Draft Deliverable WP1: Theoretical and analytical framework. Case selection and approach

Public Sector Innovation through Collaboration (PSI-CO)

Meeting follow-up committee

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1. General introduction

This document is the result of the first work package of the Public Sector Innovation through Collaboration (PSI-CO) project. In this document we report on the first few months of the project where we worked on the analytical framework, which resulted in a survey and interview guideline, and the case procedure and selection.

This document is mainly written by the University of Antwerp, KU Leuven and Université Catholique de Louvain (UCL). Each partner had a different focus. University of Antwerp focused on the network conditions, metagovernance and transversal arrangements. KU Leuven placed an emphasis on the organizational conditions for innovation, including leadership and new ways of working, and UCL focused on the individual conditions that foster innovation, with special attention to learning. This resulted in a survey and an interview guideline that will be used in the cases that are going to be studied this year. More information on the case study protocol and the progress on the case selection can be found in this document as well.

1.1. The objectives and research questions of PSI-CO

Nowadays, Public Sector Innovation is high on government agendas across OECD countries. Confronted with major budgetary pressures and grand societal challenges, governments worldwide experience a need to step beyond conventional wisdoms and sedimented practices.

Despite the growing awareness of the need for collaboration, there is a lack of knowledge about how such collaborative governance arrangements result in meaningful innovations regarding policies and services, and how different forms of collaborative governance interact and reinforce each other. Furthermore, it is unclear what organizational, and individual conditions need to be present within administrations to foster collaborative governance arrangements. PSI-CO will address this research gap by conducting a multi method study on collaborative innovation, studying both:

1. how collaborative governance can foster innovation, and

2. by what conditions, in turn, collaborative innovation is supported.

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

First, in order to study how collaborative governance can foster public sector innovation, we will analyze not only the innovative capacity, but also the internal dynamics of collaborative governance arrangements. Second, in order to identify what conditions support collaborative innovation, we study the meta-

governance of collaborative innovation, as well as characteristics at the level of the individual civil servants involved and of the public organization concerned. In doing this, specific attention is directed to if and how new practices of organization and HRM, such as New Ways of Working, foster capacity for collaborative innovation. Additionally, the role of the so-called government-wide innovation architecture is studied. This results in 7 different research questions:

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)?

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

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)?

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

RQ 5. To what extent are the meta-governance, individual and organizational conditions for collaborative innovation present in the federal ministries and agencies of Belgium and how can these be strengthened (gap-analysis)?

RQ 6. To what extent do new practices of organization in the form of 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?

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

The project uses multiple methods to address these questions, combining (1) a multiple case study phase, (2) a validation phase (Delphi and international validation), (3) a design-phase with two test cases, using Living Lab methodology and (4) a gap-analysis phase, using quantitative survey data, and (5) this in an international comparative set-up. Figure 1 shows the set-up of the project with different work packages. The project itself is designed to be a collaborative process in which the commissioning government, their civil servants and stakeholders are involved in various stages and through various instruments .

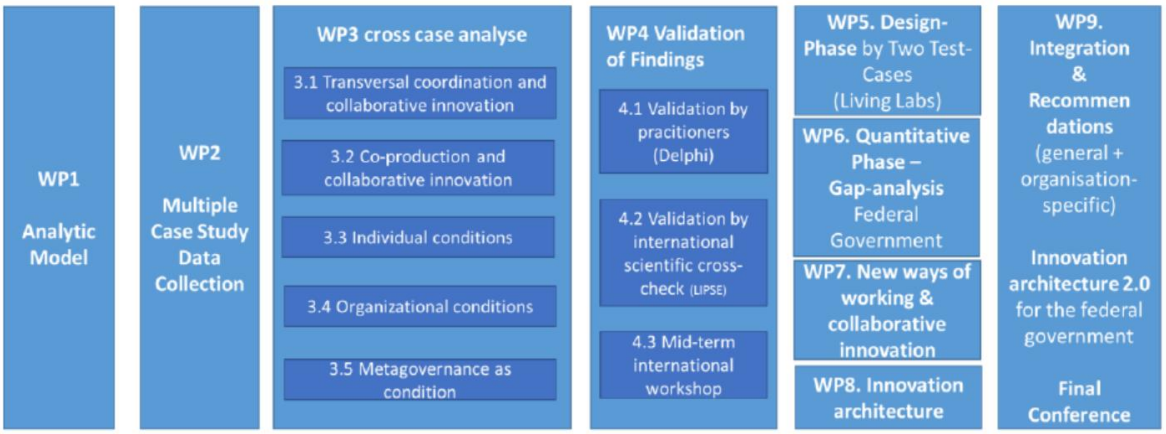

Figure 1. Work packages of the PSI-CO project

The previous months were spend on work package one; the analytical model.

1.2. Assignment for work package 1 (WP 1)

The assignment for the research team in WP1 was to design a theoretical framework, an analytical framework, a case study protocol and a case selection. This document presents these elements. Practically speaking, the research team worked on preparing a survey, interview questions and contacting cases.

Practical development of the survey and interview questions

The project started on 1 September 2016. During the internal meeting of the PSI-CO research team on October 10th the research team discussed the state of the art and decided to each make a first draft of the operationalization and questions that were relevant for each partner. This was send to each other on Friday 28th of October. Feedback by email was given to this draft and a revised version was discussed during a meeting on November 6th. Agreed was to make an integrated version of the survey with all relevant questions included. This resulted two documents: The survey and the interview questions. A physical meeting at OECD and a further skype meeting in December, a new research team meeting in January, and some last Skype meetings in February took place to further fine-tune the questionnaires. Also, feedback was asked to international scholars whose literature was used. The final version of the survey is currently being finalized, translated, and pilot tested through several interviews with members of the follow-up committee and other respondents in February 2017. Practically speaking: two physical meetings and four joint Skype sessions were organized solely to discuss the questionnaire, next to feedback through email and meetings where the survey was only briefly discussed.

The state of the art on the cases is discussed in the 'case protocol' and 'case selection' section.

2. Theoretical framework

In this section we discuss the theory that was the starting point of the research project and which formed the start of the operationalization.

2.1. Innovation

Innovation in the public sector is a topic that has gained increasingly more attention throughout the years. Although there has been a growing demand for innovation, there is only to some extent consensus about the definition and thus is it a concept that is defined in various ways. De Vries et al. (2015) have reviewed 181 articles about innovation in the public sector and found that the vast majority of 137 articles (76%) do not provide a definition of innovation. The articles that did provide a definition often used a quite general definition. However, we were able to distinguish two main elements: first, definitions focused on the perceived novelty and, second, definitions included the first adoption of an idea by a given organization.

If we look at the definitions of innovation, it is not necessarily the case that an innovation is also an improvement (Sørensen and Torfing 2012; Larsen,2014; Meijer,2014). Innovation is a process that *aims* to solve a problem. If the innovation is not an improvement, it still remains an innovation. On the other hand, if a service improves, it is not always because of an innovation (Hartley,2005). Improvements without innovation are for example organizations that focus on small incremental changes through continuous improvement methodologies.

