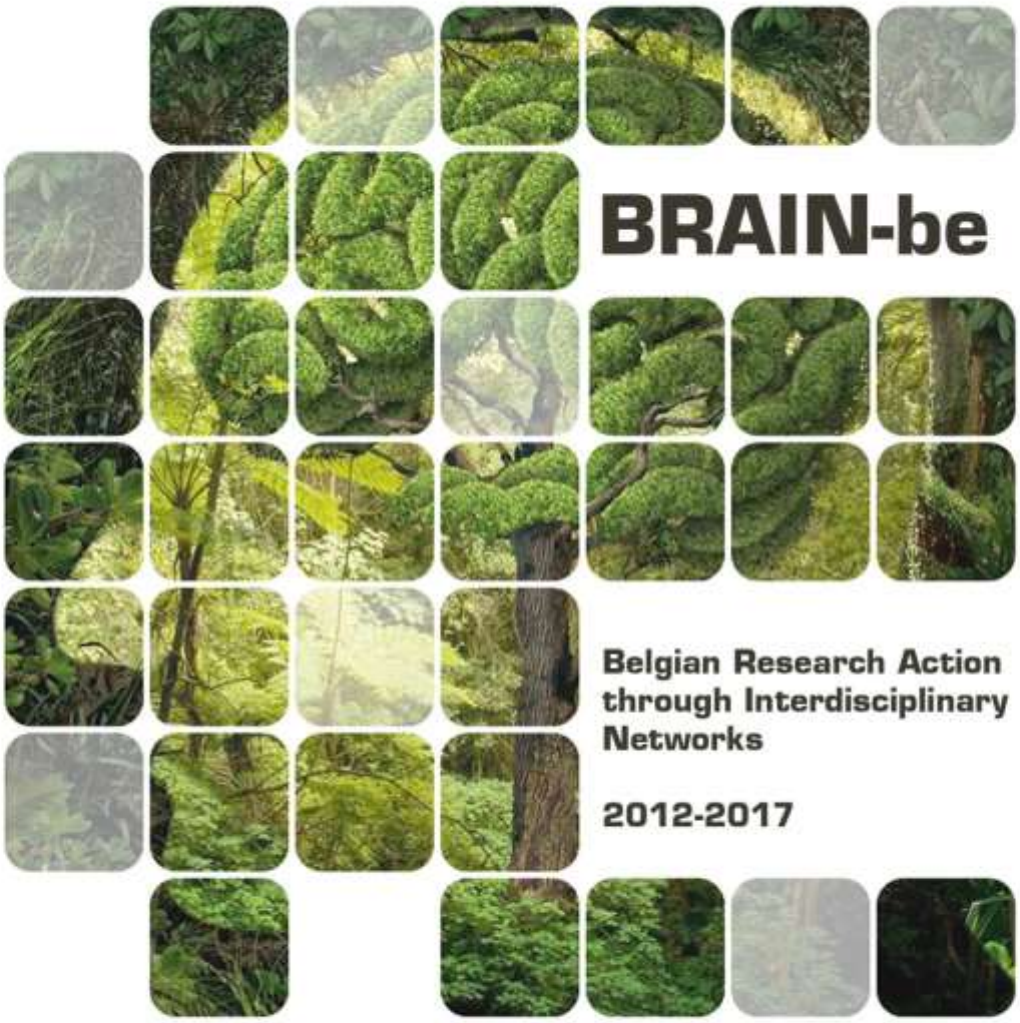

PSI-CO

Public Sector Innovation through Collaboration: How Individual, Organizational and Network Conditions Matter

FINAL REPORT

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SAMENVATTING

Innovatie is belangrijk voor overheden om burgers en de samenleving goed te dienen en om complexe problemen op te lossen. Een overheid die nieuwe diensten, beleid, technologieën of processen ontwikkelt, moet een aantal moeilijke keuzes maken. Hoe zorgen we voor een soepele ontwikkeling en implementatie van (disruptieve) innovaties, zonder dat dit ten koste gaat van de dienstverlening en de uitvoering van kerntaken? Hoe zorgen we voor voldoende middelen, de juiste capaciteiten, cultuur en prioriteit voor innovaties in onze organisatie? Maar bovenal, is onze innovatiestrategie er één van innovatiehelden, interne synergie of samenwerking met externe partners?

Een steeds meer gefragmenteerde samenleving en de complexiteit van de hedendaagse problemen, waarbij niet alleen de oplossing niet bekend is, maar ook de omvang en aard van het probleem zelf niet altijd duidelijk is, vraagt om samenwerking. Dergelijke collaboratieve innovatieprocessen hebben echter alleen kans van slagen als zij goed worden ontworpen, beheerd en gestuurd, als de deelnemende organisaties de juiste cultuur, werkorganisatie en capaciteiten hebben, en als de personen die hun organisaties vertegenwoordigen, over de juiste vaardigheden beschikken

Het Public Sector Innovation through Collaboration (PSI-CO) project, uitgevoerd door vier Belgische universiteiten (UAntwerpen, KULeuven, ULiège en UCLouvain) en de Universiteit Utrecht, onderzocht collaboratieve innovaties in de publieke sector. Dergelijke collaboratieve innovatieprojecten zijn een samenspel van drie verschillende niveaus: netwerk (management), organisatie en het individu, die elk hun eigen voorwaarden hebben voor de succesvolle ontwikkeling van innovaties. Het PSI-CO project onderzoekt welke voorwaarden dit zijn en hoe deze drie niveaus elkaar beïnvloeden zodat het leidt tot succesvolle collaboratieve innovatie. Dit gebeurt met een verscheidenheid aan onderzoeksmethoden. Verschillende Belgische collaboratieve innovatieprojecten zijn grondig bestudeerd op een kwalitatieve en kwantitatieve manier. De resultaten over de voorwaarden voor innovaties op netwerk(management)-, organisatie- en individueel niveau werden vervolgens gevalideerd via een vergelijking met internationaal onderzoek en een zogenaamde Delphi-studie. Een systematische vergelijking van de innovatiearchitectuur in België, Nederland, Estland en Finland leverde nieuwe inzichten op over hoe innovatie overheidsbreed kan worden ondersteund. Ten slotte brachten de Living Labs methodologie en een grootschalige online enquête bij de drie hoogste managementniveaus van de federale administratie verdere diepgaande inzichten in de voorwaarden voor succesvolle innovatie door samenwerking. Het onderzoek geeft niet alleen een antwoord op de vraag welke factoren collaboratieve innovatie bevorderen, het geeft ook een beeld van de mate waarin veel van deze factoren al aanwezig zijn in Belgische federale overheidsorganisaties.

Het onderzoek resulteert in specifieke aanbevelingen voor de federale overheid om de ontwikkeling en implementatie van collaboratieve innovatie te stimuleren.

De belangrijkste conclusie van het onderzoek is dat innovatie baat heeft bij samenwerking en gestimuleerd moet worden waar mogelijk en gepast. Dit dient te gebeuren op de drie genoemde niveaus (netwerk, organisatie en individu). Op netwerkniveau doet de studie aanbevelingen over hoe dergelijke samenwerkingsverbanden kunnen worden opgezet, met wie kan worden samengewerkt en hoe deze samenwerking het beste kan worden gecoördineerd. Op organisatieniveau worden aanbevelingen gedaan over de kenmerken van een organisatie die innovatie kunnen stimuleren. Daarbij gaat het om de organisatiecultuur, het leiderschap binnen de organisatie, maar ook om de rol van tijd- en plaatsonafhankelijk werken in het innovatieproces en om de noodzakelijke verbindende, lerende en innoverende capaciteiten die in de organisatie aanwezig moeten zijn. Op individueel niveau wordt gekeken naar het lerend vermogen van individuen tijdens de ontwikkeling van innovatie door samenwerking.

In dit rapport doen we ook aanbevelingen over hoe overheidsbrede innovatie kan worden bevorderd, rekening houdend met de wisselwerking tussen deze verschillende niveaus. Dit doen we door aanbevelingen te geven over de wijze waarop de innovatiearchitectuur, zoals innovatielabs, innovatieprikkels, financiering ed. het best kunnen worden ingericht en geleid.

Trefwoorden: Innovatie, samenwerking, publieke sector, netwerk, metagovernance, leren, innovatiearchitectuur, nieuwe manieren van werken, bureaucratie, organisatiecultuur, leiderschap

SYNTHESE

L'innovation est importante pour les gouvernements afin de bien servir les citoyens et la société et de résoudre des problèmes complexes. Un gouvernement qui développe de nouveaux services, politiques, technologies ou processus doit faire des choix difficiles. Comment assurer un développement et une mise en œuvre sans heurts des innovations (perturbatrices), sans affecter le service et l'exécution des tâches essentielles ? Comment garantir des ressources suffisantes, des capacités adéquates, une culture et une priorité pour les innovations dans notre organisation ? Mais surtout, notre stratégie d'innovation est-elle celle des héros de l'innovation, de la synergie interne ou de la coopération avec des partenaires externes ?

Une société de plus en plus fragmentée et la complexité des problèmes d'aujourd'hui, où non seulement la solution n'est pas connue, mais où la portée et la nature du problème lui-même ne sont pas toujours claires, exigent une coopération. Cependant, ces processus d'innovation collaborative ne réussissent que s'ils sont bien conçus, gérés et dirigés, si les organisations participantes ont la culture, l'organisation du travail et les capacités adéquates, et si les personnes qui les représentent ont les compétences adéquates.

Le projet Public Sector Innovation through Collaboration (PSI-CO), mené par quatre universités belges (UAntwerpen, KULeuven, ULiège et UCLouvain) et l'Université d'Utrecht, a étudié les innovations collaboratives du secteur public. Ces projets d'innovation collaborative sont une interaction de trois niveaux différents : le réseau (gestion), l'organisation et l'individu, chacun ayant ses propres conditions pour le développement réussi des innovations. Le projet PSI-CO étudie quelles sont ces conditions et comment ces trois niveaux s'influencent mutuellement pour aboutir à une innovation collaborative réussie. Pour ce faire, différentes méthodes de recherche sont utilisées. Plusieurs projets belges d'innovation collaborative ont été étudiés en profondeur, de manière qualitative et quantitative. Les résultats concernant les conditions d'innovation au niveau du réseau (gestion), de l'organisation et de l'individu ont ensuite été validés par une comparaison avec la recherche internationale et une étude dite Delphi. Une comparaison systématique de l'architecture de l'innovation en Belgique, aux Pays-Bas, en Estonie et en Finlande a fourni de nouvelles indications sur la manière dont l'innovation peut être soutenue à l'échelle du gouvernement. Enfin, la méthodologie des laboratoires vivants et une enquête en ligne à grande échelle auprès des trois niveaux de gestion les plus élevés de l'administration fédérale ont permis de mieux comprendre les conditions d'une innovation réussie par la collaboration. Non seulement la recherche apporte des réponses à la question de savoir quels facteurs favorisent l'innovation collaborative, mais elle donne également une

image de la mesure dans laquelle beaucoup de ces facteurs sont déjà présents dans les organisations du gouvernement fédéral belge.

La recherche aboutit à des recommandations spécifiques pour le gouvernement fédéral afin de stimuler le développement et la mise en œuvre de l'innovation collaborative.

La principale conclusion de l'étude est que l'innovation bénéficie de la collaboration et devrait être stimulée lorsque cela est possible et approprié. Cela devrait être fait aux trois niveaux mentionnés (réseau, organisation et individu). Au niveau du réseau, l'étude formule des recommandations sur la manière de mettre en place de telles collaborations, avec qui collaborer et comment coordonner au mieux cette collaboration. Au niveau de l'organisation, des recommandations sont données sur les caractéristiques d'une organisation qui peuvent stimuler l'innovation. Il s'agit notamment de la culture organisationnelle, du leadership au sein de l'organisation, mais aussi du rôle du travail indépendant du temps et du lieu dans le processus d'innovation, ainsi que des capacités nécessaires de connexion, d'apprentissage et d'innovation qui devraient être présentes dans l'organisation. Au niveau individuel, la capacité d'apprentissage des individus pendant le développement de l'innovation par la coopération est examinée.

Dans ce rapport, nous formulons également des recommandations sur la manière de promouvoir l'innovation à l'échelle du gouvernement, en tenant compte de l'interaction entre ces différents niveaux. Pour ce faire, nous fournissons des recommandations sur la meilleure façon de mettre en place et de gérer une architecture d'innovation et des laboratoires d'innovation.

Mots clés : Innovation, collaboration, secteur public, réseau, méta-gouvernance, apprentissage, architecture d'innovation, nouvelles méthodes de travail, bureaucratie, culture organisationnelle, leadership.

ABSTRACT

Innovation is important for governments to serve citizens and society well and to solve complex problems. A government that develops new services, policies, technologies or processes has to make some difficult choices. How to ensure a smooth development and implementation of (disruptive) innovations, without affecting the service and the execution of core tasks? How do we ensure sufficient resources, the right capacities, culture and priority for innovations in our organization? But above all, is our innovation strategy one of innovation heroes, internal synergy or cooperation with external partners?

An increasingly fragmented society and the complexity of today's problems, where not only the solution is not known, but also the scope and nature of the problem itself is not always clear, requires cooperation. However, such collaborative innovation processes only succeed if they are well designed, managed and directed, if the participating organizations have the right culture, work organization and capabilities, and if the individuals representing their organizations have the right skills.

The Public Sector Innovation through Collaboration (PSI-CO) project, conducted by four Belgian universities (UAntwerpen, KULeuven, ULiège and UCLouvain) and Utrecht University, investigated collaborative public sector innovations. Such collaborative innovation projects are an interplay of three different levels: network (management), organization and the individual, each of which has its own conditions for the successful development of innovations. The PSI-CO project investigates which conditions these are and how these three levels influence each other so that it results in successful collaborative innovation. This is done with a variety of different research methods. Several Belgian collaborative innovation projects have been thoroughly studied in a qualitative and quantitative way. The results about the conditions for innovations on the network(management), organizational and individual level were subsequently validated through a comparison with international research and a so-called Delphi study. A systematic comparison of the innovation architecture in Belgium, the Netherlands, Estonia and Finland provided new insights into how innovation can be supported government-wide. Finally, Living Labs methodology and a large-scale online survey among the top three management levels of the federal administration brought further in-depth insights into the conditions for successful innovation through collaboration. Not only does the research provide answers to the question of which factors promote collaborative innovation, it also gives a picture of the extent to which many of these factors are already present in Belgian federal government organizations.

The research results in specific recommendations for the federal government to stimulate the development and implementation of collaborative innovation.

The main conclusion of the study is that innovation benefits from collaboration and should be stimulated where possible and appropriate. This should be done on the three levels mentioned (network, organization and individual). At the network level, the study makes recommendations on how to set up such collaborations, with whom to collaborate and how best to coordinate this collaboration. At the organizational level, recommendations are given on the characteristics of an organization that can stimulate innovation. These include the organizational culture, leadership within the organization, but also the role of time- and place-independent working in the innovation process as well as the necessary connective, learning and innovation capacities that should be present in the organization. At the individual level, the learning capacity of individuals during the development of innovation through cooperation is examined.

In this report we also make recommendations on how government-wide innovation can be promoted, taking into account the interaction between these different levels. We do this by providing recommendations on how best to design and lead the innovation architecture in terms of innovation labs, innovation strategies, incentives and other instruments.

Key words: Innovation, collaboration, public sector, network, metagovernance, learning, innovation architecture, new ways of working, red tape, organizational culture, leadership

1. INTRODUCTION

Nowadays, Public Sector Innovation (PSI) is high on government agendas across OECD countries. Confronted with major budgetary pressures and grand societal challenges, governments worldwide experience a need to step beyond conventional wisdoms and sedimented practices. According to the consensus European definition of Public Sector Innovation (PSI), innovation is seen as 'a means to address growing budgetary pressures, through more efficient administration or service delivery, and new societal demands, through different and more effective service design'. Innovations refer not only to qualitatively changing the form, content, and repertoire of goods, services (service innovations), but also to transforming the underlying problem understanding, policy objective and program theory (policy innovations) (Sørensen and Torfing, 2012). The process of innovation is complex, nonlinear and iterative, including important phases such as the generation and selection of new ideas (initiation), their implementation in new procedures, practices and services (adoption), and the dissemination of new practices (diffusion).

Public sector innovation literature increasingly asserts that the ability of public organizations to engage and set-up collaborative interaction within and across governmental levels and with societal actors determines their innovative capacity. The Innobarometer 2010 based on a survey of 4000 officials in EU countries highlighted that in Belgium relative to other countries external knowledge was considered as being very important for innovations, but at the same time that internal and external barriers to innovation were considered to be the highest in Europe. Clearly, innovation through collaboration is deemed important, but often fails or is impeded by conditions.

The COVID-19 crisis is another game-changer (Ansell et al.2020) for public administrations when conditions are "inconsistent, unpredictable, and uncertain" with no ready-made solution. While it is too early to draw lessons from the current crisis in terms of the development of new administrative strategies, what can be put at the fore is the need for creative and agile public organizations adaptable to turbulent emerging problems by building partnerships and collaborative networks with civil society and the private sector. Can we say that our administration is innovative? Adaptable to new environments? And capable of constructing efficient collaborative arrangements with external actors to increase rapidly accessibility for competences and resources?

Despite the growing awareness of the need for collaboration, there is a lack of knowledge about how such collaborative governance arrangements results in meaningful innovations regarding policies and services, and how different forms of collaborative governance interact and reinforce each other. Also, it is unclear what organizational and individual conditions need to be present within administration to foster collaborative governance arrangements. For

example, little is known about the extent to which and how new practices of HRM such as New Ways of Working ('Het Nieuwe Werken') encourage and facilitate (or hinder) innovation-enhancing collaborative arrangements. This project will address this research gap by conducting a multi method study on collaborative innovation, studying both (a) how collaborative governance can foster innovation, and (b) by what conditions, in turn, collaborative innovation is supported.

The overall research question of this project is ***'how and under which conditions do collaborative governance arrangements foster the initiation, adoption and diffusion of innovations in policies and services?'***

Next to providing academic advances, research on this topic is of particular relevance to the federal ministries and agencies who are looking for and experimenting with innovation strategies. It will offer practitioners insight into the potential of promoting public sector innovation through collaboration within and across governments and with external stakeholders, and provide guidelines for establishing conditions favorable for such collaborative innovation.

2. STATE OF THE ART AND OBJECTIVES

Confronted with budgetary pressures, wicked policy problems and rising citizens' expectations, public sector innovation is high on the policy agenda in many countries (Osborne and Brown, 2011). Research has focused on types of innovations, developing indicator sets (Hollanders et al., 2013), identifying internal organizational barriers and drivers, and studying the role of public agents and leadership in innovation (Borins, 2001; Hartley, 2005; Windrum, 2008). Only recently, scholars started paying attention to external sources of innovation (e.g. Bommert, 2010; Sørensen and Torfing, 2011). This research builds on the latter stream of literature and conducts a multi method research to study the potential of promoting public sector innovation through collaboration.

Public sector innovation literature increasingly asserts that **innovative capacity** is determined by organizations' ability to engage and set-up collaborative interaction within and across governmental levels and with societal actors, like citizens, firms and organized interests (Bommert, 2010; Eggers and Singh, 2009). One may define **collaborative innovation** as 'an intentional and proactive **process** that involves the generation and practical adoption and spread of new and creative ideas, which aim to produce a qualitative change in a specific context' through collaboration with other public and private actors (Sørensen and Torfing, 2011: 849). According to the literature, collaborative governance arenas enhance problem understanding, formulation of new visions, solutions, strategies and problem-solving capacities, and mobilize societal actors to help generate, adopt, and diffuse innovations (Eggers and Singh, 2009; Sørensen and Torfing, 2011). Research projects like CLIPS, WILCO and LIPSE have increased our knowledge of the conditions for innovation. Yet, little is still known about how collaborative governance arrangements result in meaningful innovations in services and policies and how different arrangements of collaborative governance interact and reinforce each other. Also, it is unclear which organizational and individual conditions foster collaborative innovation, or how to design and sustain innovation-enhancing arrangements (the so-called meta-governance).

Figure 1 shows the conceptual model of this research project. We study how collaborative governance arrangements for transversal coordination with other public actors and for co-production with external stakeholders lead to service and policy innovations as an output (RQ1), as well as under what conditions the underlying collaborative innovation process takes place (RQ2, 3, 4, 6, 7).

