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The role of collaborative networks in finding innovative solutions to complex problems is established in the scientific literature (e.g. Sørensen and Torfing, 2012; Bommert, 2010). Collaboration is *“the process through which two or more actors engage in a constructive management of differences in order to define common problems and develop joint solutions based on provisional agreements that may coexist with disagreement and dissent”* (Gray 1989 in Hartley 2013). Collaborative processes give pluralist framings of the problem, providing many different ideas for solutions (search for “new ways”). The principal idea of the collaborative innovation process is to open the innovation process for a large group of actors, so external ideas are included in the process and existing views are challenged (see D1.1) (Bommert,2010). Collaborative innovation should then involve other public organizations and street level bureaucrats, private organizations and final users.

“Although collaborative innovation carries an unrealized potential for creating new public policies and service, it is not an institutional strategy that works in all contexts” (Hartley 2013). We attempted to identify which elements of the context are favorable or unfavorable to collaborative innovation and provide recommendations. In this policy brief we report the findings of a cross-case analysis of nine collaborative innovation initiatives within Belgium. These cases were studied by using data from over 90 interviews, 110 surveys, and social network analyses with all representatives of public organizations, private organizations and citizens involved in these collaborative innovation arrangements. We studied collaborative innovation initiatives in the health sector, the social sector, the environmental sector, and in crisis management. Moreover, six of the initiatives involved public organizations from different levels of government, five cases additionally involved private profit and/or non-profit organizations, and in three cases citizens were included. Cases differed in terms of the kind of innovation that was aimed for: policy innovations; service innovations, both technological and non-technological; process innovations; and social innovations (*“social innovation are innovations that address societal needs by fundamentally changing the relationships, positions and rules between the involved stakeholders.”* (Voorberg, et al,2015)). The innovations in most cases were implemented or at least piloted, however in two cases the involved networks did not succeed in bringing the innovation further than the design phase and the innovation was hence never implemented.

Collaborative innovation

Innovation in this research is defined as *“an intentional and proactive process that involves the generation, practical adoption and spread of new and creative ideas, which aim to produce a qualitative change in a specific context”* (Sørensen and Torfing,2012) . Collaborative innovation is then to be understood as *“a collaborative approach to innovation and problem solving in the public sector that relies on harnessing the resources and the creativity of external networks and communities (including citizen networks as well as networks of nonprofits and private corporations) to amplify or enhance the innovation speed as well as the range and quality of innovation outcomes”*(Nambisan, 2008: 11).

The process of collaborative innovation involves three generative mechanisms, being synergy, learning and commitment. Synergy is *“the power to combine the perspectives, resources, and skills of a group of people and organizations.”* (Lasker et al, 2001). It is the proximal outcome of partnership functioning which makes synergy a unique advantage of collaboration. Since we look at collaborative innovation, the question if complementary resources are brought together is essential (Ansell & Torfing, 2014; Sørensen & Torfing, 2011). Synergy is the mechanism where the innovation assets are mobilized at the start of the process.

These innovation assets can be found on the organizational and individual level. Koppenjan and Klijn (2010) identify different types of resources that an actor is able to add to a network: financial resources, production resources, competencies, knowledge and legitimacy.

Purely bringing actors together, however, does not lead to innovation. As developed further in the section on individual conditions, transformative learning needs to occur. This is the second mechanism that brings collaborative innovation. It means that something has to happen when complementary resources are brought in. A cognitive change occurs as a result of interaction with other stakeholders. Interacting with people with different insights or knowledge spurs on the generating of new ideas (Ansell & Torfing, 2014). This is why Meijer (2014) defines innovation as: “a learning process in which governments attempt to meet specific societal challenges.”

Nonetheless, a mere understanding through learning does not create a tangible innovation. Therefore, commitment and joint ownership of the collaborative process and its product is necessary to turn ideas into innovations. This is the third mechanism.