Innovation can be looked at in different ways. Often it is seen as a cycle that predominantly consists out of four steps (Sørensen et. al, 2012). This cycle is a simplified version of a non-linear process, but there are roughly four constitutive phases that can be identified. This emphasizes the fact that innovation is not merely the implementation of a novelty but that it is just one step of the process. The steps are presented below.

1. Idea generation: This involves the development, presentation and cross-fertilization of ideas.
2. Selection: This involves decisions about ideas that are worth pursuing. Ideally, ideas should be big, bold, and transformative, and at the same time, feasible, flexible, and broadly accepted among the key stakeholders. As such, negotiation, compromise formation, and conflict settlement are key features of the idea selection.
3. Implementation: This involves conversion of ideas into new procedures, practices, and services. Many things can go wrong in this phase because the existing situation drastically needs to be changed. Public innovators need to be prepared for difficulties during this phase.
4. Dissemination: This involves the spread of innovation throughout an organization or from one organization to another.

2.2. Mechanisms for collaborative innovation

The PSI-CO project is about innovation through collaboration. It is not the case however that mere collaboration leads to innovation. Collaboration leads to different generative mechanisms that eventually can result in innovative practices. Studying collaborative innovation does therefore not only mean looking at the relationship between collaboration and innovation, but also to the intermediate variables that facilitate innovation (Skelcher and Torfing, 2010; Sørensen and Torfing, 2012) . The study of the processes of collaborative innovation should focus initially on the synergy of 1) empowered actors with different identities, roles, and resources. This is, however, not sufficient. The conditions of the emergence of

collaboration to spur innovation processes must be studied as well. Thus it is essential to study the processes of 2) transformative learning. Critical reflection is *"a decisive condition for the development of transformative learning processes that stimulate creative recombinations of old and new ideas and practices."* (Sørensen and Torfing, 2012).

Lastly, 3) the joint ownership and commitment to the innovation should be studied (Skelcher and Torfing, 2010; Sørensen and Torfing, 2012). The joint ownership of ideas should overcome resistance towards the implementation. It consists of: the active participation in the innovation process, the ability to influence the process and the responsiveness of the other actors (Skelcher & Torfing, 2010).

2.3. Innovation in networks

Bommert (2010) argues that there is a relation between the theories concerning networked governance and collaborative innovation regarding the integration of various actors. This means working together to come up with an innovation. The principal idea of the collaborative innovation process is to open the innovation process for a large group of actors, to internalize external ideas and leverage internal knowledge. There are different degrees of working together ranging from cooperative, coordinative and collaborative integration. (Moore, 2008; Keast et.al, 2009; Moore and Skinner, 2011). This is a scale to classify working together based on elements such as amount of commitment and amount of formalization. Collaborative innovation shares the same assumption as the open innovation approach of the private sector that assets of large groups of actors will increase the quantity and quality of innovations (Bommert,2010).

Based on the literature discussed earlier, we see that one of the success factors of innovation in the public sector is 'opening the process' (Bommert,2010; Meijer 2014) . Let other actors participate in the innovation process in order to increase the quality and the quantity of the innovations. Internalize external ideas and leverage the knowledge. In other words, a success factor of innovations in the public sector is if they are made in a network or collaborative arrangement. Larsen (2014) argued that the lead actor in these networks should be embedded in the public sector.

The necessity for a good network is crucial for a successful innovation. But what is a good network? Koppenjan and Klijn (2004) argue that network outcomes can be evaluated by three different characteristics: content outcomes, process outcomes and institutional outcomes. This means that 1) a network should have established a common ground where the actors reached an agreement on the content and work towards the same goal (Klijn,2010). A condition for successful 2) process outcomes is if actors are willing to cooperate (Koppenjan and Klijn,2004), and lastly, successful 3)institutional outcomes means that network relations have been developed, such as the creation of trust between actors.

There are different ways manage the network and to get successful outcomes (Koppenjan and Klijn,2010; Sørensen,2014[1]). This management is often refered to as 'metagovernance'. As we are *interested in this concept we need a clear definition of metagovernance. Metagovernance can be defined as: "A way of enhancing coordinated governance in a fragmented political system based on a high degree of autonomy*

for a plurality of self-governing networks and institutions." (Sørensen,2014[2]). This 'way of enhancing coordinated governance'' implies several strategies that can be used to reach this coordination and to influence the outcomes of the network. Sørensen (2014[1]) describes four approaches that a leading actor can use to enhance innovation in networks.

	Limited intervention	Strong intervention
Hands-off	1. Policy and resource framing	2. Institutional design
Hands-on	3. Facilitation	4. Participation

In short, they mean:

1.Metagoverners can influence governance networks by providing a framework of overall political objectives that have to be addressed and/or distributing financial resources. This is hands-off and done at a distance which allows the actors in the network to self-govern the network within the policy and resource frame.

2. Another way to govern a network hands-off is through the strategic design of the institutional set up where the actors operate in. This is usually done through the design of incentives and narratives that add meaning to the purpose of the activities. They aim to influence the decisions made and actions taken by a governance network and are thus interventionist.

3. Hands-on metagovernance is exercised with direct interaction with the governance network. 'Facilitation' is characterized by the careful facilitation of collaborative processes within the network that is able to enhance trust or understanding among actors and to cope with conflicts or trouble in the negotiation process . The metagoverner does not necessarily intervene strongly with the activities in the network, but rather facilitates the means to enhance the collaborative process.

4. The final main form of metagovernance is 'participation'. In this form the metagoverner actively participates in the governance network and this allows the metagoverner to influence the negotiation processes in the network.

2.4. Co-production as mechanism for collaborative innovation

There are two kinds of collaborative innovation. There is collaborative innovation with internal stakeholders and the alternative with external stakeholders. In this section we focus on the latter, more specifically on co-production. Co-production is the process in which (groups of) citizens contribute to the workings of a public organization. Brandsen and Honingh (2016) set up three criteria for co-production. First of all they state that the collaboration has to include a relationship between (groups of) citizens and professional employees of a public organization. Secondly they require the citizens in the collaboration to be volunteers. And thirdly they put forward that the input of the citizens has to be active (versus passive) and direct to the

work of organization. Although Brandsen and Honingh focus on citizens coproducing by engaging in co-design (of products/services) and co-implementation (of policies), we discern multiple other forms of co-production. Bovaird and Löffler (2012), for example, additionally mention co-assessment, co-prioritization, co-planning, co-managing, co-commissioning and co-delivering services. Other authors add co-pricing, co-maintenance, co-promotion and co-distributing services (Frow et al., 2015).

Various authors link co-production to innovation in their research. According to Bommert for instance, the close involvement of citizens in co-production generates solutions responsive to local needs (2010). Research by Frow and others points out that coproduction can speed up the development of new services or products and that the increase of developing capabilities propels innovation. They also point out that citizens can be a great help for organisations in identifying, organizing and communicating innovative opportunities. Lastly citizens can give organizations access to different resources, such as their networks (Frow et al., 2015). Voorberg and others mention similar findings and add that coproduction can also benefit innovation by increased effectiveness and products/services that enjoy greater customer satisfaction (Voorberg et al., 2013).

