and Tables

Table 1. Descriptive statistics

Variable	Frequency	Number of observations
Dependent variable		
Innovative policy interventions		
Not innovative	74%	392
Innovative	26%	137
Independent variables		
H1: traditional vs. collaborative approach		
Single public actor involved	24%	126
Two or more policy actors involved	76%	403
H2: traditional vs. collaborative government		
Single public actor involved	35%	183
Several public actors involved	65%	346
H3: cross-sectoral vs. sectoral approach		
Same sector	40%	213
Single public actor	35%	184
Different sectors	25%	132
H4: collaborative government vs. co-creation		
Public collaboration-only	37%	197
Single public actor	23%	124
Non-public actors	40%	208
H5: Co-creation with each type of non-public actor		
Citizens		
With	21%	109
Without	79%	420
Neighbourhood associations		
With	13%	70
Without	87%	459
Third-sector organizations		
With	23%	119
Without	77%	410
Companies		
With	9%	46
Without	91%	483
Control variables		
Policy domain		
Education	24%	127
Urban	6%	33
Social	46%	243
Economic	24%	126
Number of management areas involved in the design process		
Less than two	68%	358
Two or more	32%	171
Neighbourhoods		
Trinitat Nova	10%	50
Bon Pastor i Baró de Viver	13%	71
Besós Maresme	12%	62
La Teixonera i Sant Genís	6%	32

Trinitat Vella	11%	56
Raval i Gòtic Sud	9%	49
La Verneda i La Pau	10%	55
Zona Nord	10%	52
La Marina	11%	59
Roquetes	8%	43

Table 2. Regression analysis

	Dependent variable: Policy innovation (Yes =1)				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Collaborative approach *(baseline: single public actor)*					
Several actors	0.268***				
	(0.036)				
	[0.181 – 0.354]				
Joined-up/Collaborative government *(baseline: single public actor)*					
Several public actors		0.166***			
		(0.039)			
		[0.085 – 0.247]			
Cross-sectoral approach *(baseline: same sector collab.)*					
Single public actor			-0.109**		
			(0.044)		
			[-0.197 – -0.020]		
Different sectors			0.149***		
			(0.052)		
			[0.055 – 0.244]		
Non-public actors' participation *(baseline: public collab. only)*					
Single public actor				-0.178***	
				(0.042)	
				[-0.275 – -0.082]	
Non-public actors				0.157***	
				(0.045)	
				[0.072 – 0.241]	
Co-creation approach *(dummies for each type of non-public actor)*					
Citizens					-0.019
					(0.064)
					[-0.130 - 0.092]
Neighbourhood associations					0.151**
					(0.068)
					[0.037 – 0.265]
Third-sector organisations					0.148**

					(0.063)
					[0.040 – 0.257]
Companies					0.100
					[-0.046 – 0.245]
Controls					
Sector of the policy strategy *(baseline: educational sector)*					
Urban sector	0.034	0.024	0.021	0.028	0.039
	(0.078)	(0.080)	(0.077)	(0.076)	(0.081)
Social sector	0.083*	0.086*	0.083*	0.052	0.035
	(0.044)	(0.044)	(0.044)	(0.044)	(0.044)
Economic sector	0.212***	0.204***	0.216***	0.207***	0.187***
	(0.054)	(0.055)	(0.055)	(0.055)	(0.056)
Number of management areas involved in the design process *(baseline: less than two)*					
+ 2	-0.041	-0.043	-0.043	-0.042	-0.052
	(0.039)	(0.040)	(0.040)	(0.039)	(0.040)
Neighbourhood dummies	Yes	Yes	Yes	Yes	Yes
Constant	-0.091	0.007	0.117	0.113	0.106
	(0.075)	(0.074)	(0.073)	(0.071)	(0.071)
Observations	529	529	529	529	529
Adjusted R^2	0.104	0.069	0.084	0.121	0.075
Note:					*p**p***p<0.01

Table 3. Summary of results

Hypothesis number	Reference category	Relevant Category explored	Coefficient and significance	Hypothesis supported yes/no
1	Single public actor	Several actors	0.268***	Yes
2	Single public actor	Several public actors	0.166***	Yes
3	Same sector collab.	Different sectors	0.149***	Yes
4	Public collab. only	Non-public collab.	0.157***	Yes
5a	Without citizens	With citizens	-0.019	No
5b	Without neighbourhood associations	With neighbourhood associations	0.151**	Yes
5c	Without Third-sector organ.	With Third-sector organ.	0.148**	Yes
5d	Without companies	With companies	0.100	No

Footnotes

[1] *Pla de Barris*' budget ended up covering 529 social policy interventions -policy programs and actions of different policy domains- and 193 public work interventions. However, since public works have a different nature, more associated to architectural parameters, and it is difficult to link them to policy innovation, they have not been considered in the analysis.

[2] Both authors coded the dependent variable separately, following Torfing et al. (2020)'s table scores included in the Appendix. They agreed on the result of the dummy variable in 93% of the cases. The resting 36 policy interventions were discussed to reach an agreement on the score.

[3] We use the linear probability model (LPM) because of two reasons. First, it provides the best linear approximation to the conditional expectation function (Angrist and Pischke, 2009) and its estimates have a very intuitive interpretation. Second, because we use neighborhood fixed effects, which may introduce bias in non-linear models (i.e., there may be an incidental parameter problem).

[4] Changing to a continuous variable may increase transparency of such variable; the descriptives show the distribution of the variable when it is treated as a continuous one. Nevertheless, the choice of a binomial variable for the main results seems more adequate since it allows an easier interpretation.