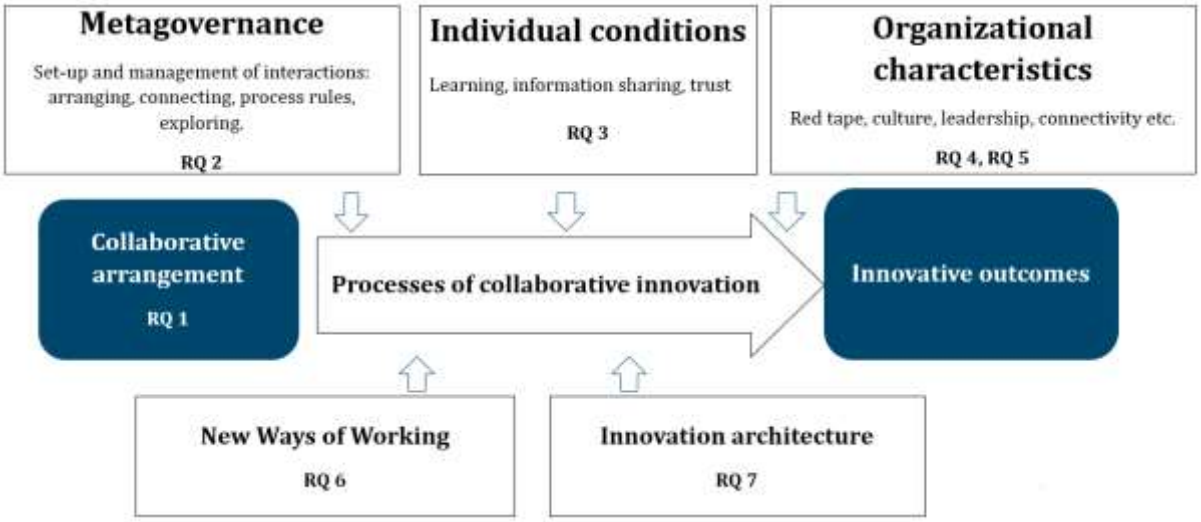

Figure 1. Collaborative innovation by transversal coordination and co-production

One of the main concepts in this study is innovation. Although there has been a growing demand for innovation, there is no real consensus about the definition of this concept. A study by De Vries et al. (2015) reviewed 181 articles about innovation in the public sector and found that a vast majority of these articles (76%) did not provide a definition of innovation. In the articles that did provide a definition, however, two recurring elements were identified: first, definitions focus on a perceived novelty, and second, definitions include the first adoption of an idea by a given organization.

Therefore, in this study innovation is defined as any new process, service, technology or policy within a given context. The novelty might exist already somewhere else, but must be new in the context of the respondent and should represent some discontinuity with how things were done before. Innovation is therefore something different than optimization: innovation represents a break with the past and concerns the implementation of *really* new policies, services, technologies or processes. Optimization is, on the other hand, an improvement of existing policies in line with the past (Damanpour et al., 2009; Osborne & Brown, 2011). Innovation is not limited to the uses of new technology (i.e. electronic government procurement). The innovation can be a new service, but also a new policy, method, process, etc.

Innovation can stem from different sources. Organizations can come up with innovations themselves, without input from external actors or inspired by other organizations. Alternatively, organizations can joint up with other organizations to collaborate in developing or executing an idea. In the current literature public sector innovation developed through collaboration is emphasized. Public organizations may decide to let other actors participate in

the innovation process in order to increase the quality and the quantity of the innovations and so to internalize external ideas and leverage the knowledge. In other words, a success factor of innovations in the public sector is whether they are made in and through a collaborative arrangements (Hartley et al., 2013). Such interactions happen in institutional arenas which we will call '**collaborative governance arrangements'**. Such arrangements can entail structures for concertation as well as processes and instruments such as transversal plans, joint budgets, and shared information systems. These arrangements can be analyzed as governance networks, which regulate the behavior of their participants by specific formal and informal rules. We study to what extent and how such arrangements foster innovations (**RQ1a**) and how they influence and reinforce each other in that regard (**RQ1b**).

In order to study whether collaborative innovation takes place, we use the analytical model by Sørensen and Torfing (2011). Collaborative innovation takes place when actors are *empowered and motivated*, engage in *mutual transformative learning processes,* and develop *joint ownership*. Crucial are the *skills, attitudes and positions, and incentives of individual civil servants* and how these determine their motivation and learning capacities. In our model, we study how individual civil servants in collaborative governance arrangements handle information in developing new technologies, processes, policies and services; what skills and capacities they need to effectively work together with other public actors and stakeholders; and how they learn. These are referred to as **individual conditions for collaborative innovation** (**RQ3**). Next, we study **conditions at the organizational level:** how organizational characteristics like culture and style of leadership influence government capacity to set-up, sustain and learn from collaborative interactions? (**RQ4**). The arrangements for collaborative governance and the conditions can be intentionally changed by government through forms of **meta-governance**, or what Torfing et al. (2012, 135) call "the deployment of different managerial tools that may contribute to improving the performance and impact of particular governance arrangements". Therefore we study how governments create, stimulate and sustain such innovation-enhancing collaborative governance arrangements **(RQ2**). The exercise of meta-governance involves a combination of hands-off tools such as institutional design and network framing and hands-on tools such as process management and direct participation.

Whereas service and policy innovations are at the core of this research project, *technological and process innovations* also exist. In this project we study to what extent **New Ways of Working** in the federal ministries and agencies of Belgium create appropriate individual and organizational conditions for collaborative innovation and how should these be adapted **(RQ6).** Since practices as New Ways of Working assume a shift towards non-hierarchical management styles, result-oriented control and a larger autonomy and flexibility for staff in performing their functions, a positive relation with collaborative innovation might be assumed.

The extent to which governments can create and sustain collaborative governance arrangements for innovation (meta-governance) is also influenced by the government-wide **innovation architecture** in place (Carstensen, et al. 2012). The 'innovation architecture' refers to the structures, processes and instruments set up by governments to stimulate the initiation, adoption and diffusion of innovations in government, like innovation-labs, award schemes, innovation indicators and evaluation schemes. Question is to what extent the current innovation architecture within the Federal Government supports and enhances collaborative innovation and how should this be adapted **(RQ7).**

Finally, we take into account that the relations pictured in Figure 1 are not context-independent. Countries with different political-administrative cultures, yet also different policy sectors (within one country) might well have different traditions with respect to collaborative governance. Therefore, it is of importance to study innovation in different policy fields as well as across different political-administrative contexts.

The research design of the project is shown in figure 2.

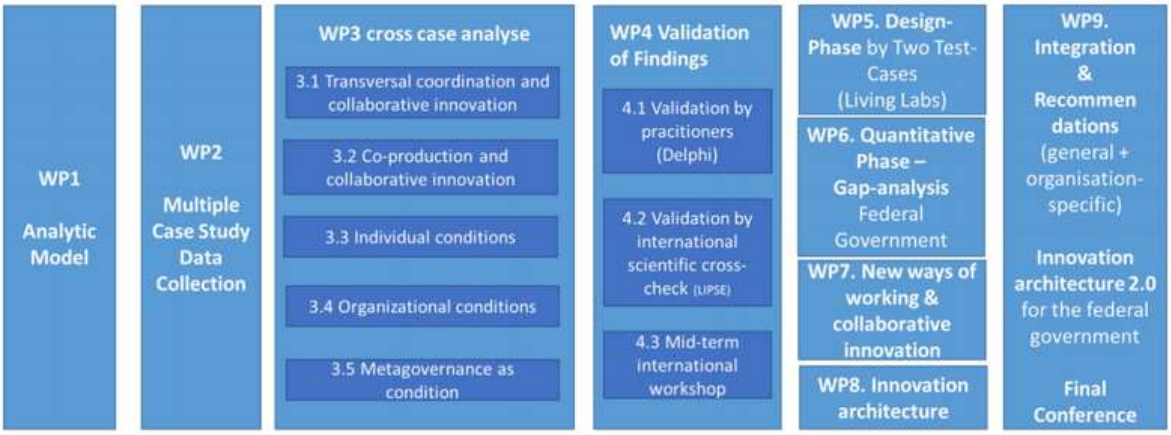

Figure 2. Outline of PSI-CO

The project adds to existing scientific knowledge by refining methods to study collaborative innovation and creating theoretical and empirical insight through a combination of quantitative and quantitative methods into the inter-dynamics between individual and organizational characteristics, collaborative governance arrangements and public sector innovation.

Also, the project results in validated and tested recommendations and guidelines for policy and practice on :

a) how to build innovative capacity and effectively bring about policy and service innovation through collaboration;

b) how to organize and optimize collaborative arrangements for co-creation with other public actors and with citizens, users, organizations and organized interests;
c) what kinds of meta-governance, organizational culture and leadership as well as
d) what skills, attitudes, incentives at the level of the individual civil servants are needed in order to facilitate and stimulate collaborative innovation;
e) what this implies in terms of (New) ways of working and innovation architecture.

3. METHODOLOGY

In this research project we tackle the research questions **using multiple data collection methods (interviews, questionnaires and social network analysis).** The project combines **qualitative and quantitative data analysis methods** in line with what is advocated by pioneering researchers on collaborative innovation (Sørensen and Torfing 2011: 862-863)**.** Moreover, the research project itself is meant to be a **collaborative process** in which the commissioning government, their civil servants and stakeholders are intensively involved in various stages and through various instruments (e.g., discussion of analytical framework; case study selection; validation of case study findings through Delphi; pilot-testing; and quantitative gap-analysis).

3.1 Work package 1, 2 and 3

Qualitative multiple case studies of different practices of collaborative innovation were conducted. The study of the relations in figure 1 calls for a **holistic approach**, which takes into account the context, features of the involved actors, and multi-actor and multi-level interactions in the collaborative governance arrangements. Qualitative case studies are required to fully understand the complex processes and causalities, and to appreciate the role of actors' different interpretations of the collaborative and innovative processes and outputs (Bekkers et al.2013). Because of the importance of the context, the research design should enable to compare across political-administrative cultures and policy sectors. So, these work packages entail a **comparative multiple case study**, comparing cases from different policy sectors. Additionally, we compare between cases geared towards service innovations and others emphasizing policy innovations. Comparative case studies will facilitate the formulation and testing of more specific hypotheses and contribute to theory building.

In order to conduct the comparative case studies a jointly developed, integrated analytical framework and a standardized data collection protocol were developed in **WP1**, bringing together theoretical perspectives on (a) processes of and conditions for public sector innovation, (b) coordination within and between governmental levels, and (c) co-production (including consultation) with external stakeholders.

In **WP2** nine case studies were conducted, using a range of data collection techniques like document analysis, network mapping (analyzing actors and their resources), social network questionnaires to map actors and relations, individual questionnaires, and semi-structured interviews. Data collection and reporting of these case studies was standardized across the case studies. The cases consisted each of an arrangement of different actors that frequently came together to discuss the process. The aim was to interview every actor in these arrangements in order to get to know everyone's perspective on the innovative case. These

interviews were complemented with an online survey which would be filled out by the same respondents. Thus, each respondent was invited to give an interview and fill out a survey on their experience with a specific innovation. These included questions about their experience on the process, the outcomes, what they learned, the applied metagovernance and the characteristics of their home-organization. The survey also provided us with quantitative data on the network formation.

The case studies were selected based on the following criteria. (1) The cases entail arrangements involving public actors and to the extent possible also private actors and citizens, in order to learn if and under which conditions these arrangements lead to service or policy innovations. (2) In order to avoid the pro-innovation bias we included also cases which did not materialize in innovations, or in which innovation processes were particularly difficult in their progress. (3) Comparability, originality and accessibility were important criteria as well.

In Work package 3 a thematic cross-case analysis on all 9 cases was done in order to generate case-related answers on RQ1 to RQ4. This delivers case-related principles about how and under which circumstances collaborative governance arrangements result in policy and service innovations and how the governments' meta-governance, individual conditions, and organizational conditions foster or inhibit this. With regard to the individual conditions, we focused on the skills, attitudes, and positions, and incentives of civil servants empowering and motivating them to participate, engage in transformative learning and develop ownership (see also the conceptual framework in figure 1). As to organizational conditions we focused on the red tape of public organizations ('hard aspects') and on organizational culture and leadership as exponent of the 'soft' conditions.

In total, 91 interviews were conducted and 110 surveys completed. The data was analyzed by applying different methods. These include: Regression analysis, social network analyses, textual analysis of interview data.

3.2 Work package 4

Work package 4 consisted of validation of the research findings of wok package 3 by doing an international comparison and a Delphi study.

In the international validation we examined how PSI-CO's results compare to earlier research and could be generalized to other contexts. Therefore, we conducted an international comparison with findings of the LIPSE project (Learning from Innovation in Public Sector Environments). The LIPSE research project, funded by the EU's FP7 framework, made a major contribution to this by researching drivers and barriers to successful social innovation in the public sector in 11 EU countries (Belgium, Denmark, Estonia, France, Germany, Italy, Romania, Slovakia, Spain, the Netherlands and the United Kingdom) and 7 policy sectors (LIPSE, 2018).

Furthermore, 96 participants who participated in the case studies (WP3) were invited to participate in a Delphi questionnaire. The Delphi method is a structured forecasting/decision-making tool creating conditions that are favorable to a convergence of opinions, while at the same time allowing moderators to clearly discern points of dissent (Jaenisch et al., 2018). It usually takes the form of a written questionnaire and allows for anonymous and independent consultation and argumentation, thereby avoiding some of the drawbacks of face-to-face confrontations both on the social level (e.g. power relations within a group) and the practical level (time consuming, especially with geographically dispersed individuals) (Duin, 2016 in Jaenisch et al., 2018). Responses are only visible to the moderator(s) and not to the participants in order to avoid self-moderation bias. The iterative nature of the consultation, building on feedback of the respondents, allows for the correction of potential bias in the initial questions, which is the main fragility of classical (non-iterative and non-interactive) queries (Jaenisch et al., 2018).

In the case of PSI-CO, the Delphi questionnaire was developed on the basis of the comparative analysis of the case studies (WP3). The Delphi was addressed to the actors who had been interviewed in the different case studies. Regarding the recommendations, we validated the conclusions through the questionnaire (mainly the transversal conclusions). The Delphi thus validated the interpretative work that has been carried out. After reflection, it seemed interesting to us to formulate the questionnaire in the form of a SWOT analysis (strengths, weaknesses, opportunities and threats of collaborative innovation in the public sector) whose objective is not only to validate some of the recommendations made in the report but also to prepare the research actions which were organized as "living labs" (WP5).

3.3 Work package 5

The validated findings of WP4 were put on test in real-life cases in order to assess their functionality and check the possibility of developing more operational guidelines for supporting innovations through coordination and collaboration. Action research was organized using a Living Labs inspired methodology in order to produce scientifically and socially relevant knowledge on specific interventions as they are mobilized during processes of collaborative innovation, and reflexively studied, and adjusted at the same time. Co-creation in open innovation requires an open mindset towards sharing and collaboration, which can be supported by techniques such as "context-mapping" which involves users intensively in creating an understanding of the contexts of service use (Sleeswijk, Visser, 2005) and "generative" techniques which can reveal tacit knowledge and expose latent needs (Sanders, 2000). The participatory techniques must respect some principles to ensure the sensitization of participants but they are to be adapted by the research group to the specific context and issue at stake. Pragmatist intervention in policy innovation (Hajer & Wagenaar 2003) is best engaged through research-action, which gives the possibility of organizing concrete activities

engaging the actors themselves, in line with the "living lab" methodology. It organizes conditions for strengthening users' involvement and for fostering the possibility for user driven innovations (Schaffers et al. 2011). The researcher becomes part of a collective of actors (participative research) and he/she engages in the building of collaborative innovation, by using techniques and processes for collaboration, acting as a facilitator of policy learning, grounded in social practices.

The 1st case (emergency planning) was supported by the unit of the Liege District (Province de Liège) which asked the researchers support for implementing an action research for the "construction of a framework supporting RETEX": the stakeholders in the policy network were already well known to the researchers. First a large workshop with interested stakeholders was organized to discuss the "challenges of learning from experience". Then semi-directive interviews were conducted with key actors in order to deepen certain dimensions. An online survey (Delphi) was conducted: first to identify good practices and test the concrete results of the workshop, secondly to react to the results of the first round and the propositions of the researchers. A pilot case of the new procedure was then launched, within a real case. Conclusions for supporting RETEX were proposed to the District.
The 2nd case (intimate partners violence) was based on exploratory interviews and the development of a largely missing "stakeholder mapping". The researchers planned a **reflective collaborative workshop** in February/March 2020 with field actors in Wallonia (justice centres, reception centres, non-profit organizations active in the sector, etc.) with the objective of co-constructing **a common reference framework between actors.** But the covid-crisis and the complete lockdown impeded with the full implementation of the workshop.

3.4 Work package 6

Work package 6 (WP6) of the PSI-CO project entailed a gap analysis through a survey in the Federal government organizations. In this work package we examined the following research question: "**To what extent do the meta-governance, individual and organizational conditions for collaborative innovation present in the federal ministries and agencies of Belgium lead to more innovation and how can these be strengthened?**" To answer this question, we have distributed an online survey to the three highest managerial levels of the federal ministries and agencies (628 respondents; response rate: 35.2%). The survey data enabled us to examine how organizational characteristics such as connective and learning capacities, organizational culture and collaboration with certain actors leads to the development of innovation. The operationalization of these concepts was supported by the current state of the literature and the in-depth knowledge gathered in the case studies (WP3).

The federal survey is important in order to assess the experiences and the potential for innovation through collaboration in the different ministries and agencies of the federal

government. This analysis enables us to formulate more precise recommendations to federal governments on how to optimize their capacity for collaborative innovation. For scientific research, the survey makes it possible to do explanatory analyses to check the explanatory power of each of the capacities and characteristics on the degree of innovation or the degree of participation in collaborations to innovate. It allows existing and new theories to be tested.

The three highest levels of management of federal government organizations were invited to participate in the survey. It was necessary to have these different levels involved in order to get a completer and more nuanced picture of an organization, because experiences can be different per organizational unit. Also, in the current state of administrative sciences and organizational sciences it is considered necessary to have several answers per organization, preferably at different levels, to arrive at a complete picture and to obtain valid research data.

The public managers at the highest management level of the organization (N) received a slightly different questionnaire than the two lower management levels (N-1 and N-2) as the questions in the N-level version referred to the organization as a whole. The questions for the managers on the N-1 and N-2 levels contained questions about the organizational unit they are responsible for. Respondents can best answer questions that refer to their direct work environment, and hence respondents on N-1 and N-2 level might not have a clear view what happens in other parts of the organization. Hence, whereas the respondents on N-level received questions about the entire organization, the managers at the second highest management level (N-1) and on the third highest management level (N-2) were asked questions about collaborations and innovations in the organizational unit they are responsible for as a manager.

To motivate respondents to participate in our survey we promised that we would provide every organization with an organization-specific feedback report with the scores of their organization, enabling a gap-analysis per organization. Furthermore, the ten organizations with the highest response rate were offered a tailor-made presentation of the result by the research team.

3.5 Work package 7

For WP7 a mixed methods research design was chosen; a qualitative and quantitative part. By combining the results of these two methodologies we aspired to get an as complete as possible answer on our research question.

We collected qualitative data through case studies in which we conducted 17 semi-structured interviews. Two cases of collaborative innovation involving the federal government were selected based on the following case selection criteria: ongoing collaboration projects aimed at some kinds of innovation involving multiple public actors. We selected two with the best fit with the selection criteria: 'Work Integration' and 'Domestic Violence'. The cases included

aimed at an innovation of a public policy or service by collaborating with different actors, namely federal, Flemish, local or regional governmental organizations, and non-profit organizations. The interviews were semi-structured and divided into four main components: (1) description of the project itself and the own position, both in the organization and related to the project; (2) the role of their own organization in the project, how the collaboration was set-up and organized, and the personal experience with the collaboration; (3) policy and experiences with NWW (teleworking, time independent working, self-managing teams, job autonomy and ICT-tools); and (4) perceptions whether or not and how NWW might have implications for the project (for both the collaboration and the innovation) and in which way.

Next to this, a quantitative survey was conducted in which the different variables of the PSI-CO conceptual model were measured. This survey was part of Work Package 6, the quantitative phase, and was aimed at the three highest managerial levels of the federal ministries and agencies. In the survey, questions concerning (self-managing) teamwork, time and place independent working and motivations for implementing NWW were included.