2.5. Individual conditions for collaborative innovation

Transformative and mutual learning are key processes of collaborative innovation (Sørensen & Torfing, 2012; Sørensen & Torfing, 2016). The creative recombination of old and new ideas and practices leads to an improved understanding of problems and to the generation of new solutions. Crucial in this context is the learning ability of the actors involved, depending on individual's characteristics and relationships (Gieske & al., 2016). This section offers a brief overview on how collaborative innovation can be fostered by individual and collective learning, as well as the individual conditions of supporting learning.

2.5.1. Learning and collaborative innovation

Collaborative innovation is a learning-based practice relying on the co-construction of new understandings and solutions through extensive exchanges of knowledge competences and ideas (Sørensen & Torfing, 2016). This is through the generation and diffusion of new ideas that the collaboration between actors from different backgrounds leads to a shared and improved understanding of the problem at stake, fostering the generation of creative solutions. Collaborative innovation can then be thought as a specific kind of collective learning process (Heikkila & Gerlak, 2013). Innovative networks are engaged in information sharing activities in order to create a collective product that should somewhat break with existing practices. While all collaborative innovations result from collective learning processes, the reverse is not true. Collaborative innovation aims at something new while collective learning, as such, does not necessarily lead to any change in understandings or practices. In fact, some individuals tend to systematically ignore standpoint-inconsistent information, which prevents new evidence to contribute to innovation (Kahan, 2013).

Hence, the success of collaborative innovation is closely related to capacity and willingness of individual participants to link and exchange ideas and experience (Bekkers & al., 2013). Individuals should be able to reflect on new information and to adjust their way of thinking and practices (Gieske & al., 2016). Innovation is therefore dependent on learning processes taking place at the individual level. According to Heikkila and

Gerlak, (2013), individual learning includes the acquisition of information and its translation, understood as interpretation. In the context of innovation, the latter refers to a change in the individual understanding of a problem, which widely depends on the knowledge acquired. The individual ability to learn is determined by several decisive conditions (Gieske & al., 2016, Lewis & al., 2014). Those conditions include individual traits as well as relationships and position within the innovative network. Relationships refer to the nature of interactions between the one participant and the others whereas position refers to his or her localization within the network. Both are, to some extent, influenced by individual traits, loosely referring to personality. The three factors are developed here after.

2.5.2. Traits, relationship and position as individual conditions of learning

Individual traits include skills, perception, attitudes and motivation. Bommert (2010) stresses the importance of innovation assets. Those may be intangible, such as skills and expertise, or tangible, i.e. money. Risk-taking individuals are also essential for the innovation process. O'Leary (2012) dresses an impressive list of skills related to collaborative performance. He includes, amongst others, interpersonal skills, such as good communicator and listener, individual attributes, with a high importance of openness and self-confidence, along with technical expertise. Previous experience in collaborative arrangements is critical for Sørensen and Torfing (2016). According to the findings of Leach and al. (2014), the duration of participation in a collaborative arrangement has a positive effect on learning, while technical expertise turns out to be detrimental, because experts are reluctant to admit they are wrong. The authors also highlight the influence of individual perceptions and attitudes. A positive perception about the fairness of the collaborative process his highly correlated to individual learning products, i.e. acquisition of knowledge and changes in understandings, so as a positive attitude toward consensus-based decision-making. Finally, community-based motivation, linked to Public Service Motivation is a central factor explaining citizen engagement in co-production (Van Eijk & Steen, 2014). The findings can be applied to collaborative innovation. Actors with higher level of public service motivation are more actively engaged in the process, increasing therefore their chance to learn.

Studying relationships involves being interested in the characteristics and the quality of the connections between two individuals within a network. In this regard, trust is a fundamental factor, a necessary condition for information exchanges to occur (Bekkers & al., 2013; Huijboom, 2010). Klijn & al. (2010) define trust as "a stable and positive expectation that actor A has (or predicts he has) of the intentions and motives of actor B in refraining from opportunistic behavior, even if the opportunity arises". The presence of interpersonal trust supports the collaborative innovation process by fostering individual willingness to share information and change their understanding of a problem (Leach & al., 2014). It also stimulates risky and innovative choices by reducing uncertainty (Klijn & al, 2010).The intensity of the relationship between two individuals is also important (Bekkers & al., 2013; Gieske & al., 2016; Sørensen & Torfing, 2011). One the one hand, strong ties support trust, which is beneficial for learning and innovation. On the other hand, weak ties are opportunities for new perspectives and provide access to new information, which also fosters learning. According to Huijboom (2010), the relative importance of weak against strong ties depends on the level of uncertainty and the phase of the innovation cycle. For Newig et al. (2010), the perfect combination is a set of small groups sharing strong ties interlinked through weak ties. The concept of homophily is linked but slightly different from the strength of tie. The basic assumption is that individuals

sharing similar attributes exchange information more quickly than heterophilious people (Newig & al. 2010) and support strong ties (Lewis & Ricard, 2014). However, it strengths groupthink which is detrimental to the learning and the innovation process (Newig & al., 2010). In his cross-case study of ICT innovation, Huijboom (2010) finds out that heterogeneity facilitates the adoption of innovation, more than homophily.

Last but not least, individual positions concern the localization of an individual within the whole network (Lewis & al., 2014). This affects individual learning capacity by limiting or expand information accessibility. Prestige, measured by in-degree centrality and brokerage are central in existing studies (Lewis & Ricard, 2014). Prestige refers to the number of links an individual receives in the network, representing the amount of information he has access to. The second is a measure of who's connecting otherwise disconnected actors (Howlett & al., 2015). When linking different groups or heterogeneous people, it indicates the diversity of information received by the broker. In-degree centrality is positively related to the innovator status of an individual (Considine & Lewis, 2007). In turn, brokers acting as bridges can positively influence the innovation process (Huijboom, 2010). However, to our knowledge, there is no study clearly assessing the influence of those positions on the individual ability to learn.

2.6. Organizational conditions

Since the field of study in collaborative innovation is fairly new in public administration research, there have only been few studies conducted into organizational conditions for collaborative innovation (Bekkers et al, 2013). The results generally match the drivers and barriers for public sector innovation (Windrum & Koch, 2008). Although the current studies on the organizational conditions for (collaborative) innovation strongly vary in their scope and depth, the results can be divided into two categories: cultural and structural drivers and barriers.

With regard to cultural conditions, communication is a first important barrier. When ideas and information are not successfully communicated or shared within an organization this halters an organization's abilities to engage in collaborative innovation. Successful communication on the other hand presents as a driver (Tuurnas, 2015). Secondly trust and empathy among public sector employees and between those employees and external stakeholders is important for successful collaboration at the basis of innovation (Greer & Lei, 2012). An environment with trust and empathy can stimulate employees to take a chance on innovative ideas, fostering collaborative innovation. A risk-aversive culture on the other hand is a barrier to collaborative innovation since there is a resistance to try out innovative ideas (Bommert, 2010; Tuurnas, 2015). Another condition, performance pressure experienced by the organization, has a double effect on collaborative innovation. It can be a driver because collaborative innovation can grant an organization a competitive edge in terms of increased efficiency or effectiveness. Yet on the other hand it can be a barrier when the start-up costs of an innovative idea cannot be overcome by the pressure to perform competitively at all times (Albury, 2005). Next, leadership can function as an important driver or barrier too, depending on how well a leader can identify a need for change and set out a vision to steer the organization in a new direction if need be (Sørensen & Torfing, 2011; Mittal & Dhar, 2015). Of all leadership styles transformational leadership especially spurs on innovation. It does so because the leadership style promotes a learning environment more adaptive to new ideas and to collaborations (García-Morales, Jiménez-Barrionuevo & Gutiérrez-Gutiérrez, 2010).