Moreover, literature (e.g. Gieske, Van Buuren and Bekkers, 2016) suggests that successful collaborative innovation is depending upon the interplay of conditions at the level of the collaborative governance arrangement (network-level conditions), the level of the individual actors active in the arrangement (individual-level conditions), and the level of the home-organizations of the individual actors in the arrangements (organization-level conditions).

At the level of the *network*, the structural aspects of the network like the intensity and kind of interactions as well as the position of the different actors and the coordinator are important. The innovative outcomes are assumed to be strongly influenced by the actors' perceptions of the quality of the process and of the institutional relations. Process and institutional quality are two of the criteria (next to content outcomes) for assessing the outcomes of a network (Koppenjan and Klijn, 2010). By content outcomes, we mean the perceived level of innovative outcomes of the process. Process quality refers to evaluation by actors of the interactions between the different actors in the collaborative arrangement. Important to note is that process quality thus does not refer to the achieved results concerning the content, but to the evaluation of the interaction process of the network. Institutional quality is the 'solidified history' expressed in rules, more or less stable patterns of interactions and relationships of trust among actors.

The coordinator of the network (called 'metagovernor' in the scientific literature) can create, manage and sustain the collaborative governance arrangements and organize the process in order to enhance innovative dynamics. This is done by applying sets of metagovernance strategies, like arranging structures for interaction, consultation and deliberation; designing process rules; exploring content; and connecting actors.

At the level of the individual actors involved in the collaborative arrangement, there are several conditions that shape the attitude, skills and incentives for these individual actors to engage in the collaborative innovation process and in transformational learning. Individual capacity to innovate in collaborative arrangement relies on the individual ability to learn. This capacity depends on individuals' characteristics such as personality traits, their position within the network, and their perception about the quality of the relationships, i.e. trust. However, as theory suggests, individuals are constrained or stimulated in their behavior by organizational-level factors such as the organizational culture, leadership and red tape in their

home-organization and the extent to which this home-organization controls or supports the activities of the networks.

In preliminary regression analyses of the survey data (see section 2.4 of 3.1.1), we found that the perception of the innovative outcomes is explained by a combination of network-level, individual-level and organization-level variables. For example, the perceived level of synergy at the level of the network and the trust propensity of the individual respondent can explain about 39% of the variance in perceived innovation. Similarly, the perceived extent of applied metagovernance strategies within the network, together with the extent to which the project is a priority of the higher levels in the home-organization of the individual actor, explains up to 40% of the variance. Thus, it is important to examine all of these levels, but also to look how these levels reinforce each other.

In the following sections of the policy brief we briefly set out the most important findings and lessons for policy makers, public and private actors involved in such collaborative innovation arrangements, and formulate recommendations regarding how to organize and manage such arrangements (network-level recommendations), how individual actors can acquire the right skills, attitudes and incentives to engage in such arrangements and in transformational learning (individual-level recommendations); and how the home-organizations of these individual actors can stimulate collaborative innovation by optimizing their organizational culture, leadership and red tape (organizational-level recommendations).

Conditions and lessons at the level of the collaborative innovation arrangement (network level)

When looking at the network level only, the preliminary regression analyses showed that four network-level conditions partially explain the innovative outcomes as perceived by the respondents. These are the extent to which synergy is achieved in the network and the extent of differences in opinion at the start of the collaborative innovation process are large, the applied metagovernance strategies, or whether the respondent is the coordinator or not. Combining the variables at different levels, positive evaluation of collaborative innovation occurs particularly when respondents note extensive application of metagovernance strategies, achievement of synergy at the network level, and high levels of trust propensity at the individual level. Likewise the extent to which an actor acts as a coordinator and the extent to which the collaborative innovation project is a priority of higher levels of the home-organization yield positive perceptions of the achieved innovative outcomes in the network. The priority of the higher levels of the home-organization can be interpreted as a sign of commitment, as a sign of the home-organization being more concerned about a successful outcome.

Thus, we see that collaborative innovation indeed occurs because of the three generative mechanisms of synergy, learning, and commitment. We discuss synergy and commitment in this part of the policy brief. Since learning is much influenced by individual conditions, it is discussed in the ‘individual conditions’ section of this policy brief.