3.6 Work package 8

Finally, an exploratory research about innovation architecture at the government-level was carried out (WP8). First, a comprehensive literature review was conducted in order to develop a framework for a government-wide innovation architecture, and gain insight into the different elements that make up this architecture. The publications of the OECD Observatory of Public Sector Innovation (OPSI) have been particularly instrumental in establishing which aspects of public sector innovation should be taken into consideration when developing the concept of innovation architecture. Based on the literature review, the following elements have been identified as key elements of the innovation architecture of governments:

1. innovation strategy & policy
2. innovation networks
3. innovation labs & teams
4. innovation resources
5. innovation evaluation
6. data governance
7. risk governance
8. incentives

Given the exploratory nature of this research, a qualitative approach was adopted to gain insight into the current innovation architecture present within each of the researched countries. For the comparative analysis, Finland, Estonia and The Netherlands have been selected, since each of them can be considered frontrunners in the field of public sector innovation. 24 semi-structured interviews were administered with government officials as well as academic experts from the different countries. The OECD Observatory on Public Sector Innovation helped in establishing contacts with relevant interviewees in Estonia, Finland and The Netherlands. Prior to the interviews, document analysis and desk research were conducted to identify those government organizations that were already involved to some extent with innovation.

Based on the findings from the comparative country study, best practices from the different national governments were collected and used as a guideline to formulate recommendations for the improvement of the innovation architecture of the Belgian federal government.

4. SCIENTIFIC RESULTS AND RECOMMENDATIONS

Innovation through collaboration

This section presents the conditions on the individual, network, organizational and governmental level influencing collaborative innovations, and the main actions that can be taken by public organizations to meet those conditions. We do so by providing an (shortened) answer to the seven sub research questions posed in the project. See the reports on www.psico.be for the full results.

4.1. Collaborative governance arrangements for innovation

In this part, we provide an answer on the first research question:

RQ 1. *(a) How do collaborative governance arrangements result in innovations with respect to policies and services (innovative capacity of collaborative governance arrangements)? (b) How do these collaborative governance strategies mutually influence and reinforce each other in order to create such innovations (dynamics and interaction of collaborative governance arrangements)?*[1]

The answers come from the case studies and the federal survey.

4.1.1. Innovation in the federal government

First, we provide a state of the art of innovation the federal government. These results are based on the federal survey of work package 6 in which we looked at four types of government organizations:

- FOD/SPF (Federal government services / ministries)
- FWI/ESF (Federal Scientific Institutions)
- ION/OIP (Institutions of Public Interest)
- OISZ/IPSS (Public institutions of Social Security)

The survey assesses four aspects of innovations:

- **The extent of innovation**, which is the extent to which innovations have been developed in the organizations in the last three years. Four types of innovations are distinguished:
    - Policy innovations refer to the development of new policies;

[1] See the reports of work packages 3, 4 and 6 for more results.

  - Technological innovations refer to the creation or use of new technologies to deliver services to users or citizens;
  - Service innovations are new services offered by the organizations to users or citizens;
  - Process innovations encompass the improvement of the quality and the efficiency of organizational processes.

- **The origin of innovation,** which refers to the source of innovation, or the way in which innovations have been developed. Innovations can be developed:
  - Fully within the organizations;
  - Within the organizations but partly inspired by external contributions;
  - In collaboration with external actors.

- **The satisfaction with the innovation developed** within the organization, within the organization but inspired by others and in collaboration.
- **The status of innovation,** which is the degree to which innovations have been tested or implemented in the organizations. Innovations can either be:
  - Piloted or experimented in the organization;
  - Implemented by or in the organizations.

With regards to the development of innovations in the last three years, all types of organizations developed on average to a relatively low or moderate extent policy, technological, services or process innovations. Respondents indicate that innovations related to organizational processes are relatively more developed than other types of innovations. It is found that federal organizations are most involved in the development and/or implementations of process innovations. Moreover, looking at the significant differences between the types and sizes of organizations reveals that FWI/ESF and small organizations are least frequently involved in the development and/or implementation of innovations.

On average, innovations are for the largest share developed purely within the own organization, followed by 'in active collaboration with others' and 'inspired by others'. However, the origin of innovation varies according to the type of organizations. Innovations in Public Institutions of Social Security (OISZ/IPSS) are mostly developed internally. Federal Scientific Institutions (FWI/ESF), in turn, develop the largest share of their innovations in collaboration with external actors. Federal public services, ministries and federal public planning services (FOD/SPF, POD/SPP), as well as Public Institutions (ION/OIP), develop on average an equal share of their innovations internally as in collaboration with external actors. As compared to other types of organizations, the Public Institutions of Social Security

(OISZ/IPSS) develop significantly a larger share of their innovations internally, but a lesser share of their innovations in collaboration with external actors.

The satisfaction with the developed innovations is on average for all types of organizations moderate to relatively high regardless of the origin of the innovation. There are differences between types of organizations when it comes to piloting or experimentation of innovation. Piloting/experimenting is significantly less common in Federal Scientific Institutions (FWI/ESF). The degree to which organizations implement innovations is relatively high in all organizations. Overall, innovations are more commonly implemented than piloted.

4.1.2. Characteristics of collaborative governance arrangements

We also looked at three characteristics of collaboration:

- **The type of collaboration** refers to the aim pursued by organizations when they start collaboration. A distinction is made between collaboration where at some point the aim was to develop an innovation and others type of collaboration;
- **The size of collaboration** is the number of actors with whom an organization usually collaborates;
- **The type of actors** with whom organizations collaborate;

With regards to the type of collaboration, all types of organizations collaborate to develop innovations or for other reasons. Respondents indicate that their organization(al unit) collaborates more often with the aim to develop an innovation than they do for other purposes. Again the engagement in such collaborations differs substantially between, but also within organizations. Furthermore, federal organizations engage on average relatively more in small-sized collaborations compared to large-sized collaborations to develop innovations.

With regards to the governmental actors within the Belgian public landscape organizations collaborate with, over half of the respondents of the OISZ/IPSS and the FOD-POD/SPF-SPP report that their organization(al unit) collaborates with other federal ministries and agencies in the same policy area in a rather high to very high extent.

Collaboration with other federal organizations from different policy areas is a little less common. Federal Scientific Institutions (FWI/ESF) are the type of organizations who collaborate the least with other federal organizations active in different policy areas. The FOD-POD/SPF-SPP report the highest level of collaborations with other federal bodies which belong to other policy areas, albeit that they engage in such collaborations on average to a moderate extent.

Collaboration with organizations from different governmental levels is rather limited, particularity for institutions of Social Security (OISZ/IPSS). The level of collaboration with

research institutes is higher, but disparities amongst types of organizations are higher as well. Those type of collaborations is particularly high for Federal Scientific Institution (FWI/ESF), and low for institutions of Social Security (OISZ/IPSS). They are also more common for small-sized organizations. Moreover, collaboration with citizens and non-profit organizations is rather scarcely practiced within the federal government as well. A vast majority of respondents report such collaborations to be non-existing or only present at a limited extent. This holds for all the types of federal organizations.

With regards to other non-governmental or non-Belgian actor organizations collaborate with, collaboration with private actors is the most common. Collaboration with private companies is practiced on average relatively more than collaboration with citizens and non-profit organizations which are rather scarcely practiced within federal government. But such collaborations are still rather limited, although the variety among and within types of organizations organizations is substantial.

Collaboration with European or International institutions varies according to the type of organizations. Institutions of Public Service (ION/OIP) collaborate with them most often, while institutions of Social Security (OISZ/IPSS) seem to be the least engaged in such international or European collaborations.

4.1.3. Findings from the case studies

Individuals involved in collaborative innovation come together and operate within a network – which can also be referred to as a collaborative arrangement. These often take the form of ad hoc organizational arrangements, such as a board, a project team, a task force, a working group, or a commission, to name a few. Oftentimes there is a coordinator or a project manager, which we call the *metagovernor*. The metagovernor is the person responsible for the management of the collaborative arrangement and the collaborative innovation process.

The collaborative arrangement can be structured and managed in such a way that they can facilitate the learning processes and ease the development of innovation. Three core elements attached to the network level influence the extent to which innovations are developed. The composition of the collaborative arrangement (who participate) determines the scope and the availability of knowledge for the development of innovation. The quality of the process directly influences the information exchange and individual learning. It also shapes the commitment to innovation. Finally, the metagovernor has a key role in setting up the collaborative arrangement, defining rules and managing interactions to drive innovation.

4.1.4 Generative mechanisms and implications

Having the right actors in a collaborative arrangement is essential for the successful development of innovations. The quality of the innovation indeed depends on the resources

individuals can provide – knowledge, expertise, contacts, information, but also finances and legal power - through their organization. Collaborative arrangement composition influences learning – the greater the diversity of knowledge and points of view, the higher are the opportunities to learn – but also the practical implementation of an innovation, by increasing financial or legal resources.

Synergy refers to "the power to combine the perspectives, resources, and skills of a groups of people and organizations" (Lasker et al, 2001). Different perspectives can be established by adding actors with different backgrounds to the collaborative governance arrangement. Their difference in opinion at the start of the process is a part of synergy.

We observe a diversity of actors in collaborative arrangements. Seven out of nine cases have actors from more than one governmental level. Three cases included citizens, four cases included private actors, three cases non-profit organizations and lastly three cases had the involvement of interest groups. Next, the involvement of different perspectives is regarded as being beneficial for the innovative outcomes. Yet the perceptions should not be too different from each other: a risk exists that actors do not understand each other because they have different expertise. Also, differences of opinion can cause deadlocks in the process, because actors cannot agree upon issues. The metagovernor should be aware of this and anticipate on this to make sure the differences of opinion deepen the discussions, and do not frustrate them.

Concerning the involvement of different perspectives, it is important to look at the way actors are included in the project. To what extent actors know each other is important. Not being familiar with each other allows actors to break out of the 'groupthink' that closed collaborative arrangements can have (Lewis and Ricard, 2014). This is also referred to as 'the strength of weak ties' (Granovetter, 1983). Having strong ties with each other can create group thinking and exclude relevant actors which might be detrimental for the innovation process. However, strong ties can also be seen as necessary for innovation, especially because they can establish and foster trust-building in the network (Klijn and Koppenjan, 2010). Actors have to share information without knowing beforehand what the outcome of the process will be. It is virtually impossible to have built-in guarantees against opportunistic behavior since no one knows what kind of opportunistic behavior can be expected. Trust can facilitate innovation since it reduces such uncertainties. In the creation of collaborative arrangements, we see three general tendencies: (a) The network of actors is new and specifically created to work on an innovation; (b) the collaborative arrangement of actors already exists and people are used to working together ("we got along well, we worked together regularly and it worked well"); (c) a small core group already exists and then creates a larger collaborative arrangement to work on a specific topic. Respondents generally argued that getting to know, or already knowing, the involved actors was beneficial for the process and that it facilitated smoother interactions.

However, there should be room to invite additional actors when necessary, in order to include different perspectives. If so, attention should be paid to trust-building.

Next, we found that the amount of synergy (especially concerning expertise and differences of opinion) is associated with the way in which decisions (one-way consultation versus joint decision making) are made in the collaborative governance arrangement. We see that synergy was evaluated highest in cases where decisions were made collectively and in cases that were not fully driven by one or multiple coordinators. These are the cases where no clear, precise goal about what the innovation needs to be or how it should look like is formulated upfront. There are two different dynamics present in the cases: having a clear goal upfront or, in contrast, holding a desire to innovate in order to solve a problem yet without precisely knowing what exactly the innovation ought to be or how it should look like. A project with a clear goal formulated upfront tends to consist of actors that are able to get 'things done'; to reach the end goal. A project with no definite goal tends to consists of actors that think along, that seek to define the problem that needs to be solved and seek to agree upon the goals about what the innovation should be. If precise goals are defined already before the interactions started it is less obvious that decisions are made with the input of all the actors, which potentially leads to a loss of synergy or optimal use of the different expertise and opinions of involved actors.

Commitment refers to the joint ownership of the innovation; the feeling that actor they are all responsible for the innovation. This entails factors such as the extent to which actors are committed to invest resources in the process, results are aligned with their core beliefs, and they participate in managing the diffusion of the innovation. With respect to financial means as one kind of resource, the majority of the innovative projects studied were started by the organization/organizations that also provided the budget. Therefore, in order to ensure extra funds to secure the financial aspect of the innovation, it was not necessary to actively search for input from other organizations. A distribution key was made in projects where not one specific organization was responsible for the finances. In none of the cases coordinators actively had to look for sponsors. The financial input of organizations was often very clear in projects where organizations were obliged to participate because of formal guidelines or their legal mandate. Thus, financial matters were never a point of discussion in the collaborative arrangements. Furthermore, financial means were made available by the coordinator in the projects that had a highly voluntary character for the participants. Here, because of the voluntary nature, actors did not want to invest financial resources on their own, or simply did not have them. Thus financial commitment is generally lower in cases that are highly voluntary. The implementation of these projects is thus highly dependent on the metagovernor and his/her financial resources. As most of the collaborative innovation initiatives are initiated and coordinated by Federal or regional public organizations, it is hence important that the

availability of financial resources is given sufficient attention, a point also raised in the recommendations.

We found that the extent to which the collaborative innovation project is a priority for the higher levels of the home organization yields positive perceptions of the achieved innovative outcomes in the collaborative arrangement. We argue that the prioritization by the home organization of the innovation is a form of commitment. Actors feel that the prioritizing by the home organization contributes to the innovative output of the project, making it more feasible to implement and disseminate the innovation, since the collaborative arrangement feels it can count of the support of the home organizations.

In order to stimulate the occurrence of these generative mechanisms, several strategies can be used:

1. **Execute an actor analysis.** An actor analysis is a tool which allows the metagovernor to map potential participating actors and organizations based on the kind of resources (finances, legal power, expertise, information, contacts…). they have and the substitutability of these resources, as well as the initial perceptions of these actors on the issue at hand. Through the actor analysis, it is possible to build a collaborative arrangement which has all the necessary resources to develop the innovation.
2. **Include the end users in the collaborative arrangement**. The end users are largely affected by the implementation of the innovation, because it often changes the way of working for them. To avoid resistance to change, it is important to include the end users in the process. Such inclusion secures their commitment, but also increases learning opportunities: end users have specific knowledge of the problems at stake and might give interesting ideas to solve a problem. It is important to note that citizen involvement is often harder to establish. For example, it may be harder for them to attend meetings during office hours. In such circumstances, meetings after working hours can be particularly useful. Pay attention that communication challenges are greater as end users are oftentimes not experts on the technical or legal level of the innovation: great effort should be made for the communication to be clear and understandable.
3. **Be aware of the actors who can block the process**. In one of the studied case, collaborative innovation did not reach the implementation phase, because the government did not adopt the developed innovation. It is important to pay attention to actors who can block the process, and either include them as members of the collaborative arrangement, or be sure to include people that have a direct relationship with them. That way, it is possible to negotiate with these actors and prevent the non-implementation of a developed innovation.

Managing collaborative arrangement composition: the role of subgroups

There are **two key challenges** associated with the collaborative arrangement composition: diversity and size. **Diversity** is essential for the development of innovation: it is through the combination of different points of view and knowledge that innovation emerges. However, diversity does not come without difficulties. It reinforces communication problems, and complicates interactions and trust building. The challenge of **size** is relatively similar. Larger collaborative arrangements increase the available resources, but complicate information exchange. Deep discussions and debates are also more difficult to manage in large groups.

To ensure effective communication and to deepen the discussion in rather diverse and large collaborative arrangements, one solution is the creation of subgroups. In our case studies, two types of subgroups were used with success:

- **Thematic subgroups**, in which individuals discussed specific sub-issues of an innovation based on their expertise and their interests. Whole group meetings were organized to present the work of each subgroup and make the decisions. The thematic of the subgroups were defined by mutual agreement, and the participation to those sub-groups was voluntary.
- **Functional subgroups**, in which actors are divided according to their function. This type of subgroup was used in a case involving scientific and legal issues. Scientific and jurists formed two subgroups, the first discussing the needs on the ground, the second the administrative and legal implications. Again, general meetings were used to clarify the needs, discuss the feasibility of suggested options and take the final decisions.

Overall, those subgroups ensured deeper discussions over the issues and improve the overall effectiveness in large or diverse collaborative arrangements. On the downside, the creation of subgroups increases the costs of coordination. Exchange of information should be organized between groups to ensure mutual learning, which requires time, planning, and strong coordination skills from the project coordinator.

Attention: not all types of subgroups are good! Language divisions, with French-speaking people on one side, and Dutch speaking-people on the other side is as ineffective way of dealing with diversity or size. It tends to exacerbate conflicts and misunderstandings. Involving individuals who have a good knowledge of

	both languages is the best option to prevent misunderstandings. Complete and timely translations of meeting minutes, notes and working documents is also an option, but resource are often lacking to make this happen.

4.2 Metagovernance as condition for collaborative innovation

In this part an answer on the second research question is provided.

RQ 2. How do governments create, stimulate and sustain such innovation-enhancing collaborative governance arrangements (meta-governance as condition for collaborative innovation)?[2]

The answers are predominantly based on the case studies.

4.2.1 The quality of the process

Broadly speaking, the quality of the process refers to the satisfaction participants have with regard to the interactions that occurred between them within the collaborative arrangement. The quality of the collaborative innovation process is an important condition for the emergence of innovation: it influences the extent to which individuals share information with each other, learn, and feel committed to the innovation. The quality of the process depends on multiple factors, such as the occurrence of conflict, the effective involvement as well as a fair treatment of all actors involved, or the extent to which concrete actions are taken. The main risk of a low-quality process is the occurrence of deadlocks, with participants sticking to their position, unwilling to learn and understand other points of view, unwilling to share information, or worse, unwilling to participate further in the process. The process quality refers to the evaluation by actors of the interactions between the different actors in the collaborative arrangements. We looked at the satisfaction with the process and the occurrence of deadlocks (difficulties that hinder the process). We found that several **deadlocks** occurred in the projects:

- Higher political bodies that did not support the innovation and blocked the implementation (institutional cause)
- Deadlocks concerning interactions, especially difficulties in understanding each other because of a French/Dutch language barrier (institutional cause)
- Disagreements related to the coordination, task division or pace during the process (management cause)

[2] See the reports of work packages 3, 4 and 6 for more results.

Especially concerning this last deadlock, we found that having the feeling of making no progress, is very disadvantageous for the motivation of the actors. Cases with 'quick wins', for example by setting milestones, were evaluated positively on **the quality of the process**. It keeps actors motivated and keeps the process going which is essential. Similar, pilot projects are seen as an effective way to gain these quick wins and also to receive quick feedback from the field. The development of a measurement tool for the outcomes of the innovation can contribute to this.

Some actors argue that they had to do more than they initially thought which caused dissatisfaction about the process quality. The deadlocks do oftentimes not lead to a lower average evaluation of the process quality, but we see that cases characterized by deadlocks have a higher standard deviation. This can mean that less consensus on the process quality is present. This might indicate that deadlocks were perceived differently by the actors in the case. Some might see the deadlocks as very harmful for the process for example because they were involved in the deadlocks, while other actors might not perceive the deadlocks as being harmful because they are not affected by it.

The cases are in general highly evaluated on the **institutional quality**, indicating that relations have been improved over the course of the projects and new relations have been built fostering future cooperation. Projects in which actors were positive about the collaboration in the interviews generally also have a higher evaluation of the institutional quality. Some actors mention that relationships were developed that were also useful outside the project. People got to know each other through the project, and this is also beneficial for extending their own personal network. They can easier reach out to others even if this is not related to the project.

4. **Clarify actors' expectations.** Actors involved in collaborative innovation have different expectations with regard to the process. The reasons behind their involvement are diverse, and they probably have different ideas on what they want to achieve. Clarifying those expectations – both with regard to the process and the final innovation output - is essential as a misunderstanding about each other's expectations can create frustration and blockades in the long run. To do so, "roundtables" can be organized at the beginning of the meetings. Such roundtables would hence complement icebreakers, which are useful for people to get to know each other personally and develop trust, as explained in the individual-level condition section. Those roundtables should be complemented by bilateral meetings. Some actors may be unwilling to share their real expectations in front of everyone else: bilateral meetings can be used to gain information on those expectations, and avoid future deadlocks. Actors' expectations should be taken into account throughout the whole process, as they might change over time.

5. **Set objectives and milestones.** When objectives are blurred and no action occurs, dissatisfaction grows amongst the actors as they do not see where the process is going. This can result in blockades or, worse, a willingness to leave the process. Setting clear objectives for each meeting and defining milestones can help to keep actors motivated and willing to continue to invest in the collaborative innovation process. Milestone can be, for example, a point in time when participants decide which idea(s) should be further developed, or where different options with regard to an innovation are presented to the political authorities for decision-making. Achieving milestones can be regarded as "quick wins" helping people to stay motivated in the long run.