With regard to structural conditions, connectivity and integration within an organizational structure are a first driver to collaborative innovation. This nurtures the sharing of innovative ideas and allows actors with different backgrounds to develop those together (Verschuere, Brandsen, & Pestoff 2012; Gieske, van Buuren, & Bekkers, 2016). A strong power asymmetry has the opposite effect and presents as a barrier to organizational innovation. In organizations where power play is important, the chances of people with different backgrounds working together decreases. People are less likely to voice innovative ideas then too, which hampers collaborative innovation (Sørensen & Torfing, 2011). The level of flexibility of an organization is important as well in that respect. If an organization is flexible and adaptive and has the structural means to adjust to a new way of providing a service or to including new stakeholders, collaborative innovation stands a greater chance (Verschuere, Brandsen, & Pestoff, 2012). Therefore a strong bureaucracy with high levels of red tape is an barrier to collaborative innovation. Defined as burdensome rules and procedures, various authors point out how red tape hampers innovation. It is shown to make introducing change in organizations more difficult because of lesser flexibility (Mandell & Steelman, 2003; Li & Feeney, 2014). Additionally the length of budget and planning timelines an organization is bound to can be a driver or barrier to collaborative innovation as well. They partly determines if an organization can fit the introduction of an innovation into its planning and budget. When budgets are allocated for a longer period in time for instance, there is room to overcome the start-up costs of introducing an innovation within that timeframe (Albury, 2005). Apart from that, the size of the budget can limit or maximize the possibility to engage in collaborative innovation as well (Bovaird & Löffler, 2012). Lastly the size of the organization itself can be a driver or barrier for collaborative innovation too. Big organizations may be better equipped to absorb failure, reducing the risks of introducing something new; yet small organizations are generally more flexible and thus more adaptive to engage in collaborative innovation in the first place (Damanpour, 1992; Sørensen & Torfing, 2011).

2.6.1. New ways of working

The new ways of working is generally defined as a package of three changes in the workplace to make employees work more time and space independent. It is based on three keywords: bricks, bytes and behaviour. The first change the new ways of working introduces, bricks, is about transforming the workplace. It includes more attention to the way offices and desk are organized. In addition to that it encourages alternative workplaces such as satellite offices. The second change, bytes, is about creating an optimal ICT-environment. The third change points towards a stimulating HR approach where employees are put at the centre by giving them more freedom and responsibilities. An example of an HR change is lettings employees work from home. In that case the employees are evaluated by the results they deliver and the tasks they complete instead of the amount of hours they put into their work. The combination of these three changes that require a transformation in the way organizations function, is called the new ways of working (Baane, 2011). Laursen and Foss expect that adopting this package of new practices could have a strong effect on innovation performance (2003). Research by de Spiegelaere and others confirmed that aspects of the new ways of working do indeed increase the innovative behaviour of employees (de Spiegelaere et al., 2013).

Conclusion

Conceptually, the literature points out a wide diversity of conditions of innovation through collaboration. However, the number of empirical works somewhat remains limited. Our research will fill this gap by

studying, in Belgian Federal collaborative arrangements, the drivers that are essential for collaborative innovation to be successful.

3. Analytical framework

This section provides a more refined, updated theoretical framework where we also elaborate on the variables we are going to use. The consequential survey and interview questions can be found in the attachment. The conceptual scheme shown below 1 underlies this analytical framework:

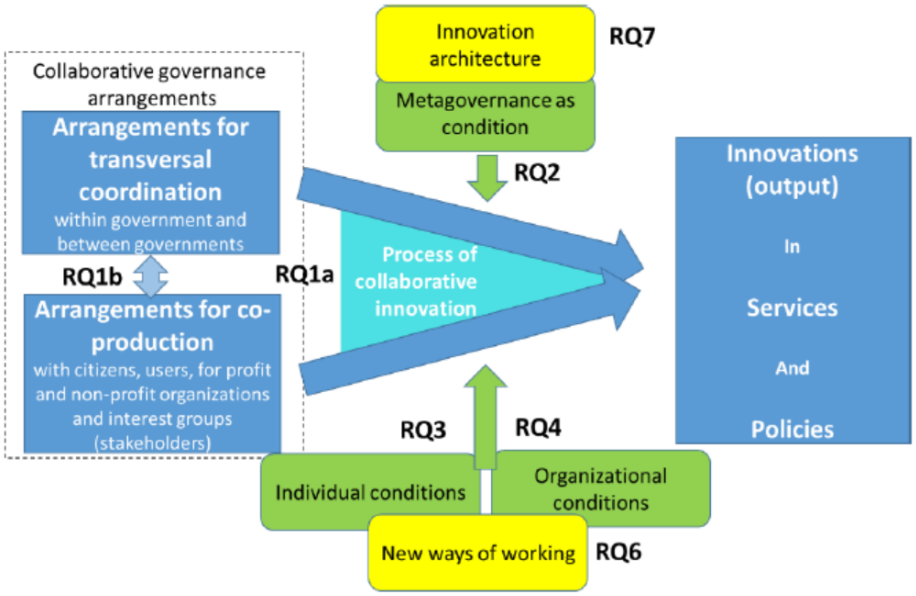

Figure 2. Conceptual scheme of the PSI-CO research

3.1. Network composition, dynamics and meta-governance as conditions for collaborative innovation

3.1.1. Composition of the network

As was stated in the theoretical framework, one of the main drivers of innovation is opening the innovation cycle to internal and external innovation assets (Bommert, 2010; Eggers and Kumar Singh, 2009). 'Internalize external ideas and leverage the knowledge'. One of the goals of the PSI-CO project is to examine the network where the actors operate in. A network can be defined in a very simple way as "a set of nodes and the set of ties representing some relationship, or lack of relationship, between the nodes." (Brass et al.,2004). Network literature, however, often refers to a more detailed definition of certain common themes that networks possess, including social interaction (of individuals acting on behalf of their organizations), relationships, connectedness, collaboration, collective action, trust, and cooperation

(Provan et al.,2007). Provan et al. (2007) define 'whole networks' as: a group of three or more organizations connected in ways that facilitate achievement of a common goal.

In the literature there is often referred to certain concept to analyze these networks (Provan et al.,2007; Ingold,2011; Sørensen,2014), such as:

- Density: The overall connectedness of actors in the network
- Fragmentation and structural holes: The question whether all actors are connected with each other
- Governance: The mechanism in which way the network is governed/managed.
- Centralization: The extent to which some actors are considerably more centrally connected than the others.