Synergy and commitment for innovation in the collaborative governance arrangements

As mentioned, **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 networks. 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. The metagovernor is in almost all cases considered as being the most important actor, because he/she coordinates the project. 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 networks 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 networks, we see three general tendencies: (a) The network of actors is new and specifically created to work on an innovation; (b) the network 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 network 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 network or 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 consist 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 network 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 networks. 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 network. 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 network feels it can count on the support of the home organizations.

The occurrence of these generative mechanisms of innovation are related to a good **process quality** and institutional quality. As mentioned, 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 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.

Interactions within the collaborative governance arrangements

We examined what drives the interactions between actors in the collaborative arrangements in terms of 'information giving outside meetings' and 'elaboration upon other's ideas inside meetings'. We see especially the tendency to exchange information when priority from the higher levels of the home organizations is present. The regression analyses also showed that the priority of the higher levels of the home-organization in combination of being a coordinator is positively related to the innovative outcomes. Similarly, we also found that the priority of the higher levels of the home-organizations and being a coordinator is also a strong indicator for the interactions in the network. This is especially observable regarding interactions in terms of 'elaboration upon other's ideas inside meetings'. People are more likely to interact with each other when the innovation is a priority for their home organization and when they are a coordinator. Liberty to act as you want and reciprocity ('I interact with you, because you interact with me') are factors fostering interactions in terms of giving information outside meetings, and to a lesser extent in terms of 'elaboration upon other's ideas inside meetings'. Thus, the tendency to interact with other actors is highly influenced by the home organization of the representative.

A central element in the success or failure of the innovative process seems to be related to the skills and competences of the metagovernor. We often notice that the metagovernor is part of different cliques (subgroups in the network that frequently interact with each other), indicating that he/she is at the heart of the network he/she coordinates. By contrast, one of our failed case studies shows an isolated metagovernor. Where the metagovernor is strongly involved, he/she is also most involved in these cliques.

The cases that scored low on innovative outcomes, generally also consisted of a network 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. This is a clear indicator that being connected to each other is beneficial for the innovative outcomes.

Metagovernance strategies

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 networks 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 there are some general observations that can be made. In the cross-case analysis we see that cases in which metagovernance strategies were evaluated as highest were also the cases with the highest innovative outcomes, indicating that assessment of metagovernance as successful is related to higher perceived innovative outcomes.

We evaluated the strategies that the metagovernor can apply in terms of four different strategies (Klijn et al., 2010; Koppenjan and Klijn 2016):

- ***Introducing process rules.*** These include rules for entrance into or exit from the process, conflict regulating rules, rules that specify the interests of actors or veto possibilities, rules that inform actors about the availability of information about decision-making moments, etc. Actors claim in all cases that there were few formal rules to manage the networks. 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 creating of new ad hoc organizational arrangements (boards, project organizations, etc.). The creation of innovation networks is different in every case, but we found that the networks 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 network specific for the innovation. Networks are often created based on the own (professional) networks of the metagovernor. This own network of the metagovernor was important to determine who to invite to the network.
- ***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 feeling 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. Furthermore, 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.

Recommendations at the collaborative innovation arrangement (network level)

Based on these network level lessons we formulate the following recommendations:

- 1) **Arranging: Make sure that the collaborative arrangement has a diverse group of actors, bring them together and connect their different resources, opinions and perspectives.** Achieving synergy is important for delivering innovative outcomes. However, be aware that the inclusion of actors with different opinions contributes to the deepening of the discussion. A higher number of included actors can also frustrate the process, because the process and interactions become too complex. One way to deal with this is through the creation of thematic subgroups in which actors discuss issues based on their expertise. This can deepen discussions because only relevant people are involved in the discussions. However, this also leads to a risk of decreasing synergy. If the metagovernor decides to create subgroups, he/she must be aware of the need to have strong connecting abilities and to take a strong brokerage role, in order for perspectives not to get lost and to keep being connected with each other.
- 2) **Arranging: Make sure to include the end-users in the process.** Our findings show that the success of the innovation is related to the occurrence of synergy and commitment in the collaborative arrangement. Eventually, the end-users are largely affected by the implementation of the innovation, because it often changes the way of working for them. It is necessary that the end-