6. **Value and celebrate achievements.** Valuing and celebrating achievements is not something to be forgotten. Once an objective or a milestone is achieved, it is good to take the time to recognize the achievement, and congratulate the participants. This increases their motivation, and keeps them committed long term. When the achievement is particularly important – for instance, the budget for the development of the innovation has been granted – the organization of a special activity – an after-work meeting, a teatime, etc. (see recommendation 1) – is a good idea.

7. **Whenever possible, go for a pilot project.** Pilot projects lead more quickly to results and increase individual satisfaction and commitment. In pilot projects, problems are concrete and results quickly visible, which keeps the actors motivated and involved. When the innovation is piloted, it also becomes easier to see what works, and what does not work. It is hence possible to quickly receive feedback from the field and adapt the innovation.

8. **Avoid losing time on small but controversial issues.** When deadlocks occur because participants do not agree on a small issue, this issue can be placed on hold, and moved to the next meeting. This prevents the process being slowed down. Sometimes, it is by talking about something totally different that such issues can be solved.

9. **Engage in one-to-one and bilateral conversations.** We already saw the importance of information exchange outside meetings for learning in the previous section. Such informal exchange is also important to ensure the quality of the process. Particularly important in this regard are one-to-one conversations between the coordinator of the project (the metagovernor) and the participants, particularly when participants express their dissatisfaction about the process. In such exchanges, the metagovernor can act as a mediator between two participants with conflicting points of view, decreasing the risk of conflict.

The problem of a "False Consensus"

Effective inclusion of all stakeholders is an important dimension of the quality of the process. However, it can be hard to achieve. In our case studies (see WP3 for further details), if almost all actors claim that decisions were based on consensus, the decision was often highly influenced by the coordinator, after a short consultation with others. This creates dissatisfaction amongst some of the participants, who feel that their input (ideas, opinions, views) have not been taken into account. To increase the quality of the process and avoid false consensus, it can be useful to:

- **Organize bilateral meetings** with participants whose ideas were not taken into account to explain the reasons for this non-inclusion;
- **Link the proposal for a decision to the ideas** developed by the participants, either formally, with an accompanying report, or orally, by explaining how the proposal tackles the problems raised by the participants or includes their suggestions of solutions; **Develop documents** (Meeting minutes, reports, Excel sheets, etc.) that **accurately report all the ideas** developed while preserving the anonymity, and share those documents with all participants.

4.2.2 Metagovernance strategies

At the head of the collaborative arrangement, a coordinator or a project manager can be found which we call the *metagovernor*. The metagovernor can be a civil servant at the initiative of a project, or someone appointed by a top manager. The metagovernor is one – if not the most - important person for collaborative innovation. She or he is the person in charge of managing the collaborative arrangement in such a way that innovation is achieved. The metagovernor is in charge of the actions and strategies presented above: She/he must organize (in)formal meetings, social activities and bilateral meetings, support knowledge generation, coordinate different subgroups, keep records of all participants ideas and provide synthesis, makes proposals for decisions… In short, the metagovernor is the driving force behind collaborative innovation.

A central element in the success or failure of the innovative process seems to be related to the skills and competences of the metagovernor : an efficient metagovernor is not isolated but part of different cliques (subgroups in the collaborative arrangement that frequently interact with each other), indicating that he/she is at the heart of the collaborative arrangement he/she coordinates.

This indicates that an active 'hands-on' role of the metagovernor in the interactions in the innovation is preferred. The metagovernor should be actively involved in the collaborative arrangement and be visible for the other actors. When the metagovernor is a central boundary spanner in the collaborative arrangement he is able to link different actors to each other and thus, establishing the circulation of information and/or ideas.

There is a distinction with the **"hands-off metagovernor"** whose involvement is more rhetorical support: he/she is delivering regularly a supportive message from the authority towards all the participants, confirming as well the legitimacy of the hands-on metagovernor.

Regression analyses showed that respondents who perceive the amount and level of applied **metagovernance strategies** to be high, also perceive the innovative outcomes of the collaborative arrangements in which they are active as high. The case studies and analysis of interview data showed that the strategies which the metagovernor can apply are very much context dependent, but assessment of metagovernance as succesful is related to higher perceived innovative outcomes.

We evaluated the strategies of the metagovernor in the case studies. We looked at four different strategies (Klijn et al., 2010; Koppenjan and Klijn, 2016):

- ***Introducing process rules.*** These include rules for entrance into or exit from the process, conflict regulating rules, rules that specify the interests of actors or veto possibilities, rules that inform actors about the availability of information about decision-making moments, etc. Actors claim in all cases that there were few formal rules to manage the collaborative arrangements. They often cannot recall any measures that were taken and almost all actors claim that decisions were based on consensus. However, in practice, decisions were sometimes highly influenced by the metagovernor after only a short consultation with the other actors. We see that the case where this happened scores lower on the item that measured whether or not something was done with the actor's input. This does not mean that one method is better than the other, but that decisions are more often made based on 'decision-making after consultation of actors' instead of actual joint decision making.
- ***Arranging structures for interaction, consultation and deliberation.*** This includes the creation of new ad hoc organizational arrangements (boards, project organizations, etc.). The creation of collaborative arrangements is different in every case, but we found that the collaborative arrangements are usually created by a single actor or a small core group of actors who initiate the project and subsequently also acted as the metagovernor(s) of the project. The metagovernor is often the starting point for the creation of the collaborative arrangement specific for the innovation and

he often uses his/her own network to determine who to invite to the collaborative arrangement.

- ***Exploring content.*** This includes: searching for goal congruency, creating variation in solutions, influencing (and explicating) perceptions, managing and collecting information and research, creating variation through creative competition. A main strategy concerning the establishment of synergy is the establishment of different subgroups. We found that establishing different subgroups is beneficial for the process, because the relevant actors are placed together. Working in small groups is appreciated by most of the stakeholders we met, because interactions become easier and only relevant actors were present that were able to deepen the discussions. They generally support the results of the innovative process in which they took part. Next, a strategy that was considered as very positively by the respondents is the creation of a measurement tool. This was developed in two cases and it allowed the involved actors to know what works and what does not. Since an innovation is often a process of trial and error, this is experienced as a good way to objectively measure the results of its implementation.

- ***Connecting strategies***: This includes: selective (de)activation of actors, resource mobilizing, initiating new series of interactions, coalition building, mediation, appointment of process managers, removing obstacles to co-operation, creating incentives for co-operation. Different measures were taken to come to a process which was as smooth as possible. Milestones seem to be an important tool to keep actors motivated. The interviews showed that people got motivated by early success and that cases without implementation led to frustration, because nothing happened. Implementation gives the actors a feelings that they are going somewhere. Deadlocks because of differences in opinion were generally solved by placing the 'difficult' issue on hold and moving it to the next meeting. This would prevent that the process slowed down. Also, metagovernors engaged in one-on-one conversations when actors expressed their dissatisfaction about the process or other actors. Connecting actors with each other smoothens the interactions and it overcomes barriers to interact. Think for example about the increase of trust when actors get to know each other. Related, we found that the cases with intensive interactions between the participating actors (in terms of information giving and in terms of building upon others' ideas) score high on the connecting strategy. Thus there is a strong indication that intensively used connecting strategies lead to more dense networks, resulting in a more positive perception of the innovative outcomes.

To support the metagovernor, several actions can be taken:

10. **Provide training to develop metagovernor skills**. The management of a collaborative innovation process depends on the skills of the metagovernor. Public organizations can provide training supporting the development of project management skills and interpersonal skills, such as training on project management methodologies, stakeholder analysis, meeting management, nonviolent communication, mediation or negotiation, to name a few. This is particularly important because managing a group working on a new project is much more difficult: the metagovernor has to develop a lead to conduct the group through unknown issues which are destabilising for most actors. Such training is also useful to develop the coordinator's trustworthiness, which is important for learning (recommendation 5) and the capacity to build trusted relations.

11. **Create a support unit**. In some public organizations, a service is dedicated to the elaboration of project management methodologies, or is specialized in methodologies facilitating the inclusion of different perspectives, such as the user journey or user-centered service design. Those services could provide support to anyone who is in charge of a collaborative innovation process.

12. **Giving (or asking for) feedback**. Feedback from the hierarchical superior of the coordinator on her or his work is essential for motivation. Feedback should be used to value achievements, discuss difficulties, and provide support. Giving feedback is not only the responsibility of the hierarchical superior. The coordinator should feel free to ask such feedback when needed, to overcome difficulties and celebrate successes.

Hiring or training the metagovernor?

We discussed the importance for public organizations to provide training to the metagovernor, in order to ensure the success of collaborative innovation. However, organizations can also hire people with such skills to perform the tasks of a metagovernor. Organizations could fulfill project manager functions with skilled and talented individuals who already have some experience in collaborative work with external actors.

In addition, training should not be restricted to people managing collaborative processes to ensure that the organization does not become too dependent on a few talented employees.

The metagovernor, the Achilles heel of collaborative innovation.

	The coordinator or the project manager is crucial for the success of collaborative innovation. Because of his important role, collaborative innovations often fail if the coordinator leaves the process while it is still ongoing. The quick designation of a new coordinator and a rapid transfer of knowledge can help to avoid such failure. To avoid the loss of trust, the new coordinator should preferably be someone already involved in the collaborative innovation process. To ease the transfer of knowledge, the coordinator should keep track of all the discussion during meetings in writing; the difficulties, the objectives achieved, and so on. If, because of a lack of resources, a new coordinator cannot be appointed, the process will likely come to an end.

4.3. The individual in the collaborative arrangement

This part provides an answer on the third research question, about the role of the individual in the collaborative arrangement. This is based on the case studies and the federal survey.

RQ 3. How do individual civil servants in these collaborative governance arrangements select, process, and handle information in developing new tools, policies and services ? What skills, attitudes, incentives and instruments do they need to effectively work together with other public actors and stakeholders and how do they learn (individual conditions for collaborative innovation)?[3]

4.3.1. Individuals: learning, information sharing and trust

Within the collaborative arrangement, collaborative innovation relies on individual learning. Individuals are are civil servants, members of interest groups, non-profit organizations, research institutes, private enterprises, or simply citizens. They hold different resources in terms of competences and knowledge – scientific or experience-based- and have different perspectives, views and interests.

They actively collaborate to develop innovation. Innovation is the outcome of a synergy between individual's knowledge, views and ideas. As individuals get to know each other's point of view, they can enrich their understanding of the problem, identify the challenges and develop new ideas about how to solve the problem. Once they become familiar with others' interests and needs, they can build shared goals on the desired innovation. In other words, as

[3] See the reports of work packages 3, 4 and 6 for more results.

individuals learn from others, they can generate innovations. Collaborative innovations depend hence on the individuals' ability to learn.

What individuals learn has an important impact on the development of innovations. Three types of learning are particularly important:

- **Policy learning** encompasses all knowledge related to the content of the policies people in collaborative innovation are dealing with. It broadly encompasses any knowledge about the causes and the consequences of a given problem; based on data, expertise or experience. The label "policy" refers to both public policies and organizational policies or strategies, for instance human resources policies. Such type of learning ensures the innovation developed is grounded in scientific and practical insights and is not merely the product of interests disconnected from the reality.
- **Relational learning** refers to knowledge about the expectations, resources and the ways of knowing all the stakeholders involved in the collaborative innovation process. The stakeholders include the participants in the collaborative arrangement as well as the end users of the innovation in case they are not part of the collaborative arrangement. End users can be citizens or private firms for instance, or the organization's employees for innovation internal to the organization. This type of learning is important to develop innovations that address all stakeholders' interests and needs.
- **Political learning** includes knowledge about the broad political context in which collaborative innovation takes place, such as the priorities and strategies of the ministers connected with the innovation and the political feasibility of a given solution. Political learning can lead to the adoption of a politically feasible solution or the development of strategies, or serve to increase political interest, which in turn facilitates the development of innovations.

The results of our cross-case analysis demonstrate that different types of learning are facilitated or constrained by different variables. First, **policy learning** is triggered by reciprocate exchange of information outside the meetings. Individuals perceiving they have sent information to and received information from the same actors are more likely to acquire knowledge about the content of the policy. This finding confirms that information is the main input of learning about the content (Heikkila & Gerlak, 2013). Moreover, it shows that the perception of reciprocity matters: it appears that individuals are more receptive to new information when they feel they have shared information too. The perception of two-way communication seems to reinforce the integration of information useful for policy learning.

Second, and surprisingly, frequent contact outside the meetings have a detrimental effect on policy learning when controlling for information exchange. For a given level of information

exchange outside the meetings, individuals that frequently interact with numerous actors are less likely to learn. In other words, if two individuals share information with the same number of actors, the one that interacts frequently with the highest number of actors is less likely to learn. Our results seem to indicate that once an optimal level of information is exchanged, frequent contact does not facilitates policy learning. This may be explained by the "strength of weak ties" theory (Granovetter, 1983). Individuals are less likely to receive new information from people with whom they often communicate as frequent contacts often occur between individuals that know each other well or work in the same place. In addition, individuals that frequently interact with each other tend to develop the same worldview, limiting their probability of exchanging new information. This does not mean that people do not have to interact; rather, it suggests that repeated collaboration in closed and stable collaborative arrangement "will tend to stifle creativity and prevent the generation of new and bold ideas" (Skilton & Dooley, 2010).This also related to redundancy. Redundancy occurs when an actor interact with individuals that provide similar information. Frequent interactions may drive such redundancy, which limit the exchange if new information.

Third, **relational learning** is facilitated by trustworthiness and attraction to policy-making, one dimension of public service motivation. Being perceived as a trustworthy person—a person who is competent, benevolent and honest - increases the likelihood of learning about the resources and interest of the other actors. This result is interesting as generally it is trusting the actors in the collaborative arrangement—believing that they won't act opportunistically—rather than being perceived as trustworthy that facilitates learning. This can be explained by the fact that information on organizational and personal interest and resources are sensitive by nature. It is therefore easier for an individual to share such information with people he or she perceives trustworthy (Gubbins & Mcccurtain, 2008). Consequently, trustworthy individuals are more likely to learn. As a result, building trust is a strategy that can be adopted by leaders for individual learning to occur. This is particularly important in the beginning of the collaborative process, as trust tends to be self-reinforcing and cumulative: trust creates trust. It is important to note that the positive influence of trust goes beyond individual learning as it affects organizational learning and collaborative performance too (Bekkers et al., 2013). In the same vein, individuals that are attracted to policy-making are more likely to learn about others' resources and interests Willingness to participate has already been pinpointed as a driver of collaborative innovation (Bekkers et al, 2013). Similarly, one of the main motives of individuals who are attracted to policy-making is influencing the policy process and providing a solution to a social problem (Ritz, 2011; Kim et al., 2013). Yet, it is relational learning about the resources and interest of the actors rather than learning about the policy content that supports the development of feasible and joint solutions (Klijn & Koppenjan, 2016). In this context, motivated individuals may be more likely to integrate information about others' interests and resources.

Fourth, **political learning** is facilitated by both reciprocate exchange of information outside the meetings and trustworthiness. As for policy learning, individuals perceiving two-way communication - having sent information to and received information from the same actors— are more likely to acquire knowledge about the political games and interests surrounding the project. At the same time, similarly to relational learning, trustworthy individuals are more likely to learn about political interest, as political information is sensitive by nature. It seems that actors in a collaborative arrangement share sensitive information with individuals they perceive as being competent, benevolent and honest.

Interestingly, some factors do not significantly facilitate or constrain learning. Experience, procedural fairness, trust propensity and commitment to public interest (the second dimension of public service motivation) never showed up in the analysis. It does not mean they are not important: those factors may be captured by the significant variables in the model. For instance, experience may support trustworthiness, an important explanatory factor of relational and political learning - an individual may be perceived as trustworthy because he has experience. At the same time, ensuring the fairness of the collaborative process could support information exchange. Trust or the expectation that actors in the collaborative arrangement won't behave opportunistically often plays a significant role when tested independently. However, once included in a model controlled for trustworthiness or information exchange outside the meetings, the effect of trust becomes non-significant. This probably arises from the fact that trust is closely linked to information exchange and trustworthiness (the perception of someone's competence, benevolence and integrity). Regarding the other variables, if they do not have an effect on learning, they are still important for collaborative innovation. In fact, some of them have a role in other processes relevant for innovation. For instance, trust propensity is linked to a positive perception of innovative outcomes while individuals with expertise are more likely to share information and to build upon each others' ideas inside the meetings.

In conclusion, the analysis shed the light on important factors that foster policy, relational and political learning, prerequisites for successful collaborative innovation. Relational factors more than individual traits explain learning. Particular attention should be paid on organizing reciprocate exchange of information outside the meetings, on the diversity of the partners— not too close but deemed competent and honest—, in trust-building activities and in sustaining motivation related to participation in policy-making.

To develop innovations, a key individual condition is hence the individual ability to learn.

Developing knowledge for innovation

The development of innovation through collaboration depends on knowledge about the content of the public or organizational policy at stake (policy learning), the interest of the stakeholders (relational learning) and the priorities of the responsible ministers (political learning). Several strategies can be adopted to support knowledge generation, for instance:

- Inviting external experts to meetings or a lunchtime conference;
- Drawing and reflecting on international practices and research (OECD, EU, CRISP, scientific literature, …);
- Devoting a meeting to explore stakeholders' needs;
- Exploring the user or the staff experience;
- Presenting progress during cabinet/inter-cabinet meetings;
  Asking for political decisions on any sensitive points.

4.3.2. Information sharing

Individuals learn as they share information with each other. The sharing of information occurs during meetings, but also outside meetings. Collaborative innovation is a process that goes beyond regular meetings and that continues outside formal arenas. Those rather informal exchanges are particularly important for relational and political learning. Individuals are more likely to learn about others' interests as well as the political priorities of other responsible ministers through discussions occurring between meetings. The development of informal channels of communications is hence important for the success of collaborative innovations. The cases that scored low on innovative outcomes, generally also consisted of a collaborative arrangement characterized by low density. Density is a measure of the existing connections or interactions between the actors divided by the total amount of possible connections. Actors in successful cases are in general more connected to each other in terms of information giving outside meetings and in terms of building upon others' ideas outside meetings. However, it should be noticed that ties might be redundant. Sometimes when collaborative arrangements are less dense, they are so because they simply do not require close contacts, so less density might be based on reducing redundancy. This can be related to the phase of innovation. Idea generation requires of lot of spread of information among actors so ties are to a lesser extent regarded as redundant, while the ties during the implementation of the innovation might be more redundant and these collaborative arrangements require less density.

Two main leverages can be used to foster informal communication:

13. **Invest in social activities with the people involved in the collaborative innovation process.** Social activities are a great way to let participants get to know each other. When participants get more familiar with each other, it becomes easier for them to share information outside official meetings. Participants can more easily think about each other when facing relevant information in other circumstances. Those activities are not only relevant for the kick-off of the project. Preferably, they should be organized throughout the process to keep people engaged. However, we are not talking about the organization of big social events engaging a lot of resources (that can nevertheless be an option). Social activities can take the form of a shared breakfast, lunch or afternoon tea, a drink after a meeting, a joint participation to an interesting conference, the organization of carpooling… Any activities in which participants can get to know each other a little better, so they can feel at ease to share information with each other's work. In addition, a shortlist of people's names, organizations, email addresses and phone numbers distributed to all participants may also help – in big-sized collaborative projects, people can quickly forget who is who and which organization they represent, which clearly undermines the possibilities for informal communication.

14. **Use online communication and collaboration tools to communicate outside meetings.** Face-to-face contacts and coffee breaks are important for information sharing and learning between participants. However, those interactions can be complicated as collaborative innovation engages participants from different organizations. The use of online communication and collaboration tools – such as Webex, Teams, Slack, or others - can facilitate the efficient exchange of information outside project meetings. Those tools can complement phone calls and replace emails, as email overload is a huge problem in many public organizations. Such tools can also be used by the project coordinator/manager to follow the progress of the collaborative process. The use of such tools requires a discussion at the very beginning of the process: about their access (some participants might not have the organizational authority to use a certain tool) and about the privacy and confidentiality of the information.

Constraints on information exchange

Several organizational elements can constrain the access and the exchange of information; such as confidentiality rules, access restriction to specific websites, technological structures that do not support specific online communication, and collaboration tools or security strategy on emails.