Based on these aspects we have developed multiple social network analysis (SNA) questions (Kolaczyk and Csardi,2014). These are questions that ask the respondent to fill in the interactions with other actors to visualize the network (Ibid.).

Several questions are included in the survey to measure the density, fragmentation, and centralization.

- Actor importance: A network can take various forms (Heaney and Israel,2004). Since we are interested in the composition of the network, but also to management of the network, we find it important to look at the most import actors and to determine the centralization in the network. Examples of networks include shared governance (multiple actors manage the network), lead governance (one actor manages the network) and NAO governance (one actor manages the network and is specially created for that task) (Provan et al.,2007) . By looking at the importance of the actors we can identify how the network is constructed and if it revolves around a single important actor or if the network is governed by several actors. Is there for example one driving force behind the innovation or multiple?
- Information sharing and discussion of position: To determine the density and fragmentation in the network, we have included a SNA question on information sharing. As was mentioned previously, one of the key aspects of successful innovation is opening the process so information is not kept with one's own organization (Eggers and Kumar Singh, 2009). By asking SNA questions on the flow of information we can determine the density and fragmentation of the network (Tsai,2001; Hattala and Huta,2009). We developed questions on the sharing of information to see how well information flows in the network and thus how well the information in the network flowed. We have made a distinction between inside and outside meetings, because it tells us which actors actively shared information with each other without the interference of a formal meeting. This distinction tells us something about the strength of the ties and whether these are important for a successful outcome (Koppenjan and Klijn,2004). Having weak ties with the other actors provides other resources and allow actors to break out of the 'groupthink' that closed networks have (Lewis and Ricard, 2014). 'The strength of weak ties'. But this is immediately a dilemma. Strong ties can

create group thinking and exclude relevant actors which is bad for the innovation process. But on the other hand, strong ties can also be seen as necessary for innovation, especially because it can establish trust (Koppenjan and Klijn,2004). This question measures the strength of the ties and answers the question if weak or strong ties are beneficial in the cases.

3.1.2. Generative mechanisms

In the previous part it was stated that there are three generative mechanisms to come to innovation, empowered participation, transformative learning and joint ownership (Sørensen and Torfing,2012). Whereas the theoretical framework focused mainly on the concepts 'joint ownership' and 'empowered participation' we did not fully abandon these generative mechanisms as they are still deemed important to explain innovative outcomes. However, based on Ansell and Torfing (2012) we decided to slightly change the mechanisms to three sequential mechanisms: commitment, learning and synergy. Although these concepts do not differ that much from the ones that were previously used, they are easier to grasp in a survey due to the fact that these concepts are more elaborated in the existing literature. These generative mechanisms are believed to stimulate collaborative innovation processes within a certain multi-actor arrangement. In fact, they are sequential (Ansell and Torfing,2012; Torfing, 2016). First, you need synergy. This is a mechanism where you mobilize all the innovation assets. The synergy items in the questionnaire are based on a proven scale that measures how complementary organizations are in the network (Jones and Barry, 2011). These questions were originally about synergy in collaborative arrangement with different teams. We have changed some items so they measure synergy in collaborative arrangements with organizations. This question is complemented with interview questions where we ask to other resources that were mobilized to the network. Koppenjan and Klijn (2004) identify different types of resources that an actor is able to add to a network: financial resources, production resources, competencies, knowledge and legitimacy. Eventually, we have divided these in different categories to make these somewhat broad categories measurable: financial resources remain the same but production resources was split up to invested staff time and to support in terms of communication platforms or access to service delivery platforms. By knowledge we mean the research and analytical efforts the actors added to the network.

Each organization has certain resources and you try to bring them together and thereby create an added value and understanding. Learning is measured by a name generating technique question, based on work by Van den Bossche et al,2011 on learning.

Nonetheless, a mere understanding through learning does not create a product, therefore commitment is necessary to turn ideas into innovations The commitment scale is based on a scale proposed by Jacob Torfing. Some items were left out of this scale because they overlapped with the questions on 'innovative outcomes'. The items on commitment were divided among the 'process outcomes' questions and the 'innovative outcomes' questions in the survey (Klijn et. al., 2013).

3.1.3. Network outcomes

In the network studies, scholars look most of the time retrospectively at a case, i.e. looking back in time and evaluating the dynamics in the network and coordinating efforts of a central actor (e.g. Van Buuren and Loorbach, 2009; Klijn et. al., 2014). Therefore, commonly there are three evaluating questions included

in the surveys of network studies; these three questions are used to get a sense of the origins of the case (i.e. was there from the start much perception differences between actors in the network), the general dynamics during the deliberations in the network (i.e. how fluent went the decision-making process), and the results of the network interactions between actors (i.e. did the actors overcome substantive differences, learn to act collaboratively instead of strategically with each other, and create more durable relations in the network) (Klijn et. al., 2014:12)

The baseline questions are necessary to see if the network has changed over time. We would like to see if perceptual differences at the start of the process are overcome. If perceptual differences at the start of the process are large, but the network outcomes are positive, we can argue that good network management has taken place. They deal with the uncertainties at the start of the process and therefore serve as a baseline how the network has changed. They come from the same 'school' as the network outcome questions (Koppenjan and Klijn, 2004) The baseline questions measure the situation at the start of the process; the network outcomes at the end of the process .

We have decided to stick to the three types of network outcomes, as described by Koppenjan and Klijn (2004). These questions show how the uncertainties content, process, and institutional wise have been resolved. These questions are based on Klijn et. al., (2013) who adapted them from various scholars, such as Mantel (2005) for a question about the relation between the costs and benefits of the process, and De Jong and Edelenbos (2007) for a question about the integral nature of the solution. The questions about network outcomes are divided into content, process and institutional outcomes (Klijn, 2004). We decided to include all three of them, because they are positive outcomes for all three uncertainties that can occur in networks, as identified by Koppenjan and Klijn (2004). These are substantial uncertainty, strategic uncertainty and network uncertainty. However, the process outcomes items turned out to be quite similar to the questions on network management strategies and as a result several items were left out to limit confusion among respondents. Furthermore, some items to measure commitment (Ansell and Torfing,2012) were placed here, because they were closely related to the process outcome questions of Klijn (2013) .

3.1.4. Metagovernance strategies

We are interested in the way the metagoverner can influence the network outcomes and innovations. What we mean by metagovernance, briefly stated the management of the network, was already mentioned in the theoretical framework Different approaches can be distinguished, such as the hand off/ hand on approaches by Sørensen (2014) which was a dominant theory in our first presentation. However, although the theory is very promising, it proposes very theoretical concepts which were not (yet) tested in practice, and therefore no practical, proven scale was available. Klijn et al. (2016), however, have some very practical and measurable strategies that the metagoverner can apply to create a most optimal network. They distinguish the four most dominant theories in the literature (Klijn,2005)

- Introducing process rules
    - 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.
- Arranging structures for interaction, consultation and deliberation

    - Searching for goal congruency, creating variation in solutions, influencing (and explicating) perceptions, managing and collecting information and research, creating variation through creative competition
- Exploring content
    - Creating new ad hoc organizational arrangements (boards, project organizations, etc.).
- Connecting strategies
    - 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

Klijn et. al (2010) measured these four strategies by using a 16-item scale. However, 'process rules' and 'arranging' do not really show results in practice. In earlier versions we used a shrunk down version with 9 items (Peters, et al. 2015). However, for the quality of the scale, we decided to only look at the two strategies with 3 items each, thus a six item scale to measures. However, because we find it important that we know something about the inclusion of the all relevant actors as well we have added an extra item to measure this perception as well.

