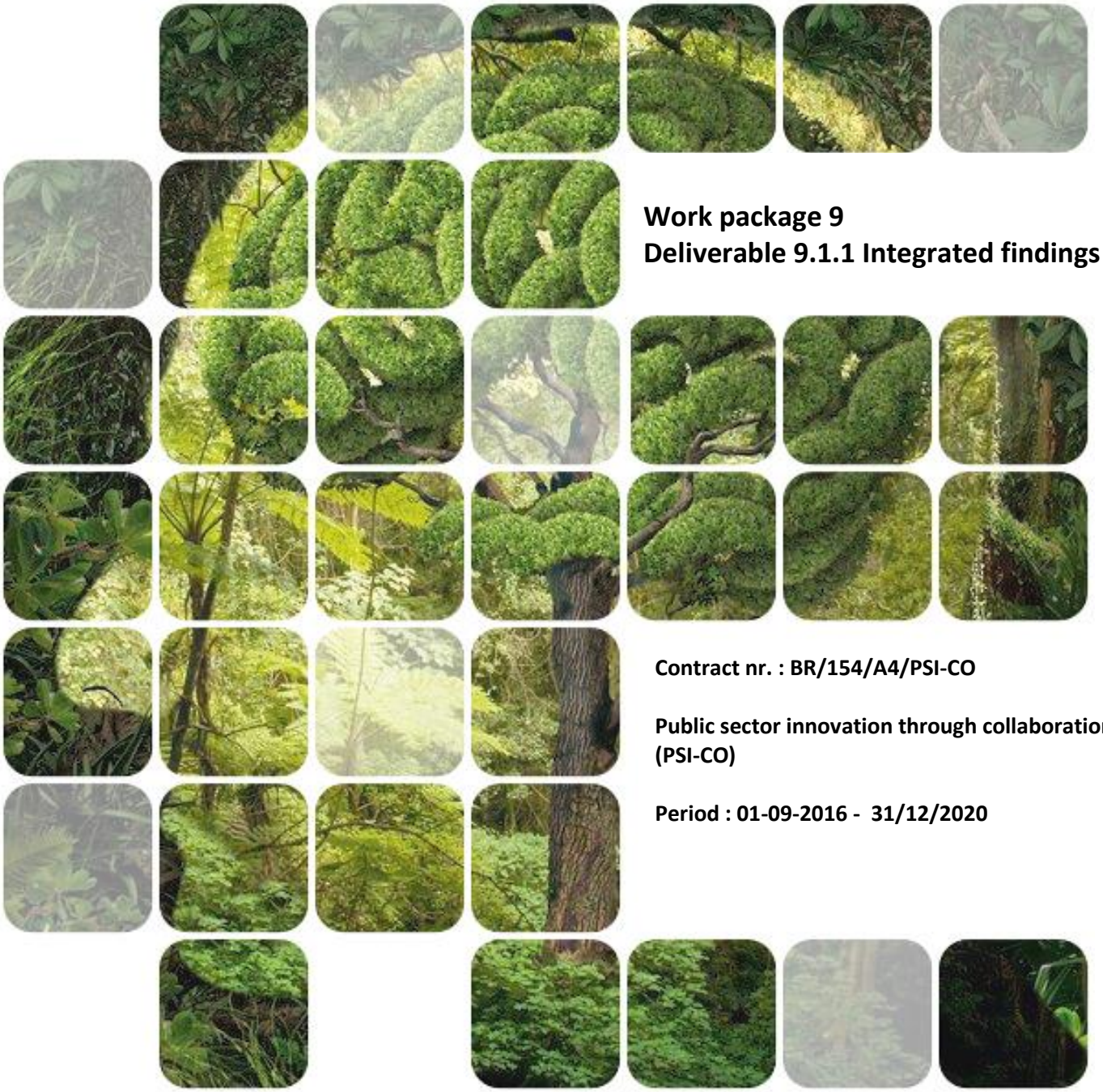

Work package 9
Deliverable 9.1.1 Integrated findings

Contract nr. : BR/154/A4/PSI-CO

Public sector innovation through collaboration (PSI-CO)

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Public Sector Innovation through Collaboration

Contract - BR/154/A4/PSI-CO

Work Package 9 report

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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.

Key words: Innovation, collaboration, public sector

1. INTRODUCTION

Nowadays, public sector innovation (PSI) is high on government agendas across OECD countries. The rise of complex problems, the growing citizen's demands and budgetary pressures require governmental bodies to develop new, innovative public policies, services and practices that break up past routines. More and more, collaboration (CO) with other public organizations, private actors, non-profit organizations or citizens is perceived as a solution to develop public organizations' capacity to innovate. Despite the growing awareness of the need of collaboration, there is a lack of knowledge about how collaborative governance arrangements result in meaningful innovations and under which conditions collaboration leads to innovation.