If individuals learn from the exchange of information, their capacity to learn also depends on the perception of the one with whom they exchange information. Interpersonal trust is particularly important in this regard. In this project, an individual is said to trust someone if he or she perceives the other as someone competent, who takes care of other interests and who is honest. Trust increases the willingness to share information as well as the willingness to listen to information. Trust is important for learning, and hence for the development of innovations. How to build trust? Several actions can be taken:

15. **Invest in social activities, again.** As developed earlier, social activities can be useful to facilitate the information exchange outside meetings. Such activities are also a great way to develop trust. Those social activities are hence crucial for collaborative innovation and should not be seen as an unnecessary luxury.
16. **Use icebreakers during meetings.** Trust increases as people get to know each other personally, and feel others are competent, caring for all interests and honest. Icebreakers are particularly useful in collaborative arrangements involving participants that do not know each other. Those small exercises, unrelated to the topic of discussion, take place before the meetings and help participants learn each other's names and other personal and professional information. By gathering personal and professional information, participants can build a positive perception of each others' competences, benevolence and honesty. This, in turn, supports relational and political learning processes necessary for the development of collaborative innovation.
17. **Be a trustworthy person.** It seems obvious and yet, it is not easy. Being a trustworthy person means being perceived by others as someone competent, reliable and honest, who takes care of everyone's interests. This takes time, and sometimes the change or the adoption of new behavior. For instance, it requires openness and transparency in communication, constant feedback about why an idea has been adopted or not, carefully listening to others, being committed and showing commitment, showing empathy and trying to understand others' needs. Developing assertiveness and the use of methods such as nonviolent communication can be useful to develop such behaviour. Having experience and expertise in the issues at stake can also help.

Interpersonal trust and inter-organizational trust

Interpersonal trust is the trust existing between individual participants involved in the collaborative innovation process. Inter-organizational trust, in turn, is the trust existing between **the organizations** individuals represent. The two are not necessarily linked. Two individuals can trust each other even if their home organizations are less trusting of each other, for instance for historical reasons and due to old conflicts.

4.4. The organization in the collaborative arrangement

Collaborative innovation is not only in the hand of individuals and the collaborative arrangement – organizations have a key role to play. Except citizens, most individuals involved in collaborative innovation represent and work for their home organization. As a result, individuals' interests and expectations are affected by the interests of their home organizations, so are their values and culture. Their room to manoeuvre is shaped by the mandate they have from their home organization. Some of their resources (i.e. time, technology) directly depends on the organizational resources. In short, individual perception, behaviour, and involvement is highly influenced by organizational conditions.

In this section two research questions about the organization in the collaborative arrangement are answered:

RQ 4. *How do organizational characteristics (organizational culture and leadership) influence government capacity to set-up, sustain and learn from collaborative interactions (organizational conditions for collaborative innovation)?*[4]

And:

RQ 5. *To what extent are conditions for collaborative innovation present in the federal ministries and agencies of Belgium and how can these be strengthened (gap-analysis)?*[5]

4.4.1. Organizations: incentive to innovate and long-term capacity

The PSI-CO project explores five types of conditions at the organizational level that influence the success of collaborative innovation:

[4] See the reports of work packages 3, 4, 6, and 7 for more results.
[5] See the report of work packages 6 and 7 for more results.

- **The organizational culture** is the set of values put forward in the organization;
- **The organizational red tape** consists of a set of rules and procedures that are burdensome and negatively affect civil servant and employee performance;
- **The organizational leadership** refers to the attitudes and behaviours of the organization's top managers with regard to collaborative innovation.
- **The organizational capacities** consist of the rules, processes and resources that provide support to innovation;
- **New Ways of Working** is an integrated set of 'new' working methods and principles, such as time and place independent working and self-managing teamwork, that provides more flexibility and autonomy to employees. New Ways of Working is discussed in section 4.5.

The home organization of the metagovernor

The home organization of the coordinator has a particularly large influence over the collaborative innovation process. As we saw in the previous section, the coordinator is the key individual responsible for the whole process. Her or his organization should hence provide all necessary support and resources to increase the chances of success. Organizational leadership is characterized by a positive attitude towards innovation. Prioritizing collaborative innovation both in discourses and in practices (i.e. by including collaboration or innovation in individual evaluation criteria) is particularly important in this regard.

4.4.2. Organizational culture

Four types of organizational culture exist amongst public organizations. In a **family culture**, agents have close and personal relationships within their organizational environment. In an **administrative culture**, emphasis is put on maintaining existing organizational processes in place and continuingly providing public services in a predictable and stable way. Such culture is characterized by high internal control and formal procedures. In a **result-driven culture**; deliverables, deadlines and targets are considered to be the most important. Finally, a **developmental culture** generally promotes learning and adaptation, providing a free and protective environment in which employees have the opportunity to experiment.

Based on our case studies, an administrative culture showed to be dominant in the regional (69%) and federal (51%) public sector organizations involved, while in the local (50%) and the non-profit (40%) sector a family culture was reported to be most dominant. The other two cultures (developmental and result-driven) were also prevalent in our cases, yet rarely

dominant. There is a correlation found between an administrative culture and low to medium organizational support for the project, and between a result-driven culture and high organizational support for the project.

Next, we found that both a developmental culture and a family culture are very nurturing environments for engagement in collaborative innovation and for the success of such projects. Yet organizations with a dominant administrative culture succeeded better in achieving their innovation goals and collaborating together when they joined in projects exclusively composed of organizations with a dominant administrative culture rather than in projects where organizational cultures were mixed. Involving innovative organizations with a developmental or family culture thus does not compensate for the rigidness in administrative culture organizations because the schism between control-based organizations and flexible organizations appeared to be difficult to overcome in collaborations. The other value tension among cultures (internal/external orientation) posed no problems in collaboration in the cases studied. In other words: in projects it seems best to have organizations with similar cultures, rather than to include organizations with a developmental or group culture simply because these organizations tend to be more innovative. Mutual understanding is what is more important.

In the federal survey, we found that the organizational culture of all federal organizations is relatively similar. Both administrative and non-administrative cultures coexist in all organizations, ranging from to a moderate to a relatively high extent. The administrative culture emphasizes stability and public service continuity, while non-administrative culture which emphasized the achievement of objectives, trust or creativity. This mix indicates that federal public organizations and agencies value the achievement of objectives, trust and creativity as much as stability and continuity.

18. **Offer flexibility, autonomy and responsibility to employees and teams**. Organizations that offer flexibility to their employees and their teams empower them to build their own working process and give them a sense of responsibility rather than controlling their actions. This facilitates the development of innovations. Individuals from those organizations have more room to manoeuvre within collaborative innovation processes, and are hence more inclined to make proposals and develop new ideas. In addition, team autonomy related to work management (i.e. mutual division, planning of work, working method and quality management) can facilitate individual involvement in a collaborative innovation process. A potential explanation for this could be that individuals can count on others to participate in meetings or follow the project when they are unavailable.

19. **Encourage entrepreneurship in the organization**. Collaborative innovation processes are often launched under the impulse of one civil servant or a small group of them. It is hence important for public organizations to give opportunities to their employees to take initiatives and launch projects even if it is not strictly part of their job/role. Top managers and supervisors should create an open and safe climate that stimulates creativity amongst employees, by giving them trust, autonomy and by being receptive to bottom-up ideas. The organization of brainstorm sessions amongst employees – within or between organizational units - and training regarding entrepreneurial behaviour could encourage entrepreneurship and the emergence of ideas for collaborative innovation. Such entrepreneurship can also be promoted at the team level – an idea carried out by a team has more chances to be realized, as more people are engaged and committed.

Working on an innovation-friendly culture

A non-administrative culture is important for the development of collaborative innovation. However, it is crucial to keep in mind that values associated with the administrative culture, such as the control of internal processes and the stability of the public service delivery, cannot disappear. The specificity of public organization is that they work with public money. Control over internal processes can avoid embezzlement attempts. Stability in public services is of crucial importance for service users.

4.4.3. Organizational red tape

In public organizations, there are multiple bureaucratic rules, procedures, regulations and routines that can be burdensome and constrain employees' actions. Those rules can complicate the purchasing of goods, limit the manager's ability to reallocate funds from one project to another or to reward employees. They can burden citizens and other users when they want to interact with the public administrations. Furthermore, they can constrain the exchange of information within organizations. Such rules can directly impact collaborative innovation processes by limiting the free choice of collaborative partners, making it hard to adjust the project to changing circumstances, or simply to make commitments. They also have an indirect influence through operational effects such as delays, and psychological effects such as demotivation or reputational damage of an organization as a collaborator. The federal survey data shows us that: all federal organizations face the same, moderate, level of organizational red tape. Employees in all types of organizations face similar levels of burdensome rules and procedures that negatively affect their work. The level of collaborative

red tape, which are rules that constraint collaboration is a little higher, particularly for Institutions of Public Service (ION/OIP), however this difference is not significant.

Following from our case studies we found the following:

First, we found a strong correlation between high red tape levels and working for the local public sector. There is also a strong correlation between red tape and gender and red tape and position, since women and employees in a subordinate position experience higher levels of red tape than men and employees in a superior position respectively.

Second, apart from the five red tape dimensions discovered by Pandey et al. (2007) - which include budget, procurement, information, communication, and personnel red tape -, two more dimensions could be distinguished: registration/validation red tape and collaboration red tape. Registration/validation red tape refers to rules and procedures meant to control and verify the day-to-day activities of employees that cannot be considered personnel red tape. Collaboration red tape is organizational red tape specifically hindering respondents to collaborate as efficiently as possible or to engage in collaborations.

Third, we note that the different red tape dimensions have different effects on actors. Budget, communication and information red tape appear to have less psychological effects and mainly have operational effects such as delays, lower efficiency, and decreased effectiveness. Through these operational and psychological effects collaborative innovation is indirectly affected. The two red tape dimensions that affect collaborative innovation in the most direct way are our own dimension 'collaboration red tape' and procurement red tape. Collaboration red tape mainly creates a barrier when project aims cannot be redirected and partners cannot be chosen or changed; while procurement red tape can hamper, stop or discourage actors from procuring goods and services required for a project.

To avoid those rules to negatively impact collaborative innovation processes, organizations should:

20. **Reduce the amount of red tape as much as possible.** Rules, routines and procedures are part of the daily life of anyone working in a public administration, and they are often obstacles to collaborative innovations. They fulfil the role of control, and can avoid abuse. However, the benefits of some of them are counterbalanced by their negative effects on the daily work of employees. To reduce such red tape, the organization can work on the identification of all rules and processes that can be burdensome, in order to see which of them can be removed, or turned into "green tape" by better explaining their usefulness and applying them proportionately, consistently and clearly. Using process management can help to identify points of

improvement, and the development of on-line procedures can be used to reduce the negative impact of some of those rules.

	**"Less regulated zones": dropping rules in order to innovate** "Less regulated zones" are experimental spaces for the development of innovations in which some rules and procedures can be ignored in specific arenas of the project and for a specific time. Such practices ease collaboration and speed up the development of innovations. Plus, less regulated zones can provide a good testing environment to apply methods like experimentation and co-creation. It has been implemented in the Flemish region already, with success.
	**Attention:** "Less regulated zones" can only be applied to pilot project. In addition, a danger exists for the scaling up of the innovation – large-scale innovation needs to respect existing rules and laws. If rules are neglected, collaborative innovation created in a "less regulated zone" can be hard to implement on a larger scale.

4.4.4. Organizational leadership

Organizational leadership refers to the attitudes and behaviours of the public organization's top managers with regard to collaborative innovation. Organizational leadership influences the willingness and the capacity of individuals to engage in collaborative innovation processes. An employee from an organization whose leaders positively see collaborative innovation and offer real support to their employees engaged in such process usually have more time to devote to collaborative innovation processes, and can more easily access organizational resources, for instance for trainings or the project budget. Employees getting advice and discussing the progress of the collaborative innovation process are more satisfied with the innovation developed. When organizational leadership is associated with employee autonomy and responsibility (recommendation 18), it increases an individuals' freedom to share information to external actors and take action to move the collaborative innovation process forward, which raises its chances of success.

Across our nine cases, six different attitudes of superiors towards collaborative innovation could be distinguished. An *ambivalent attitude* towards collaborative innovation was found to be most harmful, since this is stressing actors and making them uncertain and risk-aversive about their participation in the project. This attitude turned out to be more harmful than a

neutral or *negative attitude* towards collaborative innovation. Here we also noted that actors can engage in collaborative innovation even if their superiors are not encouraging this. Three attitudes of superiors foster collaborative innovation, the *hands-on support*[1] for collaborative innovation showed to be the most successful in terms of project outcomes and employee encouragement. *Rhetorical support*, where collaborative innovation is encouraged in the vision and in documents such as mission statements of the superior, can be insufficient at times since it may result in lack of training for employees or no guaranteed support for the employee if the case fails (especially when compared to hand-on support). The sixth attitude, a *pressuring attitude* towards collaborative innovation can be positive, yet in rare cases also harmful since actors perceive that innovation is not always the best approach and some projects are pushed forward without being given enough time to develop.

We noted that few organizations include either innovation or collaboration as part of the employees' individual evaluation criteria. Actors for whom collaborative innovation was part of their evaluation criteria or performance contracts spent more time to invest in the projects they engaged in however.

To ensure the success of collaborative innovations, top managers can:

21. **Actively support collaborative innovation projects.** Such support should not only consist of statements in documents describing the organization values, missions and strategic objectives. The success of a collaborative innovation project depends on a real following up of the project from top managers, with regular discussions on the progress of the project with their subordinate, and real support, by providing training, advice, directions; and by reassuring employees that there will not be negative repercussions for them if the innovation project fails. This support should not be confused with control: collaborative innovation works best when employees feel their supervisor supports them while still having the discretion to act.
22. **Include collaborative innovation projects in the delivery targets of concerned employees.** This requires assigning part of the employees' working time to their participation in specific collaborative innovation projects, and includes such participation in the evaluation process. This prevents collaborative innovation processes to stop because people involved have no time to devote to it, and ensures that the energy and effort employees put into the projects will not go unnoticed. Participation to collaborative innovation projects should not be, however, detrimental to regular job responsibilities. A good balance between the two is only achievable when reviewing the normal task package in order to define new delivery targets and allocate a part of the working time to the collaborative innovation project.

23. **Give employees a mandate for their engagement in collaborative innovation.** Giving an employee a clear mandate that sets the boundaries within which the employees can act within collaborative innovation processes is essential for the efficiency of the process. If employees know their limits, they can act autonomously without fearing negative consequences, and discuss with their manager if an action beyond the mandate is needed.

Participation to projects of collaborative innovation: an objective in itself?

When setting collaborative innovation as delivery target, it is important to clearly define what is expected from the employees. Employees who feel that the aim is to innovate/collaborate 'as such' are less motivated to do so, as they do not see the aim of collaboration. It is always good to put forward the reasons behind the participation in such processes, and link them to regular employee tasks.

Furthermore, in the survey we looked at the attitude of the managerial and political superiors towards the innovation. This category includes five elements:

- The autonomy the employee has in their organizations;
- The control exert by the organization over their employee;
- The priority given by the organizations to collaborative innovation;
- The extent to which the responsible minister is interested in the innovation process;
- The interference of the responsible minister towards the innovation;

With regard to the organizational sphere, employees of all federal ministries and agencies have on average a moderate level of perceived autonomy and organizational control. The perceived priority towards the innovation exerted by the organization is moderately present as well. With regards to the political sphere, discussion with the responsible minister on the collaborative innovation is rather low. Significant differences exist according to the size and the type of organization. The amount of discussion concerning the innovation is lower for small organizations and Federal Scientific Institution (FWI/ESF), and larger for Institutions of Public Services (ION/OIP). In this last type of organization, the interference by the responsible minister is moderate. Responsible ministers give, overall, a moderate level of priority to collaborative innovation. Again, disparities exist according to the size and the type of organizations. The priority given to collaborative innovation is lower in small-sized organizations as well as for Federal Scientific Institution (FWI/ESF). The interest of the

responsible ministers is, in turn, higher for Federal public services, ministries and federal public planning services (FOD/SPF, POD/SPP).

4.4.5. Organizational capacities

Organizational capacities are the rules, procedures, methods and resources that - contrary to red tape – can facilitate innovation. That being said, they are not necessarily present in all organizations. This section specifically builds on capacities useful for collaborative innovation. Information about their influence on other types of innovation - i.e. innovations developed internally - can be found in the work package 6 and 7 report.

There are three types of organizational capacities that influence collaborative innovation: connective, learning, and innovation capacity (Gieske et al, 2016).

- **Connective capacities** can be defined as "the capabilities of individuals, organizations, and collaborative arrangements to counter fragmentation by crossing boundaries and establishing linkages between different actors at various levels, scales, and domains" (Gieske et al, 2019: 435). It includes sets of tools, trainings and methods that can be used to improve the management of the collaborative arrangement and the collaborative innovation processes. Connective capacity includes the presence of positions dedicated to collaborative process management, i.e. collaborative project managers, as well as the presence of staff that have the skills to collaborate, i.e. staff having the skills of a successful metagovernor.
    - Intra-organizational connective capacities are not strongly developed in federal organizations. Large organizations have on average more intra-organizational connective capacity than small and middle-sized ones. The organizations with the lowest intra-organizational connective capacity on average are the FWI/ESF, the OISZ/IPSS and FOD-POD/SPF-SPP report the highest average level, albeit at a moderate level.

      Overall, inter-organizational connective capacities in terms of functions, roles, policies and training for management of collaborative arrangements and network activities are not developed well in the federal organizations. Compared to the other types of capacities, the federal organizations score low on inter-organizational connective capacity. Especially respondents from small-sized organizations and FWI/ESF indicate that their organization has lower levels of inter-organizational capacity. The average score is the highest for the FOD-POD/SPF-SPP and the OISZ/IPSS, but also for these types the average score is still rather low.

      All types of federal organizations have rather similar average scores on individual connective capacity. Respondents report that individual connective

capacities are to a moderate extent present in their organization. A minority of respondents report these capacities to be present in a rather high to a very high extent.

- **Learning capacity** is the organizational ability to learn from external actors or, in other words, the ability of an organization to retain the knowledge acquired by their staff involved in the collaborative arrangement. This capacity depends on the participation of the organization in the collaborative processes: the more an organization collaborates with external partners, the higher its learning capacity. Plus, a high level of organizational participation improves the learning from their individual representatives involved in the collaborative innovation processes (as explained in the individual level condition section).
    - Both the capacity to learn within organizations and between organizations is not that strongly developed in the federal organizations, but only to a moderate extent. Especially large organizations and OISZ/IPSS possess relatively high levels of both intra-organizational and inter-organizational capacities of learning (present to a moderate extent), whereas FWI/ESF score on average relatively lowest on these capacities.

- **Innovative capacity** refers to the ability to innovate, while maintaining the other recurrent operations which are needed to fulfil the organizations' mandate. The principal idea behind this concept is that the ability to continue with the regular work processes, on the one hand, is balanced by the ability to implement new ideas in the organization, on the other hand. These capacities can be divided in 1) innovative capacities concerning processes 2) innovative capacities concerning resources.
    - Both the innovation capacities in terms of processes (plans, policies and procedures) and resources for innovation are not that strongly developed in the Federal government; on average they are present in a rather low to a moderate extent. OISZ/IPSS score on both types of innovation capacities (resources and processes) relatively the highest, but even in these organizations, only about 40% of the respondents report these capacities to be present in a rather high to a very high extent. Innovation capacities in terms of resources is relatively less present, compared to innovation in terms of processes.

Our analyses indicate that having connective, learning, and innovation capacities in federal organizations all contribute to the development of all types of innovations (policy, technological, service, and process) as well as satisfaction with these innovations, regardless

of their origin. Interestingly, these capacities have hardly an effect on the way these innovations are established. In line with what can be expected is that learning and innovation capacities are related to experimentation with the developed innovation. Intra-organizational learning capacity and innovation capacities concerning processes are positively related to the actual implementation of the innovation. This indicates that the organization must be able to stimulate learning within the own organization and needs to have processes for innovation (plans, policies and procedures for innovation) without blocking the regular activities of the organization in order to implement the developed innovation.

Several actions presented above are connected to those capacities. For instance, providing training to coordinators of collaborative innovation processes increases the connective capacity of an organization. Piloting innovation) improves the quality of the collaborative innovation process and is a sign of organizational learning capacity - piloting and experimenting with the developed innovations is a good way to learn about what works and what should be adjusted. Using online communication and collaborative tools improves learning and innovation capacity by facilitating collaboration between employees from different organizations. Other actions can be taken to increase those capacities:

24. **Establish organizational policies and processes to identify opportunities for collaborative innovation.** In recommendation 19, we note that collaborative innovation processes are often launched under the impulse of one civil servant or a small group of them. However, top managers of public organizations can also take the lead by identifying opportunities for such collaboration in the external environment. Paying attention to the activities of peer organizations, i.e. public organizations involved in similar policy issues, as well as to the arrival of new actors and the departure of old ones can increase opportunities for collaborative innovation. This can be done through the establishment of clear policies aiming at mapping the external environment, establishing, for instance, an information monitoring system or conducting a stakeholder analysis on a regular basis.