3.1.5. Managerial and ministerial support and control

We are interested what is happening inside the network, but also what drives the innovation and the context of the network. The organizations in the networks are all represented by one or two persons who makes decisions his or her whole home-organization. Innovations are often driven by the external context such as political mandates or the organizational context that are that include the structural and cultural features of an organization (De Vries et al., 2014). The perception if the innovation was a top priority for the minister will be linked with the eventual outcomes and tells us what the influence of the political environment was on the innovative outcomes. Furthermore, we also look at the control that the representative experiences from his home organization. It is important in innovative practices to balance autonomy and experimentation versus control and efficiency (Gieske, et al., 2016). On the one hand the representatives need to have autonomy, but on the other hand there should be control by the home organization, in order to link the innovation process to the existing practices in the organization.

With the questions on support and control from the minister and the higher levels of the organization we can examine what the effect of control from politics and the home organization is on the innovation process and to what extent the organizational background of the representatives plays a role in the innovative cases.

3.2. Co-production and organizational conditions for collaborative innovation

As presented in the state of the art, over a dozen drivers and barriers can be considered for that section. Since including so many extra variables is not feasible, we opt to focus on three that are central in the literature, and show specific relevance in a public sector context. The first variable we include in that respect is red tape, since it can be linked to bureaucracy, connectivity and integration as well as risk-aversive behaviour. Secondly we include performance contracts, since that is connected to competitive pressure, performance indicators, and budget & planning horizons. The last variable that will be studied

with regard to organizational conditions is leadership. Transformational leadership especially can be linked to communication, trust, integration and flexibility. By choosing these three specific variables we create a maximal link to the drivers and barriers discussed in the state of the art, while only selecting a feasible amount of variables.

3.2.1 Co-production

As mentioned in the literature overview, co-production is when citizens engage in collaborative innovation as external stakeholders with the government. There is no real consensus in the literature with regard to the exact conceptualization of co-production or the methodology surrounding it however. A point of discussion with regard to conceptualization for instance is the inclusion or exclusion of passive participation (Löffler, 2009; Bovaird & Löffler, 2012). Apart from that there are also a number of related concepts such as co-creation between citizens and the public sector or open innovation (Löffler, 2009). In this study we will opt for the conceptualization and measurement by Brandsen & Honingh (2016) as set out in the state of the art. With regard to measuring the variable, they look at the extent of the co-production, its proximity to the work of the organization and the included stakeholders. The extent of co-production indicates the extent to which citizen co-produce the products or services delivered to them. Citizens' involvement can be limited to the co-design of a service/product on one hand, or they can co-design and implement them instead. On top of that they can also engage in co-evaluation afterwards for example. The more stages of innovation the citizens are involvement in and the deeper their involvement in these stages, the greater the extent to which they co-produce is. A second aspect of co-production that can be evaluated is the proximity of co-production to the work of the public organization. Here we follow Brandsen and Honingh (2016) in distinguishing between core and complementary activities. Taking schools as an example: if parents volunteer to organize the Christmas play they are involved in a complementary task, if they volunteer in class to aid children learning to read, they are involved in a core task. By applying this logic to the cases, we can evaluate the proximity of the co-production. The third aspect of the variable co-production we study are the stakeholders. These stakeholders can be (groups of) citizens, businesses, interest groups or non-profit organizations. The variable co-production will be dealt with qualitatively in interviews. In our study we will evaluate the extent, the proximity and the stakeholders of the co-production in every case by coding the interview transcripts.

3.2.2 Red tape

The variable red tape is included in the research because of its relevance in the innovation literature and its under researched nature in a collaborative innovation context. We define red tape as burdensome rules and procedures that negatively affect performance' (cf. Bozeman, 1993). Red tape is known to slow down change and thus an organization's ability to innovate (Burden et al., 2012). This is often supplemented by risk-aversive government officials discouraged by the administrative burden and therefore less willing to engage in collaborative innovation as well (Albury, 2005; Sørensen & Torfing, 2011; Bovaird, T. & Löffler). Red tape is most often measure quantitatively by using Likert-type scales in surveys. In our research we will following the literature be adopting a quantitative approach for this variable. Examples of studies using surveys to assess levels of red tape are the works of Brewer, Walker and Bozeman (2012), and those of Pandey and Walker (2005). The questions they use were adapted and used by other academics as well.

Another widely used way of measuring red tape is a one-item measure called the general red tape (GRT) scale that asks respondent to indicate the overall level of red tape in their organization by using a 10-point Likert-type scale (Bozeman & Feeney, 2011). This measure will be included in our study. It will be supplemented by a new six-item measure on red tape in core activities. The items were set up by Van Loon, Leisink, Knies & Brewer as they developed and validated a new measure of red tape (2016). This second measure adds "a job-centered approach that measures red tape as experienced by employees in their jobs rather than more generally in the organization" (Van Loon, Leisink, Knies & Brewer, 2016, p. 1). Hence combined, we present the respondents 7 items in a survey. Afterwards the results will be quantitatively analysed. We will specifically study the level of red tape in the public sector organization coordinating the collaborative arrangement, and the level of red tape in the contracting relationship between the coordinating public sector organization and the stakeholders.

3.2.3 Developmental culture

Developmental culture is defined as a culture that promotes learning, adaptation, and innovation in organizations that are part of the collaboration (Chen & Williams, 2007). This variable is included in the study since the literature points out that it mediates the negative effects red tape can have on (collaborative) innovation (Pandey, Coursey & Moynihan, 2007). The focus on flexibility and adaptability in an organization brought about by a developmental culture can compensate for the bureaucratic resistance to new initiatives caused by red tape (Burden et al., 2012). In the literature developmental culture is most often measured quantitatively in surveys, using Likert-scale type questions. In our study we will do the same, using 5 items adapted from Zammuto and Krakower (1991) by Pandey & Moynihan (2006). The items were originally developed in research measuring red tape's effect on organizational performance where developmental culture was approached as a mediating variable as well. These items are validated and widely academically used since Pandey & Moynihan are renowned academics in the field. In our study we will measure the developmental culture in the public sector organization coordinating the collaborative arrangement, and in the contracting relationship between the coordinating public sector organization and the stakeholders.