users are included in the process and that they have enough commitment to the innovation, because they are the ones who have to implement it in their organization. Similarly, it is important to include citizens in the process when they are the end-users. They can provide the user's perspective, and taking their perspective into account adds to the support of the innovation. Be aware that citizen-involvement is often harder to establish, so try to make participation as easy as possible. For example, be aware that it is harder for citizens to attend meeting during office hours.

- 3) **Arranging: Perform an actor analysis:** As our findings show, the synergy and commitment of the actors in the collaborative arrangement are positively associated with the innovative outcomes. This confirms the idea that having the right actors in the project is essential for its outcomes. The metagovernor should determine which actors are important to include in the process based on the necessary resources that an actor can provide, but also on the different perceptions that he/she can bring to the process. 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....) these have and the substitutability of these resources, as well as the initial perceptions of these actors on the issue at hand. Since the priority of the higher levels of the participating organizations is important for achieving the innovative outcomes, it is recommended to look for participants from organizations that prioritize the innovation.
- 4) **Connecting: Invest in reducing language barriers.** Having different languages in the process is experienced by respondents as being very obnoxious. Actors sometimes even argued that it would be better to split the network into French and Dutch speaking subgroups. This is not recommendable, however, as this is often simply not possible due to the federal level of the cases or because it might lead to a loss of perspectives. This is thus not beneficial for the creation of synergy. Therefore, it is recommended that the metagovernor invests in reducing language barriers, for example by emphasizing the importance for having bilingual representatives in the network.
- 5) **Exploring content: Pay attention to a common basic ground of knowledge and culture.** Related to recommendation 3, it is important to have a common ground of understanding, which is not only based on language but also on the themes that are discussed. We argue that having different perspectives in the network is good, but every actor should have at least a basic knowledge on the matter at hand to have a valuable input. Thus, it is important to pay attention to the creation of a common ground of understanding. Also, actors must be made aware of their differences and understand that discomfort is a part of the process of developing a shared culture (Brain-trains,2018; Stevens 2018).
- 6) **Process rules: Make sure that actors know what they can expect from the process.** The innovation process is a very uncertain process for the actors (Stevens, 2018). It is thus very important that actors know what they can expect and that is decided upon an initial course at the start of the process. The innovation process can unfold from that common understanding of the process and establishment of an initial course contributes to the expectation management. From there, the metagovernor should continue to pay sufficient attention to the uncertainty of the process. A clear

course may prevent a decline of motivation among the actors. For example, one case did not come to fruition because of different expectations of actors and it being unclear where the process would lead to.

- 7) ***Aim for quick implementation (through a pilot project).*** Projects which are higher evaluated on innovative outcomes are characterized by piloting or implementation or adjustment of the innovation. When no action occurs, dissatisfaction grows among the actors as they come to experience the whole process to slow in relation to the time they have to invest. When the innovation is quickly implemented it also becomes easier to see what works, and what does not work. This contributes to a higher feasibility of the goal of the innovation and it keeps the actors more motivated. We see that having pilot projects is very useful and contributes to the feasibility of the innovation. It is thus recommended to test the innovation in pilot projects and to aim for quick-wins.
- 8) **Exploring content: Try to measure the impact of the innovation.** The innovation process is an uncertain process. We found that some cases development a measurement tool, such as a questionnaire to measure the impact of the innovation on the target audience. Members of the target audience were asked to fill out a survey before and after the implementation of the innovation. This provided considerable feedback to the collaborative arrangement and enabled them to adjust the innovation.
- 9) ***Try to secure the commitment of the home organization.*** Stevens (2018:183) already mentioned that *“managing collaborative policy innovation networks is also about securing and maintaining the support of the hierarchical home-organizations of each representative.”* We found that the priority of and the control by the higher levels of the organization are related to actors’ eagerness to elaborate upon each others’ ideas inside meetings, and when actors have the liberty to act as they want, they are more eager to give information outside the official meetings. Because both the priority of the organization and feeling of liberty for the representative is important, it is recommended to also pay attention to the development of commitment in the home organization and securing the commitment. The metagovernor must make sure that not only the representative is on board, but the corresponding home organization as well and that this organizations gives enough liberty to act as the representative wants.
- 10) ***Invest in a ‘project management’ approach when there is a clear goal upfront and invest in ‘process or relational oriented management’ when a clear goal still has to be developed.*** Although the cases are not characterized by having many formal rules, it is definitely not the case that there are no decision-making rules and that every actor has an equal share in the decision-making. The results show that whether decisions are made by consensus or not does not directly matter for the evaluation of the innovative outcomes, but it is important to make a distinction in the dynamic of the project: There are two different dynamics: having a clear goal upfront or just a desire to innovate without precisely knowing where to go. A goal-oriented project with a clear goal upfront (about what to achieve and how to do it) aims to bring actors together in order to practically get