The Public Sector Innovation through Collaboration (PSI-CO) is a four-year project that aims to advance the existing scientific knowledge on collaborative innovations – innovations developed through collaboration – and to provide evidence-based recommendations to practitioners willing to engage in collaborative innovation. 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?"

To answer this overall question, the project addressed several sub-questions combining qualitative, quantitative and design-based methods. First, it studied the internal dynamics of the collaborative innovation process through an in-depth study of **nine cases of collaborative innovation processes within the Belgian federal government**, using multiple data collection methods (interviews, surveys and social network analysis). Second, **the findings were validated** through a **Delphi study** amongst the stakeholders involved in the collaborative innovation cases and a sample of federal civil servants, as well as through a **comparison with the findings of recent international research** (WP4). The validated findings were then applied in a pilot-test of collaborative innovation in the federal administration, using the **living lab** methodology (WP 5). Fourth, the project involved a gap-analysis of the federal organizations. We looked at how certain capacities are present in the federal organizations and how they influence innovative outcomes, which was done through a survey addressed to the top managers of all federal government organizations (WP6). Finally, the project looked at the impact of **News Ways of Working** (WP7) and the **innovation architecture**, which refers to the structures, processes and instruments set up by governments to stimulate innovations (WP8) on collaborative innovation. This impact was analyzed through two additional case studies of collaborative innovation and through interviews.

This report integrates the findings of the whole research project. It highlights the key results, and provides integrated policy recommendations. The first section presents the conceptual scheme that guided the PSI-CO project. The second section develops the main conditions for innovation at the individual, the network, the organizational and the governmental levels and presents the main recommendations. Within this section, you will find two types of boxed texts:

- Boxed text with this icon highlights important remarks, such as key challenges, constraints and difficulties;

- Boxed text with this icon provides additional information.

Finally, the third section lists all the recommendations of this report, by order of appearance.

COLLABORATIVE INNOVATION: THE CONCEPTUAL SCHEME

In the PSI-CO project, innovation can take the form of any new process, a changed service, tool, method or policy within a given context. The novelty might exist already somewhere else but must be new in the context concerned and should represent some qualitative change and discontinuity with how things were done before. Innovation is not limited to the use of new technology (i.e. electronic government procurement).

Collaborative innovation refers to processes involving the development or the implementation of an innovation through collaboration between a diversity of actors beyond the boundaries of public organizations, levels of governments and/or societal actors; such as citizens, private organizations or organized interest groups. Such processes occur in so-called "collaborative governance arrangements", which are more or less institutionalized structures in which actors interact, meet and discuss of the innovation.

The aim of the PSI-CO research project is to study how and under which conditions collaborative arrangements effectively lead to public sector innovation. In other words, it looks at the conditions for successful collaborative innovation processes. The overall conceptual scheme is depicted in figure 1.

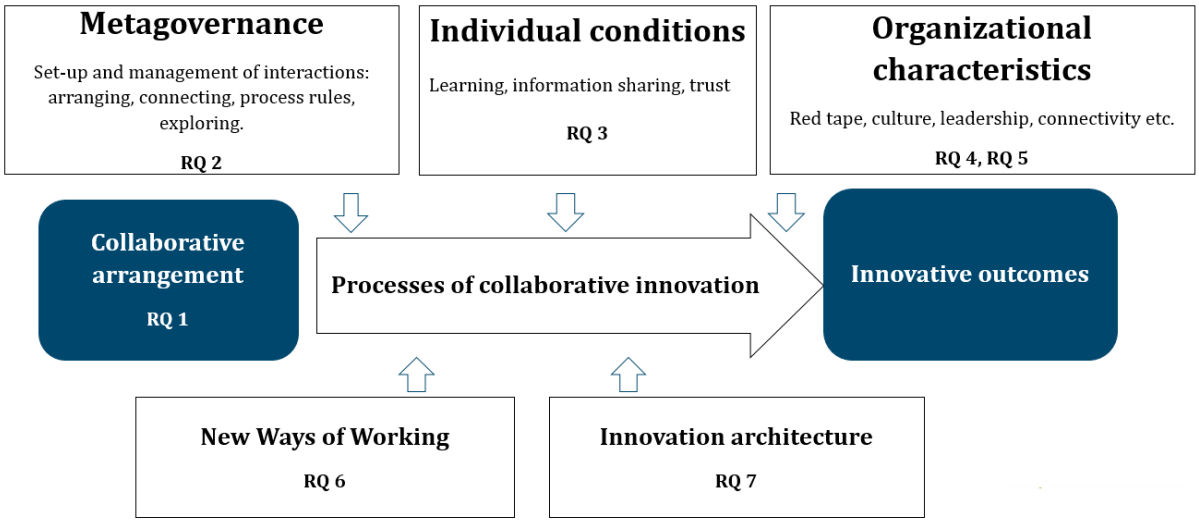

Figure 1: The conceptual scheme of collaborative innovation

Several conditions influence the process of collaborative innovation. Those conditions are presented at four different levels:

- **The network level** includes the conditions related to the collaborative governance arrangement. In the scheme, they are referred to as "metagovernance". Metagovernance means the management of the collaborative arrangement by the coordinator or the project manager – the "metagovernor". Even though the PSI-CO project has a strong emphasis on

metagovernance, the network-level conditions are not limited only to the management of the network. The composition of the network as well as the quality of the interactions within the network are two other important dimensions of the network-level of collaborative innovation.

- **The individual level**, displayed at the bottom of the scheme, includes the conditions related to the individuals actively engaged in the development of the innovation. At this level, the PSI-CO project focuses on the individual capacity to learn – a key generative mechanism of innovation, as explained below.
- **The organizational level,** depicted next to individual conditions, includes conditions at the level of the home organizations individuals represent in the collaborative arrangement. Special attention was paid to red tape, leadership and organizational culture. In addition, the PSI-CO project dedicated a work package (7) to another type of organizational condition, namely New Ways of Working.
- **The governmental level** is, in this scheme, referred to as "innovation architecture". It includes all conditions related to the whole governmental system. The political context, i.e. political support and interest in collaborative innovation, is also an element of the governmental level.

Those different conditions influence collaborative innovation by acting upon **three "generative mechanisms":** synergy, learning and commitment (Ansell and Torfing, 2013). Those mechanisms are interconnected dynamic processes explaining the link between collaboration and innovation. In other words, collaboration produces innovation as long as it supports synergy, learning and commitment.

- **Synergy** is the process whereby actors involved in the collaborative arrangement bring together their resources in such a way that they are capable of developing an innovation. The resources actors engage are multiple, including for instance knowledge, contacts, finances or legal authority. The idea behind synergy is that **collaboration leads to innovation as long as it brings together actors with sufficient and complementary resources**.
- **Learning** is the process through which actors acquire new knowledge and change their opinion as they interact with each other. Learning allows actors to broaden their vision of the problem, identify new opportunities and develop new ideas. **Collaboration leads to innovation as long as actors learn from each other.**
- **Commitment** is the process of building a sense of ownership, consensus and support for the innovation developed. Commitment is particularly important for innovation to become something concrete and sustainable over the long-term. **Collaboration leads to innovation as long as actors are committed and support the innovation.**

Collaboration: the unique pathway to innovation?

The PSI-CO project is built on the premises that, under the right conditions, collaboration fosters the development of innovation. But is collaboration the only way to innovate? Not really. Organizations can come up with innovations themselves, without the input from external actors, or they can get inspired by other organizations without necessarily collaborating with them – for instance, through benchmarking.

However, we found in Work Package 6 **that collaboration is an important driver of innovation.** Public organizations tend to develop more innovation if they collaborate with external partners with the clear goal to innovate. Such collaborations can be small or large and involve any type of actor – from public organizations working at different jurisdictional levels (federal, regional or local) in the policy arena, to actors from the private sector and from the civil society – non-profit organizations or citizens. In any case, collaboration is linked to the development of innovation.

That being said, **innovation through collaboration is not a bed of roses.** As the next section explains, successful collaborative innovation is not something that succeeds after a few meetings. It also requires informal communication, bilateral meetings, and repeated interaction over time. In addition, collaborative innovation depends, by nature, on interactions and communication between actors coming from different organizations with different languages, cultures, backgrounds, objectives, and holding different points of view. Communication in such context is rather difficult, particularly when collaboration involves end users, i.e. citizens. **Collaborative innovation is hence in essence a process that takes time and implies high coordination costs.**

Collaboration may be a key driver for innovation, but the time requirements and the huge coordination costs associated implies that ***"where there are time and resource constraints, other innovation strategies will be more attractive"*** (Hartley, 2013).

2. METHODOLOGY

The PSI-CO project used multiple methods to address its research questions and to analyze individual, network and organization levels. It can be specified that the research project itself is meant to be a collaborative process in which the commissioning government, civil servants and stakeholders are intensively involved at 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).

The PSI-CO project consists of 9 different work packages (WPs) as shown in figure 2.