25. **Create positions dedicated to the management of collaborative innovation processes.** We already discussed the importance of a skilful metagovernor for the success of collaborative innovation . From an organizational perspective, it is hence important to hire people with such skills – or train employees – and create roles and positions specifically devoted to collaborating with external organizations – i.e. "collaborative project manager". People in such positions could implement the policies and routines aiming at mapping the external environment and become the coordinator of collaborative innovation processes: they can be responsible for

creating the collaborative arrangement and ensuring the effectiveness and quality of the process.

26. **Make collaborative innovation part of the strategy at the level of the organization, organizational units and teams.** When collaborative innovation is part of the strategies within an organization, it becomes a routine to look for innovative and collaborative ways to solve problems in the organization. Employees are hence pushed to identify problems and look at how to develop new solutions, instead of sticking to existing procedures and organizational routines.

27. **Allocate resources (time, staff, finance) to the development of collaborative innovation, without neglecting core organizational tasks.** Public organizations should allocate resources to innovation processes, i.e. by training staff and creating specific positions for the management of collaborative innovation processes, developing specific strategies and allocating a budget. At the same time, organizations should ensure the continuity and the stability of their core organizational tasks. All resources dedicated to core tasks should not be moved to innovation, but collaborative innovation should not be a side project receiving little attention. Balancing core tasks with innovation is a key challenge for all public organizations.

4.5. New Ways of Working

New Ways of Working have become increasingly popular in recent years, but their implementation remains limited in many public organizations. Recently, the COVID-19 crisis has given a new impetus to their development. The PSI-CO project, in WP7, focused on three principles of NWW: (1) time and place independent working, (2) management by results, and (3) free access to and circulation of knowledge, information and experiences.

In work package 7, we thoroughly studied New Ways of Working in the federal government with quantitative (federal survey) and qualitative (two case studies) data in order to answer this question:

RQ 6. *To what extent do new practices of organization and HRM like New Ways of Working in the federal ministries and agencies of Belgium create appropriate individual and organizational conditions for collaborative innovation and how should these be adapted?*[6]

When we bring together the results of the quantitative and qualitative part, we can conclude that NWW has both a direct and indirect effect on collaborative innovation. Although it is not self-evident to link NWW with collaborative innovation, the presence of NWW in federal organizations can indeed be beneficial for the organizations itself and in supporting

[6] See the report of work package 7 for more results.

collaborative innovation. We found that teamwork and teams having autonomy over work-related matters seems to have the most important direct impact on collaborative innovation. Furthermore, time and place independent working have both direct and indirect effects on collaborative innovation. The direct effects showed an obstructive effect of low time flexibility, yet a conducive effect of high flexibility on the development of some types of innovations. Additionally, place independent working can have a direct effect in terms of mobile work positively affecting the involvement of dissimilar collaboration partners such as citizens and non-profit organizations. However, while overall having little flexibility in terms of time and place independent working does not seem to substantially hamper collaborative innovation, it can still be beneficial if one can make use of it. For example, our research emphasized the importance of job autonomy and time and place independent working for participants to manage their different job and project responsibilities, enabling them to participate better in the project. Markedly, a high degree of job autonomy does not only apply for the regular job responsibilities but also for the project. This means that participants in collaborative innovation projects should receive a mandate for their participation in the project. Lastly, being able to use one's own laptop or to have access to information sharing tools seems to be facilitating for the process of collaborative innovation.

The following actions can be taken in relation to New Ways of Working in order to facilitate collaborative innovation:

28. **Invest in (further) digitization.** ICT is one of those indispensable NWW elements which is of great importance for the process of collaborative innovation. Public organizations can put in efforts to further implement or maintain the digitization, i.e. providing employees their own laptop, giving free access to communication and collaboration tools. This includes offering trainings to employees aimed at increasing digital literacy.
29. **Allow enough flexibility in terms of time independent working.** Time independent working facilitates the development of innovations through collaboration by offering employees the needed flexibility for their participation in a collaborative innovation project. Allowing such flexibility implies, for example, a conversation between managers and employees on their needs and their opinion about whether or not to register working hours.
30. **Strengthen the ability to telework.** Telework can be broken down into working from home, mobile work and working from satellite offices. The ability to work from home or from other locations than home or satellite offices (mobile work) can facilitate the engagement of participants in collaborative innovation projects as well as collaboration with non-public actors such as citizens and non-profit organizations.

Moreover, the ability to work from home allows employees to manage efficiently and effectively both their normal job and their project responsibilities.

	**NWW as a tool for managing tensions between project responsibilities and regular job responsibilities.** The balance between regular job responsibilities and collaborative project responsibilities is a key challenge for public organizations. The flexibility and freedom accompanied by job autonomy and time and place independent working, offers the necessary flexibility to deal with the tensions between project responsibilities and regular job responsibilities.
	**The legislative burden for time independent working.** In May 2019, the European Court of Justice clarified the interpretation of the European directive with regard to working and resting times. It said that member states should impose an obligation on employers to provide a system which records daily working time. This system should guarantee the legal working and resting times of employees. However, such a system would imply a restriction on time independent working without time registration. This shows that the legislation regarding working times is not in line with the principles of time independent working. It is hence important to assess how legislation can protect employees (in precarious jobs) while at the same time taking into account the current needs of employees and employers more broadly.

4.6 Innovation architecture

Collaborative innovation processes do not occur within a vacuum. They take place within a larger political and governmental context. This specificity is one of the biggest differences between public and private innovations. To ensure the success of a collaborative innovation process, participants should take into account this context. At the same time, political leaders can adopt supportive behaviour and set up processes that stimulate innovation government-wise.

This section looks at two dimensions of governmental level conditions: the political context – which broadly refers to the attitudes of political leaders with regard to specific collaborative innovation projects -, and the innovation architecture, which are the existing

structures, processes or instruments that stimulate innovation throughout the government. The research question that will be answered is:

RQ 7. *To what extent does the current innovation architecture within the Federal Government support and enhance collaborative innovation and how should this be adapted?*[7]

Each collaborative innovation process depends on several political leaders at the local, regional and/or federal levels. Often, those political leaders are involved in discussions about the budget for the collaborative innovation, and they usually have the final word with regard to the final implementation of an innovation. The federal survey of work package 6 showed that with regards to the political sphere, discussion with the responsible minister on collaborative innovation is rather low. Significant differences exist according to the size and the type of organization. The amount of discussion concerning the innovation is lower for small organizations and Federal Scientific Institution (FWI/ESF), and larger for Institutions of Public Service (ION/OIP). In this last type of organization, the interference by the responsible minister is moderate. Responsible ministers give, overall, a moderate level of priority to collaborative innovation. Again, disparities exist according to the size and the type of organizations. The priority given to collaborative innovation is lower in small-sized organizations as well as for Federal Scientific Institution (FWI/ESF). The interest of the responsible ministers is, in turn, higher for Federal public services, ministries and federal public planning services (FOD/SPF, POD/SPP). Our results show that ministerial interference is positively related to the development of innovation.

In our case studies, we found that one project did not reach the implementation phase, because the government did not adopt the innovation. So it is important to have everyone who can block the innovation in the project. That way, it is possible to negotiate with these actors and it prevents that fully developed innovation plans cannot be implemented, because of one actor that was not included. We saw that projects were sometimes blocked because of a lack of political support. Political actors can block the innovation while sometimes it wants to use the ideas with its own vision. Respondents argue that it is impossible to start an innovation process without political commitment and support.

Several actions can be taken to ensure the innovation will not be blocked for political reasons:

31. **Raise awareness of political leaders about the collaborative innovation project**. A strong involvement and support of political leaders within the collaborative process is not a requirement for the success of collaborative innovation. However, they need to be aware of the existence and the progress of the collaborative innovation process.

[7] See the report of work package 8 for more results.

Participants representing public organizations (or their top managers) should interact with their responsible minister (or cabinet) on a regular – but not necessarily frequent – basis, to present the project and its progress. Highlighting the link between the government program and the innovation can be an option to ensure, if not political support, at least the political "go" to implement the project. Respondents in the Delphi (WP3) confirm that "an innovative process can develop without political support, but cannot survive political blockage"

32. **Ask for political decisions on controversial issues.** Sometimes, participants cannot agree on a given issue. When those issues require a political "go" at a certain moment – as for instance, for legal or financial issues –, asking political actors to decide the issue is a good option to prevent blockades during the process and in the long term, when the innovation comes to the implementation stage. At the federal level, such decisions can take place during inter-cabinet meetings or, if collaboration involves different regional levels, interministerial conferences.

The term 'innovation architecture' refers to the structures, processes and instruments set up by governments to stimulate the initiation, adoption and diffusion of innovations throughout government. The innovation architecture concerns hence the global political strategies aiming at fostering innovations within and between public organizations, as well as between the government and external parties such as companies or knowledge institutes).

Based on an extensive literature review, 8 elements have been identified that make up the innovation architecture: (1) the innovation strategy and policy at the governmental level (in contrast to the organizational level), (2) the development of collaborative arrangements, (3) the development of labs and teams within organizations or with a government-wide scope; (4) the allocation of resources to innovation; (5) the evaluation of innovation; (6) the development of data governance; (7) the development of risk governance and (8) the creation of incentives for innovation.

Work package 8 of the PSI-CO project explores the presence of those different elements in the Belgian federal government, determining its capacity to stimulate collaborative innovation. It also compares the Belgian federal innovation architecture with the innovation architecture of the national public administrations of the Netherlands, Estonia and Finland.

A number of elements of the Belgian federal innovation architecture are already considerably developed:

Several federal organizations have already included innovation in their policy and strategy documents. The development of a central strategy for innovation can encourage all federal

organizations to start innovating and provide them with guidelines on suitable, innovative approaches.

A few innovation-oriented collaborative arrangements have already been developed in federal government, both within as well as across organizations (with a transversal reach). By optimizing these collaborative arrangements' capacity for knowledge exchange, they can function as an effective instrument for spurring innovation across federal government.

Furthermore, Belgium is one of few researched countries to have established a centralized innovation lab with a government-wide scope, called 'NIDO'. NIDO, the innovation lab of the federal government, is situated at the FPS Policy & Support. It was created in 2017, with the aim to stimulate and promote an innovation-oriented culture in the public sector. Given their role as knowledge-broker and the guidance they provide to organizations wishing to undertake innovative projects, they form an essential part of the federal innovation architecture. However, in order to ensure the optimal functioning of NIDO, further alignment is needed regarding the role they should take on, either being that of a 'facilitator', or that of an 'owner' of innovation projects. In addition, the development of organization-specific innovation labs can help spur innovation in specific policy domains.

Innovation projects currently not seem to be hindered by overly strict rules for reducing risk. In line with risk management approaches used in the other researched countries, testing of concepts in secure environments and piloting are the main approaches used in federal government.

In other areas however, considerable improvements can be made to strengthen the federal innovation architecture:

When looking at the capacity to resource innovation appropriately, it appears current budgeting practices are often an obstacle for the effective financing of innovation projects. By allowing more budgetary flexibility, the planning and execution of innovation projects can be encouraged and facilitated. In terms of staff, many 'hidden innovators' are reported to exist within government. Since these are a valuable resource to drive innovation forward, people should be given sufficient flexibility so they can engage with innovation projects while combining this with another day-to-day role in government.

Currently, evaluation largely remains limited to progress updates and (quantitative) outputs of projects. More attention should be given to the evaluation of outcomes and impact, as it will provide more concrete insight into what has been realized at the end of a project (outcomes), and what systemic change (in services, policies) the innovation project has been able to realize (impact).

In terms of data governance, a number of strategies have already been established to spur data exchange between federal organizations, as well as with external actors (citizens, companies). By addressing (cultural, financial) barriers that exist in certain organizations, it can be ensured the existing data strategies and infrastructure optimally contribute to innovation.

Finally, few incentives currently exist within federal government that motivate civil servants or government organizations to innovate. By organizing incentives such as idea competitions and innovation awards, recognition and visibility is granted to those who are involved with innovation. Such incentives can be instrumental in demonstrating innovation is valued and can motivate others to start adopting innovative approaches.

This section provides some key actions that government can take to develop an innovation architecture that optimally supports collaborative innovation:

33. **Identify existing collaborative arrangements and create synergies between them when possible.** In the Belgian federal environment, a few collaborative arrangements with a government-wide reach have been created with the specific aim to encourage knowledge exchange and spur a shift in mindset among civil servants. Those collaborative arrangements can serve to facilitate connections between different public organizations and create new collaborative innovation projects. However, there is a lack of clarity on what the specific purpose is of each collaborative arrangement, with some collaborative arrangements having seemingly overlapping goals. This may lead to confusion at the organizational level on which collaborative arrangement to join. A thorough re-assessment of those collaborative arrangements identified as supporting innovation, is in order. This exercise has already been done for the federal innovation network and the CoP (Community of Practice) Agile, which have been partially integrated. Information on these collaborative arrangements and their key purpose should also be centralized to provide both public and private organizations with an oversight of which collaborative arrangements can be joined for what purpose. Finally, formal collaborative arrangements should also be complemented by more informal collaborative arrangements, that allow for other types of interaction that are equally useful for spurring innovation.

34. **Develop the brokerage role of innovation labs with a government-wide scope.** Both organization-specific innovation labs as well as those with a government-wide scope are valuable instruments for spurring collaborative innovation. Organization-specific innovation labs often have a scope that is limited to a specific organization or policy domain. Such units offer opportunities for a targeted approach to stimulate

collaborative innovations in specific areas. However, collaborative innovation could also be fostered by the complementary presence of a central innovation unit. The latter could function as a central body that keeps oversight of innovation activities taking place throughout government. They are well positioned to gather best practices for innovation from across different government organizations, acting as a "knowledge broker" by diffusing the lessons learned to those organizations that are looking for inspiration. They can also help government organizations to find suitable external partners to engage in new collaborative innovation projects with. In Belgium, NIDO already takes on such a role to a considerable extent, but they can further develop their role as broker by centralizing information on innovation projects and by connecting organizations.

35. **Reform procurement red tape.** Existing procurement regulations are perceived by many civil servants as a key obstacle for public sector innovation. It has, for example, been reported to seem a hindrance in initiatives like 'gov buys innovation', a portal that is being developed to allow federal organizations to procure innovative solutions to specified challenges. The existing framework for public procurement, with its strict and lengthy procedures and need for detailed pre-defined requirements on the desired solution, is ill-suited for innovation projects. Innovation projects are usually launched because it is unclear what possible solutions exist, and what these should look like. Such projects therefore require more agile, simplified procurement procedures in order to be able to source the required services. The procedure to fulfill such procurement should also be revised, and support needs to be offered to all organizations to implement existing procurement regulation in such a way that it is more supportive of innovation projects.

36. **Establish an innovation fund which provides dedicated funding for collaborative public sector innovation.** It is usually up to individual government organizations to reserve part of their budget for innovation initiatives or look for other, external sources of funding. The creation of an innovation fund can encourage government organizations to innovate, by providing readily accessible funding. It can also help to avoid conflict in collaborative innovation processes about the division of financial costs. The approach of the Finnish innovation fund has interesting features that are worth considering for the development of a Belgian federal innovation fund, as it emphasizes cross-sectoral approaches for innovation.

Funding innovation: The Sitra fund in Finland

The Sitra Innovation Fund is an independent public foundation that operates directly under the supervision of the Finnish Parliament. Its duties are embedded in the legislation. Sitra functions both as a think tank and as an investment company. They fund and implement projects together with the private, public and third sector, which are aimed at increasing sustainable well-being in Finland. The range of projects is broad and includes long-term projects that run for several years, as well as short-term trials that are used to find and test new approaches. The major themes Sitra focuses on are 1) capacity for renewal, 2) carbon-neutral circular economy and 3) new working life and the sustainable economy.

Most of the value of its current endowment (ca.771 million euros in 2017) comes from a donation of Nokia stock from the Finnish Parliament in 1992. Sitra enjoys full operational independence, is not answerable to the government in power and does not depend on the state budget. Instead, its operations are funded with the profits of its endowment and the profits of its operations. According to Finnish law, the funds must be invested securely and in a profitable manner. Sitra does not spend the core endowment nor receives any tax-generated government funding. Consequently, it has its own program and independently decides which projects it will invest in. The financial and content-related independence of Sitra is a critical factor for its success.

37. **Revise budgetary practices that restrict organizations in the flexible use of budgets for innovation projects.** In Belgium, most organizations develop budgets on an annual basis, implying that their budgets for innovation projects are also allocated on a yearly basis, with no guarantees on the amount of budget that will be available the following years. This can be a particular hindrance to larger-scale collaborative innovation projects that run for multiple years and can deter organizations to launch such projects. Ensuring more budgetary flexibility, with the possibility to transfer budgets across fiscal years, is therefore needed.

38. **Make use of innovation competitions and challenge prizes to spur collaborative public sector innovation.** The use of innovation competitions, often in the form of hackathons and challenge prizes, is the most common found incentive for stimulating innovation in the public sector. Winners are often granted money prizes to further develop their solution or have the opportunity to obtain a public contract. Such

competitions help demonstrate that innovation is happening in government and it can motivate civil servants to participate in collaborative innovation projects. They can also serve as a platform where motivated innovators from across government can come together to exchange ideas and experiences, and develop new, collaborative innovation projects.

4.7. Interplay of conditions for collaborative innovation at individual, organizational and network level: an illustration

One of the main goals of the PSI-CO project is to examine how conditions on the three different levels -network, organization, and individual- lead to public sector innovation through collaboration. In this part, we examine how the interplay of these three levels can stimulate collaborative innovation. In order to do that, we elaborate *one illustration of this interaction, more specifically, on how conditions regarding at network level and conditions at organisational level stimulate learning at the individual level.*

Indeed, one of the main findings in this study is that on the individual level especially policy learning, relational learning and political learning contribute to the development of public sector innovation. As a reminder:

- Policy learning encompasses all knowledge related to the content of the policies people in collaborative innovation are dealing with.
- Relational learning refers to knowledge about the expectations, resources and the ways of knowing all the stakeholders involved in the collaborative innovation process.
- Political learning includes knowledge about the broad political context in which collaborative innovation takes place, such as the priorities and strategies of the ministers connected with the innovation and the political feasibility of a given solution.

4.7.1. How the network(management) can stimulate the individual's ability to learn

These types of learning are strongly driven by interactions. However, as our study shows, mere placing actors in a collaborative arrangement does not create a process of learning that consequently leads to innovation. Actors have to interact with each other to be able to learn, and the role of the metagovernor (on the network level) is crucial in this. Not only should he or she solve conflicts among actors, but the metagovernor is in this respect especially important to design the arenas of interaction that allow individual actors to learn from each other. In this study we made a distinction between arranging strategies, connecting strategies, exploring strategies, and the creation of process rules that a metagovernor can apply to smoothen the interactions in the collaborative arrangements.

These strategies have a broader purpose than mere stimulation of learning, think for example of establishing commitment for the innovation and bringing together needed tangible or intangible resources. Still, here we will focus on the way these network/metagovernance reinforce the learning capability of the actors as it demonstrates the interplay of different levels.

The development of public sector innovations is often a so-called wicked problem. This means that uncertainty exists both about the nature of the problem as well as of the solution. Being able to learn in such an innovation process implies that individuals learn about as much aspects as possible of the problem. Not only what the problem is about, but also what the different views on a solution are.

The members of the collaborative arrangement can possibly only know what the problem at hand exactly entails when actors with the right insights to the problem at hand are included in the collaborative arrangement. For example, if citizens deal with a certain problem and search for innovative solutions, it would make no sense to exclude them from the innovation process because then crucial sources of information would be missing in the collaborative arrangement. It would be hard for others to learn all the aspects of the problem at hand. In this case the metagovernor should apply strategies to enable the learning process of the members in the collaborative arrangement. This comes mostly down to the arranging strategies and process rules concerning entering the process that the metagovernor can introduce. The metagovernor should be able to create a process that includes the right actors to come to a solution and from which actors learn optimally.

A possible way to create a collaborative arrangement for the development of an innovation is to do it from scratch. In that case, the metagovernor creates the process (rules) which is necessary for reaching the goal, and that way the infrastructure is designed by this metagovernor. Recently we see another – more institutionalized- way of developing innovations in a collaborative way: through government-funded 'innovation labs'. Innovation labs are one of the instruments within the innovation architecture to stimulate collaborative innovation government-wide.