'things done' to reach that end goal. A more goal-seeking project with no definite goal will engage actors to think along and to formulate the end goals. If the goals still need to be defined, it is harder to go for a project management approach. If the goals are already defined, project management (focused on deadlines, etc.) is more important and easier to realize. Because the goals of the project are already quite practical it is less important to include everyone in the decision-making. In networks with no previously defined goal, the management should be more process or relational oriented.

- 11) **Arranging: Include the actors who can block the process but also the ones who have the legal mandate to change things.** We saw 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. Similarly, include the actors that can actually change things. Having actors included that do not have the legal statute to change things necessary to make the innovation a success will lead to disappointment when the developed innovation cannot be implemented due to a blockage by a non-included actor who does have the necessary legal mandate.

Conditions and lessons at the level of the individual

The individual capacity to innovate in collaborative arrangements relies on the individual ability to learn. It is through the continuous process of absorbing new knowledge that people generate new solutions and build joint action (Klijn & Koppenjan, 2016, Gieske et al., 2016). How and under which conditions individuals learn is therefore a major condition for innovation to succeed (Sørensen & Torfing, 2017). In the context of collaborative innovation three types of learning are particularly relevant: policy learning—learning about the content—, relational learning—learning about the interest and resources of the actors—and political learning – learning about the political interest and feasibility (May, 1992; Klijn & Koppenjan, 2016). Policy learning ensures that the solution designed is based on scientific insights and is not merely the product of interests disconnected from the reality (Klijn & Koppenjan, 2016). Relational learning is important for the development of shared goals: it is by understanding others' needs and capacities that individuals find joint solutions. Finally, political learning ensures the adoption of politically supported solutions (May, 1992).

The analysis assesses the influence of eight factors prevailing in the literature on learning. Four of them are individual traits linked to individual skills, attitude and perception. These include expertise, defined as the number of years an individual is working in the field related to the innovation studied, the perception of procedural fairness or the perception of being treated equally, trust propensity or the general inclination to trust others, and public service motivation. Public service motivation was further divided into two dimensions, namely attraction to policy-making and commitment to the public interest. The remaining four factors are types of relationships, varying according to the nature of the interactions between participants. These include the exchange of information outside the meetings, the frequency of contact outside the meetings (by mail, phone call or face-to-face meetings), trust, and trustworthiness. Trust is defined 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 behaviour, even if the opportunity arises" (Klijn et al. 2010). Trustworthiness refers to the perception that someone is competent, cares about the interests of the

others and is honest (Mayer et al., 1995). While trust refers to the expectation of a specific behaviour, trustworthiness is a perception of other's personal qualities.

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 network "will tend to stifle creativity and prevent the generation of new and bold ideas" (Skilton & Dooley, 2010).

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 network—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. In the same vein, individuals that are attracted to policy-making are more likely to learn about others' resources and interests. 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 network 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 network 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 reciprocal 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.