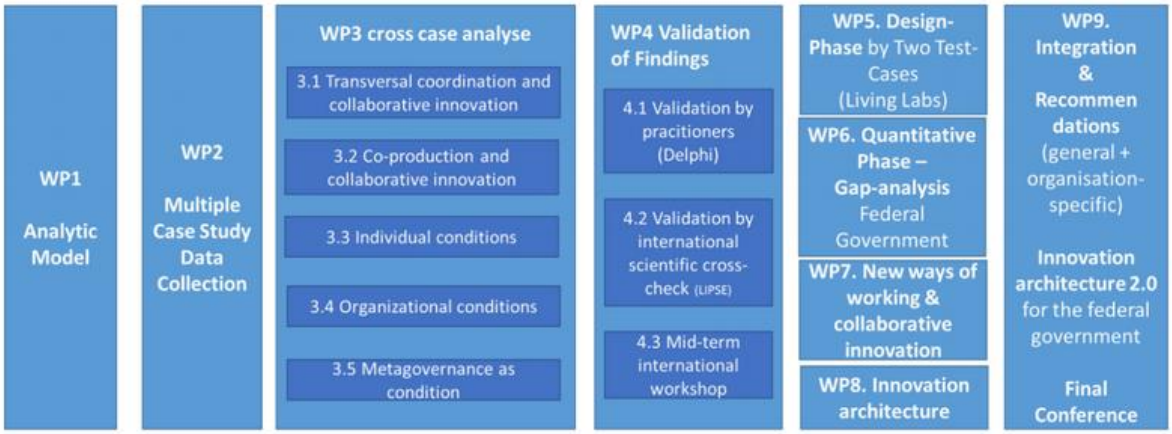

Figure 2: Set-up of PSI-CO

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. 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.

How do collaborative arrangements result in innovations? Innovation was measured with a score built on survey items related to the content of innovation, process quality, institutional quality, and confronted with the interview data. The network level was assessed through a social network analysis. The participants answered questions about the different types of interactions they had with each other. Exponential Random Graph Models (ERGMs) have been conducted to explain what drives interaction in the networks. For each case, the density of the network, as well the existence of cliques, were observed using UCINET. Cross-case analyses were also carried out on process quality and the institutional quality of the networks, and on the perceived presence of two generative mechanisms, that is synergy and commitment.

Metagovernance as a condition for collaborative innovation? The metagovernance strategies were assessed in quantitative and qualitative ways. The evaluation of the metagovernance strategies were measured through survey items, which provided an average score evaluation of the perceived application of metagovernance strategies. The average score and the standard deviation, indicating the difference in answers among actors, were calculated for every case. Next, these means and standard deviations were set against the interview data.

Individual conditions for collaborative innovation? Different types of learning were considered, as well as personal traits such as propensity to trust and expertise, and relationships. Data on individual learning were collected through interviews, coded and analyzed using NVivo 12. Those qualitative data were then transformed into quantitative data (0 if learning is absent; 1 if it is present) and imported in the SPSS 25 software. Measures on individual traits were gathered through a survey. Relations between actors were assessed through social network analysis to calculate the normalized degree centrality of each individual. Logistic regressions were run with SPSS 25 to assess the impact of individual traits and relations on each type of learning, taken independently.

Organizational conditions for collaborative innovation? Organizational culture, red tape and leadership were evaluated based on interview data coded with the Nvivo software. After the qualitative analysis, some variables, such as gender or type of organization, were coded for quantitative analysis. The survey also included items for developmental culture, general red tape, the five main red tape dimensions, and transformational leadership. Logistic regressions were run with to assess the impact of each of these variables on the organization's continued support for the collaborative innovation project and on the perceived success of the project.

Moreover, the federal survey data of work package 6 and 7 was quantitatively analyzed with SPSS 25 and R.

Box 1: Presentation of the methods specific to each research question

3. THE CONDITIONS FOR COLLABORATIVE INNOVATION

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.

3.1. 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.

3.1.1. 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;
  - 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:

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

- 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.

3.1.2. 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.

3.1.3. 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.

3.1.4 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.

3.2 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.

3.2.1 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)

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

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

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.

3.2.2 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 metagoverner in the interactions in the innovation is preferred. The metagoverner should be actively involved in the collaborative arrangement and be visible for the other actors. When the metagoverner 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 three 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.

3.3. 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 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.

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

- **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.

3.3.2. 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.

3.4. 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]

3.4.1. 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:

- **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 3.5.

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.

[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.

	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.

3.4.2. 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.

3.4.3. 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.

3.4.4. 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).

3.4.5. 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.

3.5. 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 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

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

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.

3.6 Innovation architecture in order to stimulate collaborative innovation government-wide

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 government-wide 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:

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

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. 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.

3.7. 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.

3.7.1. 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.

3.7.2. 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.

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