3.2.4 Leadership

Leadership is proven to be an important variable in studies with regard to collaborative innovation and performance. Because the field of collaborative innovation is still developing, most studies focus on innovation, however. There have in particular been a lot of studies on the type of leadership required to have the best outcomes with regard to innovation. In those studies transactional leadership and transformational leadership are often compared. Transactional leadership turns out to be most optimal for fostering innovation, since transactional leaders are better equipped to handle change and set out new visions for an organization. Jung and Chow (2003) found a positive and significant relationship between transformational leadership and empowerment as well as support for innovation. The type of leadership in an organization is academically most often determined by the well-respected multifactor leadership questionnaire (MLQ) developed by Bass and Avolio (1997). The MLQ is comprised of 45 items however, and because of its size not suited to be included in our study. Therefore we opt for 7 recent items developed and validated by Jensen and other (2016). The goal of their study was to develop and revises measures of leadership that could be employed on both employees and leaders. The items will be presented in a survey to the employees of the coordination public organization that are engaged in the collaborative innovation cases we study. Afterwards the data will be quantitatively analyzed.

3.2.5 Performance contracts

The nature of performance contracts is included in the study as a variable because it reveals the way an organization is steered with regard to incentives and priorities. Performance contracts are mostly studied in research on the private sector although recently more attention is given to the public sector in this regard as well (de Visscher et al., 2012). Research shows that the variable can be approached both qualitatively and quantitatively, in this study we opt for the qualitative approach using interview questions. We will evaluate various aspects of the performance contracts the coordinating public organizations involved are bound by.

Examples of these aspects are the nature of targets and deadlines the organization is bound by in terms of the level of details they include. Connected to that we also ask about the timespan of plannings and budgets the organization is tied to. Another question is about the way the people bound by these contracts are evaluated and how much importance is given to these evaluations. We additionally try to grasp how the output of the organization is viewed and whether the process for obtaining results is important versus the results themselves. Incentives to collaborate or innovate will be discussed as well. Other questions are about the organization's ability to absorb start-up costs of an innovation and about the political pressure exerted over the organizations. The questions are all meant to find out if the performance contracts facilitate or halter the ability and willingness to engage in collaborative innovation. They will be asked to the employees of the coordination public sector organization in all cases. Afterwards the interview transcripts will be qualitatively analysed.

3.2.6 New ways of working

New ways of working is a fairly recent concept and therefore relatively new in academic research. It is included because research confirmed that aspects of the new ways of working increase the innovative behaviour of employees (de Spiegelaere et al., 2013). There are few alternative ways of measuring the variable available in the literature since it has not been measured often so far. We opt for the measure used by de Spiegelaere and others (2013) which consists of 23 Likert-scale type items to be included in the survey. The questions are about 4 indicators for the new ways of working. The first three questions are about working free from bounds to time (9 to 5 job) and space (office versus working from home). The following seven questions are about the autonomy of employees. The next nine questions are related to the free access and circulation of knowledge and information within the organizations and the last five questions are concerning flexible working relations. Together these questions are meant to give an overview of how well the new ways of working are incorporated in the public sector organizations coordinating the cases we study.

3.3. Learning and individual conditions for collaborative innovation

The success of collaborative innovation depends on individual ability to learn, or individual learning processes (Gieske & al., 2016; Heikkila & Gerlak, 2013). The acquisition and the translation of information lead to a new understanding of the problem, which foster the generation of new ideas and solutions. Individual's characteristics such as traits, position within the network, and relations with other network members are crucial factors influencing this process. In this section, we explain how we measure individual

learning before dressing the full list of the chosen variables, starting with individual traits, then relationship and finally network position.

3.3.1. Individual learning

Learning refers to both a process and an output. The process of acquisition and translation of information leads to learning products such as new ideas, solutions and action (Heikkila & Gerlak, 2013). To assess individual learning abilities, the project adopts a cognitive approach and makes a qualitative distinction between two learning dimensions: on the one hand, the knowledge acquisition is an increase in technical expertise on a topic. On the other hand, opinion change can be understood as alterations in preferences regarding specific issues. Both have a key role for innovation. Knowledge acquisition conducts to an improved understanding of the problem at hand, fostering the generation of new ideas (Sørensen & Torfing, 2016). In turns, changes and ultimately convergences of individuals' opinions foster collective action and the adoption of the innovation (Leach & al., 2014; Huijiboom, 2010). Following Leach & al. (2014), we assume that knowledge acquisition explains individual change in opinion.

Quantitatively, to measure both knowledge acquisition and changes in opinion, we go off traditional Likert-scale survey in favor of interview questions using the "think-loud" or cognitive methodology, particularly suited to study learning processes (Young, 2005; Drennan, 2003). This method consists in asking respondent to verbalize their though, leading to a better understanding of the mechanism behind cognitive changes. It also has the advantage to make the data comparable. Practically speaking, we first identify the major issues discussed within the innovative network. We then ask all participants to assess their level of knowledge regarding those issues before and after the collaborative process. The same logic applies to changes in opinion. To avoid common source bias, all respondents also estimate opinion changes of his or her colleagues.

3.3.2. Individual traits

What are the conditions facilitating knowledge acquisition and the emergence of shared understandings through learning processes? To address this question, we rely on a selection of variables that have proved to be key predispositions of policy learning. While improving the measurement of those variables, we also combine these predispositions with a set of underexplored conditions which, we argue, could foster or impede policy learning too.

Our first variable is Public Service Motivation, "an individual's orientation to delivering services to people with a purpose to do good for others and society" (Perry and Hondgehem, 2008). According to Hatmaker (2015), it plays a key role in new employees' tendency to engage in relations and make efforts to learn how to become an effective organizational member. The argument can be applied in a collaborative innovation context. Actors motivated by community values are more inclined to accept new information and revise their opinion in order to improve the public service. In this research, we look at two dimensions of public service motivations that are most susceptible to foster individuals' willingness to acquire knowledge and adapt the opinions on public problems: attraction to public services and commitment to public values. To measure public service motivation, we rely on Kim and al. (2013)'s standardized and highly used scale.

Second, we look at technical competence and experience of collaborative process (Sørensen & Torfing, 2016, Leach & al., 2014). Our aim is to validate the findings of Leach and al. (2014) who find a negative relationship between expertise and learning (experts are reluctant to admit they are wrong (Kahneman, 2011), as well as a positive relationship between experience and learning. We operationalize expertise as the participant level of knowledge at the beginning of the collaborative process, measured by interviews jointly with knowledge acquisition. Experience in collaborative process is measured as the number of years that the respondent spent in the collaborative arrangement.

Third, we look at the individual perception of procedural fairness. Leach and al. (2014) demonstrate it has a positive and statistically significant impact on individual learning process. Individuals perceiving the collaborative process as fair should be more inclined to exchange information and engage in relationships, fostering their ability to learn. Such a perception is measured through an ad-hoc question of the survey.

Our final variable is the attitude toward consensus in decision-making processes, which is supposed to be positively related with individual learning (Leach & al., 2014). This finding somewhat extends the argument of Weible (2008), for whom consensus-based decisions rules support cross-coalition learning. Such an attitude is measured through an ad hoc question of the survey.

3.3.3. Relations

The characteristics and the quality of the relationships between individuals is essential in learning processes as it this the main channel through which information flows. In this regard, trust is a major variable, affecting individual willingness to share information and, doing so, to increase one's vulnerability to others' use of this information (Gubbins & Maccurtain, 2008; Levin & Cross, 2004; Klijn, Edelenboos & Steijn, 2010).