List of recommendations

The analysis of individual conditions for collaborative innovation, focused on learning processes, provides useful insights on how to support collaborative innovation. Enriched with results from the network level, the organization level analysis as well as the literature review, we identified 10 recommendations:

- 1) **Support policy, relational and political learning.** Three types of knowledge must be generated in order to support collaborative innovation: knowledge about the content (policy learning), knowledge about the resources and interest of the others (relational learning) and knowledge about the political feasibility of the measures (political learning). Those ensure the generation of new ideas based on scientific information, the development of shared goals and effective implementation, respectively. The three types of learning must be supported. For instance, policy learning without relational learning may lead to an innovative solution that is not supported; political learning without policy learning could lead to feasible solution that are not innovative. Nurturing the three learning processes is needed to ensure the development of collaborative innovation.

- 2) **When setting-up the collaborative arrangement, select competent and, if possible, volunteering people from diverse organizations.** Competency is needed to build trusted relationships and to build upon each other's ideas, volunteering is a sign of motivation, while diversity ensures that participants are not too close to each other, all of which support policy, relational and political learning processes. In this configuration, it is essential to devote sufficient time to trust building, the development of interpersonal communication and interpersonal skills. If resources and time is lacking, building the network around existing personal relations is a good way to ensure that trust and interpersonal communication already exist. However, this configuration limits synergy, learning processes and innovative output. A strategy could be to ask a small number of reference people to nominate who should be included in collaborative arrangement, continuing the technique with the nominated people until a sufficient number of people is reached (the snowballing technique). At the same time, the network manager should control for a certain degree of diversity and support individual motivation.
- 3) **Address the issue of confidentiality.** The issue of confidentiality is relevant in various processes. Often, the confidentiality rules vary across the organization. A careful assessment of what information cannot be exchanged according to the legal and administrative rules helps define the limits of the collaborative process. It ensures fair and reciprocal exchange of information, facilitating policy learning and avoiding potential frustration. If confidentiality rules substantially inhibit the process, participants may go back to their home organization or the political level to search for flexibility.
- 4) **Define the process of information exchange.** The tool used to share information should be defined. The best tool is the one convenient to all the participants of the collaborative process. Some individuals have limited access to specific tools (i.e. google docs) while others are overtaken by the e-mail flow. Participants should agree upon a procedure in order to share information in the most effective way.
- 5) **Enable feedback on suggestions for action.** Reciprocity and two-way communication matters for learning processes. Individuals are more likely to learn if they perceive they have sent information to and receive information from the same participants. In this context, enabling feedback on the suggestions for action before making a decision is crucial. Presenting them to all the participants for decision-making or justifying the decision on the basis of such feedback is essential to keep participants motivated and willing to share information.
- 6) **Develop interpersonal communication by organizing informal activities.** For learning processes to occur, it is important that individuals share relevant information regarding the innovation with each other outside the official meetings of the collaborative arrangement. Participants should therefore think about each other when facing relevant information in other circumstances. This is particularly relevant for policy and political learning, which ensure the emergence of new ideas build on scientific information and politically feasible. Activities that bring together participants in informal contexts strengthen interpersonal communication which in turn supports exchange of information. Those activities can take many forms: car-sharing, afterworks, lunch, joint participation to an event, etc.