[5] Private companies were only involved in 46 of the 529 policy design processes. Thus, the available data to account for their effect is limited.

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Appendix

Appendix 1: Score tables measuring innovation (Torfing et al., 2020)

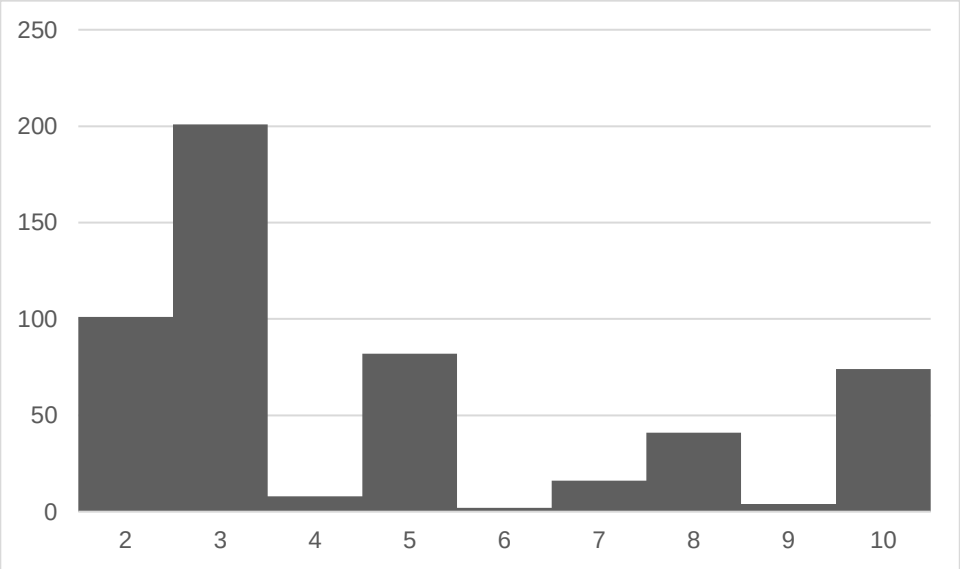
Score Table 1: The depth of innovation at the ideational level

Points	Items/criteria
5	The innovation builds on a completely new and different programme or change theory that does not merely propose new targets and the means to achieve them, but also changes the underlying understanding of the problems and challenges faced.
4	The innovation builds on a modified programme or change theory that both proposes new targets and the means to achieve them.
3	The innovation introduces new ideas and forms of knowledge which enable existing targets to be achieved using completely new means.
2	The innovation builds on new ideas that originate either internally or externally, and which change the form and content of existing solutions.
1	The innovation builds mainly on old ideas that are combined with new and different means which create new results and effects.

Score Table 2: The character of the innovation

Points	Items/criteria
5	The innovation constitutes a radical break with established practice in the area in question, as well as with underlying assumptions and actors' role perceptions; and it requires an extensive and complex change process.
4	The innovation builds on new ideas and significantly changes established practices and assumptions in the field.
3	The innovation challenges some established practices and assumptions in the field while leaving others unaffected.
2	The innovation constitutes a clear break with existing ways of doing things, but builds mainly on existing elements.
1	The innovation is small-scale and only differs to a minor extent from ongoing everyday improvements aimed at improving the area in question.

Appendix 2: Distribution of the dependent variable before converting it into a dummy



Appendix 3: Regression analysis – innovation as a continuous variable (Table 2A)

	Dependent variable: **Policy innovation (continuous from 1 to 10)**				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Collaborative approach *(baseline: single public actor)*					
Several actors	1.355***				
	(0.238)				
Joined-up/Collaborative government *(baseline: single public actor)*					
Several public actors		0.846***			
		(0.248)			
Cross-sectoral approach *(baseline: same sector collab.)*					
Single public actor			-0.464*		
			(0.273)		
Different sectors			0.996***		
			(0.315)		
Non-public actors' participation *(baseline: public collab. only)*					
Single public actor				-0.884***	
				(0.279)	
Non-public actors				0.847***	
				(0.279)	
Co-creation approach *(dummies for each type of non-public actor)*					
Citizens					-0.044
					(0.387)

Neighbourhood associations					0.659
					(0.411)
Third-sector organisations					0.733*
					(0.376)
Companies					0.583
					(0.520)
Controls					
Sector of the policy strategy *(baseline: educational sector)*					
Urban sector	0.532	0.477	0.460	0.499	0.565
	(0.437)	(0.447)	(0.428)	(0.432)	(0.452)
Social sector	0.619**	0.636**	0.612**	0.450*	0.384
	(0.256)	(0.256)	(0.256)	(0.254)	(0.256)
Economic sector	1.821***	1.783***	1.863***	1.795***	1.705***
	(0.345)	(0.348)	(0.342)	(0.346)	(0.353)
Number of management areas involved in the design process *(baseline: less than two)*					
More than 2 management areas	-0.176	-0.185	-0.185	-0.180	-0.234
	(0.249)	(0.253)	(0.250)	(0.247)	(0.251)
Neighbourhood dummies	Yes	Yes	Yes	Yes	Yes
Constant	2.500	2.988***	3.460***	3.509***	3.510***
	(0.458)	(0.443)	(0.426)	(0.437)	(0.424)
Observations	529	529	529	529	529
Adjusted R^2	0.100	0.078	0.096	0.114	0.079
Note:					*p**p***p<0.01