Innovation labs can take on a number of roles to promote innovation across government. They can:

- diffuse lessons from innovation projects
- share insights on how different innovation tools and methods are best used
- help with capacity building and support innovation networks.
- be involved with the development and implementation of innovations
- take on a supporting role by coordinating or funding projects.

Both central and decentral innovation labs can co-exist and spur innovation in different but complimentary ways. Government-wide labs can support innovation by fulfilling a knowledge-broker role and keeping oversight of innovation efforts undertaken in various departments. Decentralized labs can encourage the development of innovations in a specific policy domain or government organization.

Creating an architecture that facilitates the inclusion of the relevant actors, either through an innovation lab or by just creating a collaborative arrangement outside the scope of an innovation lab, partly relates to all three mentioned types of learning, but mostly to relational learning. Individuals in the collaborative arrangements get to know the other actors dealing with the innovation and about their expectations and resources. This can be further improved when the metagovernor applies connecting strategies, such as initiating new series of interactions, coalition building, mediation, appointment of process managers, removing obstacles to co-operation, etc.

The more content-driven strategies of the metagovernor are especially (but not exclusively) related to policy learning as well as political learning. Actors learn about the context in which others operate by 'exploring' strategies such as searching for goal congruency, creating variation in solutions, influencing (and explicating) perceptions, managing and collecting information and research.

The federal survey results of our study also indicate that the individual's ability to acquire knowledge is positively related to the development of innovations. The amount of knowledge an individual actor can acquire should also be stimulated by the metagovernor. We looked at acquiring knowledge about policy content, knowledge about the collaborative partners, knowledge about innovation users or citizens, as well as knowledge about the political priority. These is all very much related to the 'exploring content' strategy that a metagovernor can apply.

4.7.2. The role of the home-organization in the collaborative arrangement

Up till now, we focused largely on how the metagovernor can stimulate the ability of an individual to learn in the collaborative arrangement. The role of the metagovernor is a very important one and can enable individual actors to learn about, and from the other actors in the collaborative arrangement. However, actors in the collaborative arrangement are oftentimes representatives of their home organization and the extent to which the organization has the capacities to connect with, to learn from other organizations, or to innovate through processes and means should not be overlooked. Not everything that happens in the collaborative arrangement is (or should be) a result of the contributions of the metagovernor. Therefore, we also looked at the way organizations have the capacities to effectively act in the collaborative arrangement. After all, the metagovernor is appointed to

manage the collaborative arrangement, to stimulate interactions and to lead the collaborative arrangement to a satisfying outcome, but the actors (and consequently their home organizations) themselves in the collaborative arrangement should have the capacity to interact in collaborative arrangement in a productive way as well.

In order to see to what extent organizations are able to connect with other organizations we looked at the connective capacity. The connective capacity at the inter-organizational level measures if and how the organization supports engagement in external networks. For example, organizations may provide training for employees to develop their networking skills. Inter-organizational connective capacities include the capacities to create and maintain collaborative arrangements such as networks and cooperative alliances, on the one hand. On the other hand, it entails the ability to create social capital, for example by establishing trust, collaborative dialogue and reciprocity. We found that the inter-organizational connective capacities of an organization positively influences the development of different types of innovation and the satisfaction with them.

The same applies for the extent to which organizations have the capacities to learn from others in a collaborative arrangement aimed at innovation, the so-called inter-organizational learning capacity. Learning capacities on the network (or: inter-organizational) level refer to the ways that the home organization facilitates learning in the collaborative arrangements in which the organization takes part. For example, whether the organization use pilots and experiments to test new solutions with other parties outside our organization to learns from that. We found that these organizational capacities are beneficial for the development and satisfaction with innovations. This shows that the organization should pay attention to the extent to which they can connect and learn from others on a network level. Thus, although the metagovernor can smoothen interactions, the capacities of the organization should not be overlooked in the development of innovations through collaboration.

This section only elaborated upon how individual learning is stimulated by organizational and network conditions by way of illustration, but many more of such examples of beneficial interactions between individual, organizational and network conditions can be observed in our empirical material.

4.8. SCIENTIFIC CONTRIBUTION TO (FEDERAL) INSTITUTIONS

The main goal of the research was to establish the conditions for collaborative innovation in Belgian federal government. PSI-CO achieved this objective by innovative and interdisciplinary research and development, combined with practical testing via pilot-tests.

The PSI-CO project contributed to (federal and international) policy by developing comprehensive strategies for supporting collaborative innovation, which are targeting federal institutions, but also other governments (both regional and international). On the basis of its generation of theoretical insights and empirical results, the project formulated recommendations to build necessary conditions for collaborative innovation, both at individual, organisational and network level, and to avoid potential negative conditions that may hinder collaboration within and across government actors and with external stakeholders. In-depth description of insights from cases of collaborative innovation and the outline of a clear picture of the conditions stimulating public sector innovation through collaboration, resulted in insights that can be of direct use for decision-makers to improve collaborative arrangements and their innovation processes. With respect to policy relevance, PSI-CO set its actions and hence its impact in the context of the pursuit of innovation in public sector policies and services as a means to address societal challenges governments in Belgium and internationally are confronted with.

Through in-depth analysis of specific innovation cases and comparison of cases across policy fields and countries, the empirical research directly contributed to the project's aim of providing insight to decision makers to build innovative capacity, and providing management strategies for collaboration.

Throughout the course of the project, civil servants and practitioners were intensively involved in the research on the one hand - approx. 800 practitioners gave input for the project in one way or another -, and recommendations for policy and practice were provided and tested on the other hand. The first recommendations were given in the mid-term policy brief linked to the work package 3 report, which was the first report to deliver empirical results, based on ten case studies (work package 1 being the theoretical framework and case selection, and work package 2 being the data collection).

The report of work package 3 reported on the findings of 10 case studies of collaborative innovation, involving around 110 public and private participants in such arrangements who were interviewed and/or asked to fill in a short preparatory questionnaire. The related policy brief reported on recommendations how to strengthen such collaborative innovation processes. In this report 36 practical recommendations were given on the best way to manage networks for innovation, how to stimulate learning behavior, how organizational factors such as red tape and leadership should be dealt with, and on the way federal government can support collaborative innovation arrangements. Moreover, feedback presentation were given to some coordinators of the cases to help them evaluate on their case.

The findings and recommendations were validated by an comparison with the results of an earlier international project on public sector innovation and a Delphi study, involving again a substantial number of both case respondents and federal civil servants.

In work package 5, the research strategy of living labs in which civil servants were involved, was used to learn how specific conditions function in practice. The report on WP5 also resulted in some improved and augmented recommendations.

Based on the findings of work package 6 (quantitative gap analysis by a survey of the three highest management levels of the federal organizations), 25 recommendations were given. The recommendations refer to the stimulation of organizational capacities to be able to innovate, to collaboration, organizational factors such as gaining support and organizational culture and, knowledge acquisition.

In the work package 7 report, we provided 13 more recommendations on New Ways of Working based on the results of a quantitative study and two case studies.

Moreover, the top manager of each federal organization that participated in the survey of work package 6 and work package 7 received an organization-specific feedback report on the way they scored on the more than 100 different survey items in relation to similar organizations and the total federal government. They may use this report to reflect on their organization and to improve the capacities to innovate in their organization. Furthermore, all 1782 ascribed respondents of this survey received the complete work package 6 report which contains a large number of recommendations to strengthen the organizational conditions for collaborative innovation in the Federal government. Moreover, personal feedback presentations were given by team members to organizations which had a high response rate. Moreover a presentation was given on invitation for the senior researchers in one of the Sciensano divisions.

The report of work package 7 (or a shortened version) together with the included recommendations on how New Ways of Working affect collaborative innovation was sent to all respondents that were interviewed. In that way, respondents (and the organizations they belong to) can learn from the conclusions but also from the other organizations. Moreover, we sent the report to BOSA so it is possible to make evidence-based policy decisions on the implementation of New Ways of Working in the federal government. Next, we presented the main findings of the federal survey of WP6 and WP7 to the management committee of FOD BOSA on October 27th 2020.

Finally, the report of work package 8 which was based on interviews with innovation managers in Belgium (Federal as well as Flemish administration), Estonia, Finland and the Netherlands contains 26 recommendations to what extent the current innovation architecture within the

Belgian federal government can be improved in order to stimulate collaborative innovation government-wide. These recommendations focus on: 1) innovation strategy & policy, 2) innovation networks, 3) innovation labs & teams, 4) innovation resources, 5) innovation evaluation, 6) data governance, 7) risk governance, and 8) incentives. The OECD Observatory on Public Sector Innovation provided help, for example by helping to contact relevant interviewees in the three countries (Finland, Estonia and The Netherlands). All interviewees, also in the three other case countries received this report individually.

The findings of the PSI-CO project resulted in the integrated report of work package 9. This report integrated the main findings of the previous work package which resulted in 38 recommendations.

Hence, the project resulted in validated, tested recommendations and guidelines for policy and practice on :

- how to build innovative capacity and effectively bring about innovation through collaboration;
- how to organize and optimise arrangements for transversal coordination with other public actors and co-production with citizens, users, organisations and organised interests;
- what kinds of meta-governance, organisational cultures, red tape, and elements like autonomy, control and leadership as well as
- what skills, attitudes, incentives and instruments at the level of the individual civil servants are needed in order to facilitate and stimulate collaborative innovation.
- What this implies for (New) ways of working and innovation architecture

As mentioned in the previous paragraphs, the project involved government partners and external stakeholders throughout to ensure positive outcomes and impacts. Policy-relevant research results were presented throughout and at the end of the project, for example through regular meetings with PSI-CO's follow-up committee.

As part of WP9 attention is provided to dissemination of research results to the international practitioners' community. In January 2021, a large online conference with in-depth sessions about the scientific results was organized for everyone who was invited to participate in our study. Participants of this conference (mostly federal civil servants) gained knowledge about the conditions for collaborative innovation and were given practical recommendations and actions points to stimulate innovation. The conference consisted of three sessions which each ended with a panel discussion with practitioners who were able to respond on the findings and who helped us to refine some of them (see the annex for the outcomes of this panel discussion). The sessions were:

- Session 1: Innovation through collaboration: Why, with whom and how to manage?
- Session 2: Organizational characteristics at play for innovation through collaboration
- Session 3: Government-wide innovation: How can innovation be stimulated government-wide through collaboration at the federal level?

208 people, mostly federal civil servants, registered for at least one of the sessions and on average around 80 people attended each session. Findings of the PSI-CO project were also included in the third online seminar in the TROPICO online seminar series, which reported upon the results of a collaborative innovation research project funded by the H2020 program, taking place on December 9th 2020. Also, several PSI-CO informed insights were discussed during an online seminar on collaborative innovation for the top managers of the Flemish administration (both departments and agencies) which took place on February 24th 2021 (organized by the College of Administrative Chairs of the Flemish administration). Similarly, Prof. Verhoest included PSI-CO findings in his presentation for the Council of Directors of the Regional Administration of Brussels Capital (the 'GOB') on April 20th 2021. All foreign interviewees in Estonia, The Netherlands, Finland The OECD Observatory on Public Sector Innovation has been member of the accompanying committee and has been involved in the preparation of WP8 on the international comparison of the innovation architecture.

The researchers were also involved in several other seminaries and presentations to share their gained insights with a broader audience. For example, feedback presentations were given to participants of some studied cases of work package 2. Also, several researchers participated in the Greenhouse Sessions. These were brainstorm sessions organized by FOD Social Security to develop an innovation lab. Moreover, a presentation of the PSI-CO results was given on the 'Creating value and driving sustainability, accountability and the digital agenda through Public Sector Innovation' conference. There was also a short presentation by Prof. Verhoest of the main PSI-CO results of WP3 at the practitioner-oriented 'Creating value and driving sustainability, accountability and the digital agenda through Public Sector Innovation' (ACCA)-conference in Luxembourg in September 2019.

A special issue of the widely read Vlaams Tijdschrift voor Overheidsmanagement (VTOM) was published in December 2020. This journal's target audience are public sector managers and professionals who want to follow management and policy from a general point of interest (VTOM, 2020). Three articles in this edition present findings of the PSI-CO project. Another article presents findings from the PSI-CO survey, but with data from Flemish civil servants instead of federal ones. All articles are (co)-written by researchers who are affiliated to the PSI-CO project.

Furthermore, the involved professors of PSI-CO were involved more generally and through different projects in advisory activities on government reform/change/innovation, but not always specifically within BRAIN PSI-CO.

Through its activities and output, the PSI-CO project fostered the development of a critical pool of expertise to enhance the innovation capacity in Belgian (federal) government.

4.9. CONTRIBUTIONS TO SCIENCE AND SIDE RESULTS

4.9.1. Contribution to science

The PSI-CO project contributed to scientific development by improving the conceptual, theoretical and analytical state of the art in international literature as it:

(1) adds to the emerging international focus on collaborative governance, by coupling innovative research on collaborative governance arrangements with research on public sector innovations, and analyzed how collaborative governance strategies mutually influence and reinforce each other in order to create such innovations;

(2) strengthens the contemporary international research on collaborative governance arrangements by integrating insights from two research fields, i.e.,(transversal) coordination and collaboration among public actors; and coproduction and consultation with external stakeholders, whereas current literature tends to focus on these forms of collaboration separately;

(3) combines an actor-focused analysis studying how individual government actors act, learn and commit themselves in the context of collaborative governance with an institution-based analysis studying the impact of organizational cultures and leadership on government capacity for collaborative interactions;

(4) empirically tests theories of conditions for collaboration and theories of innovative capacity of collaborative governance arrangements by combining the individual, organizational and network(management) level.

Specific outcomes in the academic sphere include the completion (or planned completion) of four PhD theses on public sector innovation through collaboration. Moreover, the research resulted in multiple datasets, encompassing the case studies with social network data, the large scale survey data, and data on the international comparison of innovation architecture. The project adds to existing scientific knowledge by refining methods to study collaborative innovation (combining the use of case studies with interviews, social network questionnaires, large scale surveys, living labs, delphi, as well as international comparison of innovation architectures) and creating theoretical and empirical insight through a combination of quantitative and quantitative methods into the inter-dynamics between individual and

organizational characteristics, collaborative governance arrangements and public sector innovation.

Moreover, the academic community has been and is targeted through articles, contributions in edited volumes, and conference proceedings. Research results were presented at relevant academic conferences and symposia at international level.

See section 5 for a listing of the specific scientific output of the project.

4.9.2. Side results, like personal development, network formation, and didactic material

The project also resulted in some side results next to the ones that contribute both to the state of the art of the innovation literature as well as to the practical knowledge for civil servants working at the federal level.

The project was executed in close collaboration with four Belgian universities (UAntwerpen, KULeuven, ULiège and UCLouvain). Researchers of these four different research groups had close contact with each other throughout the course of the project. For four and a half years, researchers had weekly or bi-weekly contact with each other which contributed to an effective operating network of researchers. Some of the most prominent Belgian researchers on public sector innovation have been well-connected through this project. Especially the 'junior researchers' did not know each other yet, and this project contributed to a good professional relationship between them, including the researcher from Universiteit Utrecht who was responsible for a part of work package 4. This relationship is most likely to be maintained after the project ends. In sum, the project contributed to the creation of a network of public sector innovation researchers who have (and most likely will continue to have) strong ties with each other.

Moreover, the researchers were in close contact with practitioners working with innovation. So next to a tight academic network, the project also improved the network of academic researchers with practitioners. As said, around **800 practitioners** gave input for the project in one way or another. Not everyone of them is in close contact with the researchers, but certainly with some of them frequent mutual contact has been maintained about e.g. project results.

Next, the project enabled especially the junior researchers to develop themselves as academic researchers. The funding of the project enabled several researchers to work on their own PhD project.

Also, junior researchers were able to attend method schools and conferences to learn about the latest methods and the state of the art in innovation research. That way the project was a learning curve for them. They gained in-depth knowledge about public sector innovation and different methodologies to study this, and how to report and present the results.

Furthermore, the project served more than once as input for didactic material. For example, real life examples from the project were used in a pre-master course about research methods taught by Koen Verhoest and Tom Langbroek. Additionally, results and insights were used in several trainings concerning New Ways of Working, organized for civil servants by the KU Leuven Public Governance Institute.

Lastly, between 2017 and 2020, two master students at the KU Leuven had the opportunity to conduct research and write their master's theses on collaborative innovation. This was under the supervision of the senior researcher and with the guidance of the junior researchers. As a result of this, the master students were able to develop (further) their research skills and their knowledge in collaborative innovation in the public sector. Moreover, the junior researchers learned to guide and support master students during their master's thesis process.

4.9.3. Collaboration with other research projects and acquiring funding

The PSI-CO project also served as a starting point for further research into collaborative innovation.

- Charlotte van Dijck acquired an FWO-mandate (2018-2021) on the PSI-CO inspired project: Too wrapped up? On the effects of red tape on collaborative innovation- (promotors: Trui Steen and Koen Verhoest) (Flemish Research Council)
- The PSI-CO research team collaborated intensively for data gathering and analysis with researchers working for 'Steunpunt Bestuurlijke Vernieuwing' and the international Horizon 2020 TROPICO (Transforming into Open, Innovative and Collaborative governments) project.
- Research within the 'Agile government' stream conducted for the 'Steunpunt Bestuurlijke Vernieuwing SBV I' from 2016 till 2020 zoomed in on one collaborative method, co-creation, and examined the instruments and capacities that currently exist at the Flemish level to stimulate co-creative approaches (2019-2020).
- The PSI-CO project helped to acquire the SBV II which runs from 2021-2025, and contains a research line on the government organization for the future.
- The PSI-CO project also helped for the inclusion of the UAntwerpen as partner in the H2020 funded TROPICO project on 'Transforming into Open, Innovative and Collaborative Governments'. Some members of the PSI-CO research were also involved as coordinator of Work Package 7 of the TROPICO project. This work package concerned 'Practices of External Collaboration for Service Delivery'. The PSI-CO project informed the TROPICO project proposal to a substantial extent and the research in WP7 among others tested some of the PSI-CO findings into an international context, in 19 e-health cases in 5 cases. In that sense the findings arising from the TROPICO project and of the PSI-CO project are complementary and mutually reinforcing.

- The PSI-CO project helped to acquire funding for several other research projects (besides the abovementioned FWO mandate and TROPICO project) which were granted to partners in PSI-CO:
    - DIGI4FED project funded by BRAIN2.0 in which three PSI-CO partners collaborate on the issue of 'digital revolution in Belgian Federal Government: an open governance ecosystem for big data, artificial intelligence, and blockchain'. DIGI4FED aims to develop a governance design that serves the internal administrative and public service processes of the Belgian federal government.
    - GOVTRUST which aims to provide a substantial contribution to our knowledge on the dynamics, causes and effects of trust and distrust in such complex governance systems.
    - The FWO project (2019-2022) Using Twitter as a public communication strategy: Can 140 characters reduce the Performance-Satisfaction Gap in the public sector? (Flemish Research Council) with Koen Verhoest as promotor.
    - The FWO project (2019-2022) Slow-healing wounds? How continuous structural reforms in the public sector reduce levels of job satisfaction and slow the recovery of job satisfaction in the long term. (PhD project) (Flemish Research Council) with Koen Verhoest as promotor.
    - A partner role and WP leader role for UAntwerpen in the project on 'Trust in Governance and Regulation in Europe' which is funded by H2020.
- Several partners of PSICO submitted new research proposals to Belspo in the summer of 2020.
- The involvement of Vidar Stevens in the PSI-CO project helped him in acquiring a postdoc position at the Erasmus University Rotterdam on a related subject. The involvement of Bjorn Kleizen helped in acquiring a post doc position on a project on trust in AI and big data. Astrid Molenveld acquired a lecturing position at the Erasmus University Rotterdam.

5. DISSEMINATION AND VALORISATION

The PSI-CO project used a varied strategy for valorisation, communication and dissemination of research results, drawing on different channels, to spread the knowledge of the project and of its contents in the broadest and deepest possible way among the international scientific community, practitioners, decision-makers and stakeholders, and the public at large.
The dissemination of the PSI-CO results started from the follow-up committee committed to the project. All partners have a large network of established and firm connections with all relevant key actors, that is, segments within the academia; government administrations at regional, national and international level; and external stakeholders. The research team organized regular meetings with the follow-up committee to discuss the results and next steps of the project.