- 7) **Build and sustain trusted relationships.** Participants should be perceived as competent, benevolent and honest—in other words, trustworthy—in order to learn about other interest and the political feasibility, which ensure the development of shared goals and effective implementation. Various action can be taken to build this type of trust. Icebreakers are particularly useful in collaborative arrangement involving participants that do not know each other. Those small exercises, unrelated to the topic of the discussion, take place before the meetings and helps participants learn each others' names and other personal and professional information. By gathering personal and professional information, participants can build a positive perception of each others' competence, benevolence and honesty. This in turns supports relational and political learning processes necessary for building joint action and ensuring effective implementation.
- 8) **Clarify the goals and the benefit expected of each actor.** Clarifying what each participant expects at the beginning of the process is essential to find a common ground. In a bottom-up approach it helps define the objective of the collaborative process while in a top-down initiative it ensures that everyone understands and agrees with the aim of the process. It also limits opportunistic behaviour and supports trust, as actors are tied to what they have announced.
- 9) **Invest in training related to interpersonal skills.** Exchange of information and trusted relationships are at the core of learning processes. Developing interpersonal skills, i.e. active listening, clear communication, conflict management, etc. enhance individual capacity to effectively exchange information and build trusted relationships. Such a training can be promoted inside organizations or within the collaborative process.
- 10) **Support individual motivation to engage in collaborative processes.** Motivation is a key factor that supports relational learning and the search for joint solutions. The main motives that drive learning is influencing the policy process and providing a solution to a social problem. In the collaborative process, recognition of participants' input, presentation of the progress of the project and showing visible impact through law adoption or practical implementation support this type of individual motivation. In large-scale projects, financial retribution is also an important element that ensure willingness to participate.

Conditions and lessons at the level of the organization

With regard to organizational conditions, our findings deal with three different aspects that were derived from the literature review: organizational culture, red tape (rules and procedures with burdensome effects on performance), and organizational leadership.

Leadership

One leadership aspect relevant to our study is the attitude of a leader towards collaborative innovation. 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-averse 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.

Organizational culture

Based on our case studies, a hierarchical 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 group culture was reported to be most dominant. The other two cultures (developmental and rational) 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 rational culture and high organizational support for the project.

Next, we found that both a developmental culture and a group 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 group culture thus does not compensate for the rigidity 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.

Red tape

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.

Interactions

We researched the interrelations of our three main variables. The first connection found was the one between **red tape and organizational culture**. Both organizational cultures on the flexible side of the competing values model (group culture and a developmental culture) are linked to low levels of red tape. Respondents in a rational culture reported medium levels of red tape while actors that worked in a hierarchical culture reported most different kinds of red tape, plus more red tape in general than other respondents.

Looking into the linkages between **red tape and leadership**, we found that actors in superior positions experienced lower levels of red tape, and respondents that had a good relationship with their superior

enjoyed lower levels of red tape as by extension. Furthermore, actors experiencing a *hands-on positive attitude* or a *pressuring attitude from their superior towards collaborative innovation* also perceived lower levels of red tape within their organization.

Lastly, we found a connection between **leadership attitudes and organizational culture**. Respondents experiencing a *hands-on positive attitude towards collaborative innovation* more often named either a developmental culture or a family culture as the dominant culture in their organization. Actors reporting a *pressuring attitude towards collaborative innovation* were most likely to report a developmental culture in their organization. A superior's *negative attitude towards collaborative innovation* was most often connected to an administrative organizational culture. And with that our variables all affect one another, creating four different potential contexts that affect collaborative innovation in different ways.

List of recommendations

- 1) **Ensure support at the level of the superiors.** It is important to try and ensure that superiors truly support the collaborative innovations projects their subordinates engage in. If superiors show interest and follow-up on the project, this can encourage their subordinates to spend more time on the project and, as such, make the project more likely to succeed.
- 2) **Include collaboration and innovation as part of the evaluation of the employees concerned.** This way time, energy and efforts put into projects are less likely to go unnoticed. If collaboration and innovation are part of the evaluation criteria this has a positive effect of willingness and ability of an actor to engage in collaborative innovation.
- 3) **Be careful not to pressure collaborative innovation indiscriminately.** This is important to prevent that superiors put too much pressure on employees to collaborate or to innovate. When employees feel that the aim is to innovate/collaborate 'an sich' rather than to achieve goals by collaborative innovation they are likely to be less encouraged. Furthermore, pressure risks hasty decision-making which hampers projects in the long run.
- 4) **Create real, hands-on support for collaborative innovation.** It is strongly recommended that superiors do not just encourage collaborative innovation in mission statements and other reflections of their vision, but that they ensure that employees feel hands-on support for collaborative innovation as well. This can include reassuring employees that there will not be negative repercussions for them if the innovation project fails, or letting employees follow specific trainings. Important is that actors in collaborative arrangements seems to function best in innovative processes when they feel the engagement, interest and priority given by their superiors towards the innovative process and when they can ask their superiors for general advice and direction, but at the same time the actors have the leeway and liberty to act as they see fit in the actual interactions with other actors in that collaborative arrangement.
- 5) **Stimulate different organizations to work together but beware of the differences in organizational culture.** When engaging in collaborative innovation, organizations should know that it is easier to collaborate in projects with organizations of a same organizational culture, specifically