Trust is a tridimensional concept including trust propensity, trustworthiness and trust itself (Mayer, Davis & Schoorman, 1995). To fully grasp the effect of trust on learning, we include all the dimensions in our research project, which is new compared to most existing studies. Trust propensity refers to a disposal willingness to rely on others (Colquitt et al., 2007). Measured with the items of the European Social Survey, we expect a positive relationship between this propensity and both knowledge acquisition and change in opinion. Trustworthiness refers to the trustor perception of the ability, benevolence and integrity of a trustee. Somebody is perceived as trustworthy if he seems to be competent, to care about the interests of the others and to be honest. Trustworthy individuals have greater chance to acquire information and therefore to learn. To measure trustworthiness, we adapt items used by Peter Oomsels (2016) in his study of inter-organizational trust in the Flemish administration. Three items, one by dimensions, has been chosen. As we want to know who are the most trustworthy agents in the network, we transform Likert type scale in a name-generator with respondent asked to nominate up to five people that best match with each of the items. Finally, trust is defined as the trustor's subjective estimation of the probability that a trustee will display a preferred behavior (Moyson & al., forthcoming). High trust involves trustor's vulnerability to trustee's willingness and capacity to behave according to the estimation. We assume that information exchanges and acquisition are more frequent and higher among network participant who trust each other. Trust relationship may also foster opinion changes. To measure trust, we adopt a Social Network Analysis

type of question where each participant assess the probability that his or her colleagues take into account their interests while using the received information.

Next to trust, homophily has a key role on individual learning ability (Newig & al. 2010). The degree of homophily between two individuals depends on the extent to which they share similar attributes such as educational background, organizational membership and policy preferences. Also referred as homogeneity (Huijiboom, 2010), we assume it has two opposite effect on individual learning. On the one hand, information flows quickly between individuals with similar background and opinions, fostering knowledge acquisition (Newig & al., 2010; Weible, 2008). On the other hand, changes in opinions are less likely to occur if participants only interact with look-alike colleagues (Huijiboom, 2010; Newig & al. 2010). In our research, we measure homophily degree by looking to individual traits and socio demographic data collected in our survey. We also pay attention to initial opinion on specific issues, data gathered through interview while assessing opinion change.

Finally, we look at the frequency of informal contact that can be related a dimension of tie strength (Huijiboom, 2010). Frequent discussion is a privileged canal for individual learning as people are more incline to adopt the view of colleagues with whom they interact closely (Huijiboom, 2010; Gerlak & Heikkila, 2011). Frequent contact support individual change and convergence of opinions. In our research, we operationalize informal contact as contact outside official meetings. In the survey, each participants indicates how frequent they interact with each other.

3.3.4. Individual position

Individual localization within a network is a major factor influencing the information exchange process (Reagan & McEvily, 2003). However, existing works linking network and learning focuses on structural more than positional variables (Newig & al., 2010). Our research fill this gap by directly assessing the influence of two network position, prestige and brokerage, on individual acquisition of knowledge and change in opinion. To do so, we analyze the information flows between the member of the networks by asking them to whom they send and from whom they received information. Prestige, also referred as in-degree centrality, is the number of links an individual receives in the network. As those links represent canal through which information is send, participants with high in-degree have access to more information, which foster knowledge acquisition. Broker can be of many types (Howlett & al., 2015). Our hypothesis apply to agents acting as bridge and linking individuals with different attributes, here organizational membership and initial technical expertise. In those cases, brokers has access to diverse information, which support knowledge acquisition.

4. Case protocol and selection

The last few months were also used for the case selection and the case protocol.

Orientation

The starting point for the case selection was the follow-up committee. During the first meeting with the follow-up committee some first suggestions of potential cases were done. All follow-up committee members were called afterwards to discuss potential cases. These phone calls led to some suggestions that were contacted:

- E-Health
- Vitalink
- Transition track about 'smart living' (Slim Wonen en Leven) and Flanders Care
- Plan fédéral de développement durable 2014-2019C
- Belgian community of practice on Biodiversity and Health
- Biodiversity and Business: Communication and decision-making supporting tools for business
- Integration in society, increasing access for people in poverty by 'experts by experience'
- SPP Social integration, mediprima case
- Cees (Council European energy regulators)
- Incident and crisis management systems (ICMS)
- Collaborations between the Royal museum for Central Africa and representatives from the African community
- EVAP
- Fedasil
- Agency for administrative simplification (DAV)

Not all of these cases were found to be suitable to serve as cases due to various reasons, such as content wise, accessibility to the actors and period of the process.

Criteria

We have several criteria for cases in order to be selected as case. Cases were chosen based on:

- the type of innovation (service or policy)
- level of government, preferably on the federal level
- whether there was some sort of platform were actors had formal meetings
- the presence of both public and private actors
- it should be a recent case (no cases that started before 2010)
- practical aspects, such as easy access to the actors in the collaborative arrangement
- certain episode in the process that are most interesting based on the criteria summed up above

Procedure

We contacted all above cases and based on the criteria we had, follow-up conversations to learn more about the cases –or are about to be held- with coordinators from Vitalink, the agency for administrative simplification, Fedasil, Biodiversity and Business, and a coordinator of several biodiversity projects.

The follow-up conversations were held to discuss the cases more in-depth with people who were actively involved in their respective cases. These people will preferably also serve as the person that can provide access to the collaborative arrangement. These arrangements are ideally arrangements where different public and private actors meet each other to interact. Because we know that the organizations come and go during the innovative process, we use these follow-up conversations to determine the most interesting episode for us, in terms of issues discussed, and actors that were part of the collaborative arrangement. Therefore, we do an exploratory interview with the coordinator of the case first, to determine what the major episodes were and to prevent that we just choose one. It must be based on the interview, because otherwise we have the risk that we choose an episode that is way less interesting than others and is based on information that is not really checked. Interesting episodes are for example episodes where a core group of public and private actors came together frequently, or where a lot of issues occurred. We also make sure that the episodes are comparable with each other, so we will stick to episodes around idea generation, idea selection or implementation.

When we have selected a case and episode, we determine together with the coordinator who the actors in the collaborative arrangement were (or are). Through email we invite the relevant actors in the collaborative arrangement to fill out a digital survey (see the appendix). Subsequently, these respondents are also asked to participate in an interview to gain more information, such as certain motivations behind the survey questions. For example, the survey gives us information about the interactions, but not so much why certain actors interacted with each other. This way we get a broad understanding of the innovative project and the interactions that happened in the collaborative arrangement.
In sum, the aim is that every actor in the collaborative arrangement fills out the survey and is subsequently interviewed partially based on his or her answers. Important to note is that the survey is confidential, but not anonymous during the case study. However, results for the case study can be published anonymously if this is preferred.

The survey is currently being finalized, translated, and pilot tested through several interviews with members of the follow-up committee and other respondents. Translation will be done by the research team since all memebers speak either French and/or Dutch. Pilot interviews to test the survey on questions that might not be clear will be planned with members of the follow-up committee or with coordinators from cases.

The cases will be studied in three rounds of three cases starting in March and ending at the start of 2018. UA, KU Leuven and UCL will examine each one case at a time. Furthermore, ULg examines one case starting in March. This makes up a total of 10 cases.

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