- **Monday October 10th 2016 :** Meeting with the follow-up committee to elaborate on the project plan and theoretical framework.
- **Monday February 27th 2017:** Meeting with the follow-up committee to discuss the theoretical framework, survey and interview questions, case approach and case selection.
- **Thursday March 22nd 2018 :** Meeting with the follow-up committee to discuss the data collection phase.
- **Thursday March 14th 2019:** Meeting with follow-up committee to discuss the results of work packages 3 and 4 and discussion of the following work packages (living labs and gap analysis)
- **Tuesday September 9th 2020 :** Interactive meeting with follow-up committee to discuss the results of work packages 5,6,7 and 8.
- **Thursday January 21st 2021:** End conference. Interactive sessions for a broad audience of practitioners about the findings of the PSI-CO project. The program and conclusions of the panel discussion can be found in annex.

Public sector practitioners (policy makers and public sector executives primarily at the Belgian federal level, yet also at other (regional) government levels in Belgium, and internationally) as well as other stakeholders (private sector actors, third-sector groups, interest representation groups) were targeted through the collaborative approach of the research, feedback-sessions, delphi workshops and living labs, one conference, reports, articles in practitioners' journals, newsletters (GOVTRUST), and the projects' webpage (www.psico.be) for further information. The PSI-CO project engaged stakeholders in the cases studied, pilot-tests and beyond, to debate the project's findings and their implications for future collaborative innovation

strategies. The feedback provided by conference and delphi workshops and living labs attendants provided valuable input for this project.

Moreover, all project partners use their information channels to create operational visibility for the instruments developed and insights gained during the PSI-CO project. This means including publications of the project on the own website and LinkedIn. This contributed to maximum exploitation and visibility of the project among each partner's networks.

The research team actively engaged in dissemination opportunities through conferences and presentations, both for an academic as well as a for practitioners audience. All presentations, workshops and conferences are listed below:

Conferences and presentations: Research results have been presented at relevant academic conferences and symposia at international level.

- Presentation of a theoretical paper at the annual conference of the *International Research Society of Public Management (IRSPM)* in Budapest, April 2017.
- Presentation of a theoretical paper at the *IIAS Study group on co-production* in Washington, June 2017.
- Presentation of a paper with first empirical results at the *Public Management Research Association (PMRA) conference* in Washington, June 2017.
- Organized an own panel at *Public Management Research Association (PMRA) conference*, Washington, June 2017
- Presentation of a paper about learning in innovation practices at the *annual European Consortium for Political Research (ECPR) conference* in Oslo, September 2017
- Organizing and presenting at own panel concerning governance capacity at the *Netherlands Institute of Governance (NIG) work conference*, November 2017
- Two presentations at the *Public Sector Innovation (PUBSIC) conference* in Lillehammer, November 2017
- Participation workshop '*Stadsbesturen in transitie voor een samenleving in transitie*' (2018).
- Presentation at *ECPR General Conference*, Hamburg (Germany). August 2018
- Presentation at *International Workshop On Public Policy (IWPP)* , Pittsburgh, June 2018
- Presentation at the seminar of the *Policy Analysis and Environmental Governance (PEGO) Chair*, University of Bern, November 2018.
- Presentation at the seminar of the social science department of the *EAWAG, the swiss institute of water technology and science*, Zurich, December 2018.
- Participation in the congress *IAO-Kennisfestival of Flanders Synergy*, Brussels, October 2018.
- Participation in the congress *HRM in de Overheid*, Ghent, February 2019.

- Participation in *Flames Theory and Practice of Questionnaire Construction and Analysis*, Brussels, 2019.
- Two presentations at the *International Research Society of Public Management (IRSPM)* conference in Edinburgh, April 2018.
- Presentation at the *International Conference on Public Policy ICPP4*, in Montreal (Canada), June 2019.
- Two presentations at the *Public Sector Innovation (PUBSIC) conference* in Milan, January 2019.
- Presentation at the *European Group for Public Administration (EGPA)* conference in Belfast, August 2019.
- Presentations at the *Swiss Political Science Association Annual* conference and Dreilandertagung 2019, Zurich, February 2019
- Presentation at the '*Netwerk meeting Gemeenten op Schema'* to discuss the results of the conducted case studies of work package 2, September 2019
- Presentation of the PSI-CO results at the *Creating value and driving sustainability, accountability and the digital agenda through Public Sector Innovation' (ACCA)-conference*, Luxembourg, September 2019.
- Presentation of a theoretical paper at *the IIAS Study group on co-production* in Leuven, May 2019.
- Two presentations at the *Public Sector Innovation (PUBSIC) conference* in Stavanger, January 2020.
- Presentation of one paper at the 2021 IRSPM conference (online).
- Presentations at the federal organizations with the highest response rate who were eligible for a personal presentation on their results.

PUBLICATIONS

PSI-CO research reports (freely accessible online through the PSI-CO project website)

Table 1. PSI-CO research reports

Work package	Topic	Reports
1	Integrated analytical framework for innovation through collaboration and co-creation	• Theoretical and analytical framework. Case selection and approach
2 & 3	Case studies about management of collaborations, individual and organizations conditions for innovation	• Final report work package 3 • Policy brief
4	Validation of results through international comparison and Delphi studies	• International validation • Delphi study • Policy brief
5	Living Labs	• Final report work package 5
6	Quantitative analysis: Survey on innovation through collaboration and co-creation in the federal government	• Final report work package 6
7	New Ways of Working and collaborative innovation	• Final report work package 7
8	Innovation architecture	• Final report work package 8
9	Integrated end report	• Final report work package 9

Phd theses (defended and forthcoming)

- Riche, Cécile. Learning through interaction : insights from eight collaborative innovation networks in the Belgian public sector , prom. : Aubin, David ; Moyson, Stéphane, defended on 02/10/2020.
- Charlotte van Dijck: Too Wrapped up? The effect of red tape and organizational culture on collaborative innovation (defence planned in 2021/2022)
- Tom Langbroek: Metagovernance and network conditions for collaborative innovation (defence planned in Autumn 2021)
- Emmanuel Dockx: Individual and organizational capacities for collaborative innovation (defence planned in 2021/2022)

Conference papers 2016-2017

- Public sector innovation through collaboration. Explaining antecedents for collaborative innovation (Paper presented at IRSPM conference, Edinburgh, April 2017).
- The effects of red tape on collaborative innovation (Paper presented at the IIAS Study group on Co-production, Washington DC, May, 2017).
- Learning in networks: A systematic review of public administration research. Seventh triennial Congress of the Belgian French-Speaking Association of Political Science (Mons, du 03/04/2017 au 04/04/2017).

Conference papers 2017-2018

- Learning in networks: A systematic review of public administration research. General Conference of the European Consortium for Political Research (ECPR) (Oslo, Norway, du 07/09/2017 au 09/09/2017).
- Interpretative analysis of decentralized policy with the use of an online Delphi (Paper presented at the ECPR General Conference, August 2018, Hamburg (Germany)
- Empirical paper regarding red tape's effects on collaborative innovation (Paper presented at the NIG conference, Maastricht, November, 2017).
- Empirical paper regarding red tape's effects on collaborative innovation (Paper presented at the PUBSIC conference, Lillehammer, November, 2017).

Conference papers 2018-2019

- Leadership, contracts and evaluations: steering collaborative innovation from the top? (Paper presented at IRSPM conference, Edinburgh, April 2018).
- Explaining interactions in networks (Paper presented at the Innovation in Public Services and Public Policy (PUBSIC) Conference, Milan, January 2019)

- Setting up, sustaining, and succeeding in collaborative innovation (Paper presented at the Innovation in Public Services and Public Policy (PUBSIC) Conference, Milan, January 2019).
- The psychological contract and employee evaluations: steering collaborative innovation from the top? Presented at the IRSPM, Edinburgh, 11 Apr 2018-13 Apr 2018
- Back to the micro: Policy actor learning in collaborative networks (Paper presented at the International Workshop On Public Policy (IWPP) , Pittsburgh, June 2018)
- Learning in collaborative networks: trust or being trusted? (Paper presented at the Swiss Political Science Association Annual conference and Dreilandertagung 2019, Zurich, February 2019).
- Setting up, sustaining, and succeeding in co-production (Paper presented at the IIAS Study group on coproduction, Leuven, May 2019).

Conference papers 2019-2020

- Explaining interactions in networks. (paper presented at the European Group of Public Administration (EGPA) conference, Belfast, Belfast 2019
- Leadership wanted. The role of leadership in collaborative innovation (paper presented at the PUBSIC conference, Stavanger, Januari, 2020).
- The importance of interaction: How network structure and interaction leads to innovation Innovation in Public Services and Public Policy (PUBSIC) Conference, Stavanger, January 2020)
- Employee well-being at the expense of organizational performance? The impact of New Ways of Working in public sector collaborative innovation. (European Group of Public Administration (EGPA) conference, Belfast, September 2019)
- Public Sector innovation (PSI) through co-production. Learning together how to learn from experience in Emergency Planning (EP), International Conference on Public Policy (ICPP4) (Montreal, June 2019)
- Co-production of technology and socio-political orders: Prenatal testing in Belgium and Argentina, International Conference on Public Policy (ICPP4) - Montreal, June 2019
- Collective Learning in Collaborative Networks: Understanding Actors' Perceptions (European Consortium for political research (ECPR) Joint-session, Mons, April 2019)
- Eye to Eye in collaborative networks: Interacting to learn (International Public Policy Association (IPPC) Conference, Montréal, June 2019)

Papers in preparation 2020-2021

- Charlotte van Dijck, Steen Trui. Collaborating for innovation: the role of organizational culture and red tape.
- Langbroek, T., Verhoest, K. Explaining interactions in networks. How the home organization influences their representatives' interactions in collaborative innovation arrangements.
- Langbroek, T., Verhoest, K. The importance of interaction: Network structure, actor importance and the relation with innovative outcomes
- Dockx, E., Verhoest, K., Langbroek, T., & Wynen, J. Attracting unlikely innovators: How much do organisational connective and learning capacities matter to collaboration for innovation?
- Langbroek T., The metagovernance of innovation projects for the establishment of synergy
- Dockx, E., Verhoest, K & Langbroek, T., . Public sector innovation and its organizational antecedents: a tale of being able, being allowed, or being pressurized?
- Langbroek T., Verhoest, K. & Dockx, E., Come together, right now. How inter-organizational diversity leads to public sector innovation.
- PSI-CO will contribute chapters to an **edited book volume** on Collaboration for digital transformation, edited by Gerhard Hammerschmid, Koen Verhoest, Lise Rykkja and Erik-Hans Klijn and published by Edward Elgar (2022).

Publications (several papers are under review, but are not included here)

- Riche, Cécile ; Aubin, David ; Moyson, Stéphane. Too much of a good thing? A systematic review about the conditions of learning in governance networks. In: *European Policy Analysis*, Vol. Early View, no., p. (2020). doi:https://doi.org/10.1002/epa2.1080.
- Verhoest K., Steen T. en Van Doninck D. (2021). Editoriaal: Innovatie in de publieke sector: alleen of samen? *Vlaams Tijdschrift voor Overheidsmanagement* (VTOM), 2020(4), 1-6.
- Dockx, E., T. Langbroek, and C. van Dijck (2020). Innovatieprocessen in de Vlaamse overheid doorgelicht. *Vlaams Tijdschrift voor Overheidsmanagement*. (VTOM), 2020(4), 7-23.
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- The members of the PSI-CO follow-up committee. These are listen in table II:

Table II. Members of the follow-up committee

Name	**Organization**
Aziz Naji	Belspo
Mireille Meermans	FPS Social Integration
Philip Vermeulen	FPS BOSA
Ben Smeets	FPS BOSA
Jan Rommel	Fedasil
Martin Ruebens	Departement Kanselarij en Bestuur Vlaamse Overheid
Sabine Wallens	DG Environment
Amaury Legrain	FPS Social Security
Monique Bernaerts	FPS Interior, Directorate-General Crisis Centre
Koen Loquet	CREG

Hilde Eggermont	Belgian Biodiversity Platform, Royal Belgian Institute for natural sciences
Dieter Vander Beke	Belgian Federal Institute for Sustainable Development (FIDO)
Marielle Smeets	FPS Health, Food Chain Security, and Environment
Marc Rogiers	National Employment Office
Sandra van Neyen	National Employment Office
Véronique Cnudde	FPS Mobility and Transport
Guido Gryseels	Royal Museum for Central Africa (RMCA)
Hendrik Segers	NFP CBD, DO Nature, Royal Belgian Institute of Natural Sciences
Marco Daglio	OECD Observatory on Public Sector Innovation
Elke Loeffler	Governance International (University of Birmingham)
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APPENDIX: PROGRAM AND MAIN CONCLUSIONS FROM THE PANEL DISCUSSIONS OF THE PSI-CO END CONFERENCE

9:30 – 11:00: Session 1 – Innovation through collaboration: Why, with whom and how to manage it?

By prof. dr. Koen Verhoest (UAntwerpen – PPG / GOVTRUST), Tom Langbroek (UAntwerpen – PPG) and Chesney Callens (UAntwerpen – PPG)

This session started with a general introduction to collaborative innovation. What is regarded an innovation and why is it becoming increasingly important for public sector organizations to collaborate with other actors to develop these innovations? We presented findings on the current state of collaboration for innovation in the federal government and what collaborative arrangements aimed at innovation are composed of.

Next, the important role of management of these arrangements was discussed. We elaborated on best practices from real cases to provide insights in the best ways to manage these networks and to come to the desired innovative results.

The session closed with a panel discussion with practitioners.

Panelists:

- *Tim Weltens, project coordinator for MijnWGK, Wit-Gele Kruis*
- *Olivia Machiels, advisor-general ad interim RIZIV*
- *Sandra Schillemans, director general ad interim BOSA*

This session was organized in collaboration with the TROPICO project. TROPICO has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 726840.

Main points raised in the panel debate were the following:

A tour of the relevant government agencies is crucial if you develop such innovations because you do not want to be involved in something that is fully claimed by the government.

Identifying and managing people in the network who can be a hindrance is crucial for the smooth running of the innovation process. So it is important to keep friends close, but enemies even closer.

Legitimacy of decisions and arguments is crucial for their general acceptance. Opinions need to be used to legitimize decisions and arguments.

Contract is a useful tool to ensure a smooth collaboration process. It is important that people are convinced of the content of the contract; the contract needs to be negotiated. Tim indicated in the panel discussion that he often includes controversial issues in the draft version of the contract to 'provoke' actors: "if they sign it as it stands now, they have guaranteed problems ". This activates the partners' involvement and makes them think about the consequences of their engagement.

11:15 - 12:45: Session 2 - Organizational conditions at play in collaborative innovation context

By Charlotte van Dijck (KU Leuven - Instituut voor de overheid), Paulien Lingier (KU Leuven - Instituut voor de overheid), and Tom Langbroek (UAntwerpen – PPG)

Chaired by prof. dr. Trui Steen, (KU Leuven - Instituut voor de overheid)

In this session we presented the findings on the organizational conditions at play in a collaborative innovation context. First, we presented conditions for innovation at the inside of the organization (such as New ways of Working, organizational culture, red tape,..).

Next, the organizational conditions in relation to the collaborative innovation arrangement were discussed. How can an organization most effectively collaborate for innovation?

A panel of practitioners reflected on the presented findings.

Panelists:

- *Hendrik Delagrange - SERV*
- *Josee Goris - POD Maatschappelijke Integratie/ SPP Intégration Sociale*
- *Marleen Haems – KOVAG*

Main points raised in the panel debate were the following:

First, the importance of political will and support by the minister were pointed at. Additionally, it was stated that hands-on leadership in the administration is of great value for enabling innovative collaboration.

A discussion was raised as to the need to balance the implementation of core tasks and innovation, and on the challenge of combining stability and dynamic functioning. It was argued that especially in times of spending cuts, a stable base is needed.

Another balance, discussed, concerns the need to provide a clear framework while also providing enough autonomy to civil servants to take up innovation. It was argued that employees should get a mandate for innovation, wherein a framework is set and goals and

expectations of the organization are clearly defined. Moreover, providing autonomy was discussed as being linked to the need for competence and training.

A pitfall was pointed out, that when in organizations (only) special divisions are given freedom to experiment, they risk to experience the limits of being one team only, detached from the rest of the organization.

Finally, new ways of working were discussed as having the potential to be both a positive and a hindering factor for collaborative innovation as it might through autonomy and teamwork increase productivity, yet often is implemented out of a concern for cost cutting rather than for enabling innovation in work practices. The panel members stressed that innovation needs serendipity, seeing others and being able to brainstorm in face-to-face meetings. Yet, in line with the PSI-Co research, it was also confirmed that new ways of working should be seen as entailing much more than working from home and holding online-meetings only.

13:30 - 15:00: Session 3 - How to stimulate collaborative innovation in government?

Chaired by prof. dr. Catherine Fallon (ULiège - Spiral) and Stephanie Verlinden (UAntwerpen – PPG)

In this session we took a closer look at what is needed to stimulate collaborative innovation, across governments as well as with external stakeholders.

First, we introduced the concept of 'innovation architecture' and its importance in stimulating government-wide innovation.

Next, we shared our findings on the presence of innovation labs, networks, financing and incentives for innovation in different countries (Belgium, the Netherlands, Finland, Estonia). Practitioners from the Finnish and Dutch government shared their best practices regarding innovation labs and networks. To conclude, a panel of practitioners from the Belgian federal government reflected on these insights and how they could be applied in the Belgian context.

Speakers:

- *Kalle Nieminen – Sitra lab (Finland) (current Sitowise)*
- *Christiaan van den Berg - Ministry of Justice & Security (Netherlands)*

Panelists:

- *Frédéric Baervoets - Federal innovation lab NIDO*
- *Christine Copers - DG Digitale Transformatie*

- *Johanna Pöykkö - FPS Social Security*

Main points raised in this session were the following:

The first part of the discussion was about the presentation given on the Finnish Sitra innovation lab by Kalle Nieminen.

- Sitra Lab is organized in the Parliament (with parliamentary funding) : "Sitra Lab is Sitra's own future laboratory where we train change makers, help organizations and communities take advantage of new approaches and advocate for change. Everything we do is underpinned by a strong conviction that the future needs its makers and change making is something that can be learned"
- The lab exists since 2017 : 5 persons (300.000€/year) ➔ innovation management on "complex" issues where the attitude must be experimental (see below Dan SNOWDEN, Cynefin framework : dark spot in the center is "disorder")

Different types of issues need different attitudes/skills – capacity to handle them[8]

Obvious ← best practices
Complicated ← analysis
Complex ← experimental

A question was raised what the main challenge for Sitra is. The answer is that everything you do is political. Labs are always political, even innovation contests you launch end up being political. This is mainly because they have to be balanced and contestants have to be mentored. Even mediation in this context is political.

A discussion was raised about the leadership and governance of such labs and about the administration. The panelist mentioned that not much administrative support is experienced and that they basically do everything themselves. Therefore it is important to be as 'lean' as possible. An important advice which was mentioned was to look for support yourself. Important is stakeholder mapping and then work together with the stakeholders who want to support you. It is considered missionary work to look for support of other stakeholders, but regarded as very important by the panelists. The general consensus was that innovation

[8] Kurtz, C.F. & Snowden, David. (2003). The new dynamics of strategy: Sense-making in a complex and complicated world. Engineering Management Review, IEEE. 31. 110- 110. 10.1109/EMR.2003.24944.

architecture is all about networking. The more you deliver, the more support you will receive. An advice is to try to network and forming a 'coalition of the willing' with stakeholders. It is important to keep 'friends' close, but 'your enemies' closer, by which the persons who can block the process were meant. It was also mentioned that you should keep researchers close. Cooperation is important with people who have a "leverage"

- Pragmatic approach to develop common language
- Inter-sectorial groups
- TIME is needed
- Specific methods ….

COVID crisis and generalization of Telework : telework is problematic because for creativity you also need informal contacts and discussions, away from "the place" (away from home, certainly)

⇨ Post covid time : it will be necessary to develop "connectivity" again.

After the presentation of *Leuven 2030* the question was raised about keeping momentum for such long-term projects and keeping the stakeholders' interest. It is important that after a while some results are delivered. Also concerning networking. In the beginning they talked with start-ups and private companies and later to the government to get support. External recognitions were real game changers because they gave the project more weight. Taking steps that are impressive and inspiring kept stakeholders interested. In the case of the Dutch *Innovember* an online platform was made to keep in touch with interested stakeholders.

The logic of creativity is different from the logic of management : so how to nurture serendipity ?

- Need for time and resources.
- Need a mandate aligned with the general goal of the organization but opening the future.
- Need for autonomy freedom .. to generate alternate ideas within the organization.
- Need the right for failure.
- Avoid skepticism.