organizations that have a similar organization flexibility or rigidity. This similarity in culture increases the understanding in the way of working of each other and avoids frustrations. If organizations involved have a radically different organizational culture they should be aware that the other organization works in a different manner. A more structured collaboration can then benefit the partnership by preventing frustrations by clearly setting out the expectations and deadlines.

- 6) **Ensure flexibility and an adequate flow of information in the organization.** Organizations that try to be more flexible, adaptive and less controlling internally stand a greater chance of succeeding in collaborative innovation. Therefore, working on creating a more developmental or group culture in the organization can foster collaborative innovation. In addition to this it is also important that there is a healthy exchange of information within organizations. The organization's representatives have to be able to pool the knowledge the project requires from their organization.
- 7) **Reduce red tape where possible.** Cutting red tape where possible is strongly recommended for organizations that wish to foster collaborative innovation. In this context organizations should keep in mind that they can also turn red tape into green tape by better explaining the use of rules and procedures, applying them more consistently and clearly, and trying to make them more proportionately. This way actors are less likely to experience rules or procedures as burdensome, and thus as red tape. Employees can also be encouraged to seek flexibility in existing rules and maximise their discretionary room.
- 8) **Foresee the possibility of a 'less regulated zone' to experiment.** It can be advised to allow projects of collaborative innovation to operate within a 'less regulated zone'. This means temporarily allowing some rules and procedures to be ignored for the duration of the project and in specific areas important to the project. Here administrations can take a look at the Flemish region where this practice is already successfully being implemented¹.
- 9) **Rethink the rules with regard to tendering.** The evolution of collaborative innovations is difficult to foresee and decisions should be made in time rather than before starting a project. Tendering contracts should allow room for specifics to be provided later on when it better suits the project.
- 10) **Beware of red tape's indirect effects.** Not only do burdensome rules and procedures affect innovation and collaboration directly, they can also affect it indirectly through operational effects such as delays, and psychological effects such as demotivation or reputational damage of the organization as a collaborator.

¹ More information can be found on: <https://overheid.vlaanderen.be/regelgeving/wetgevingstechniek/tijdelijke-wetgeving-experimentenwetgeving-en-regelluwe-zones-wat>

General recommendations for the federal government

The following recommendations are recommendations on the way federal government can support collaborative innovation arrangements.

- 1) **Foresee seed money.** New innovations take financial means to be created, but also to be sustained. We recommend pooling some funds or slack resources into a central fund specifically meant for this purpose. Ideally organizations and collaborative networks would be able to submit applications for funding there.
- 2) **Providing the right training and support to the metagovernor.** Good metagovernance is not an easy job, although of great importance to the success of a project. Therefore targeted training for metagovernors in terms of connecting strategies (coalition building, mediation, removing obstacles to co-operation, creating incentives for co-operation), setting up process rules and arranging structures for interaction, consultation and deliberation.
- 3) **Allow the existence of a 'less regulated zone' to experiment.** It can be advised to allow projects of collaborative innovation to operate within a 'less regulated zone'. This means temporarily allowing some rules and procedures to be ignored for the duration of the project and in specific areas important to the project. Here administrations can take a look at the Flemish region where this practice is already successfully being implemented².
- 4) **Create a support unit.** This would be meant specifically in order to help metagovernors in building, managing and sustaining collaborative networks and yielding good outcomes. Units who are aware of the methodologies to facilitate the process (like user-centred service design) and which provide a safe environment for experimenting (like innovation labs) can be very beneficial to collaborative innovation.
- 5) **Invest in the language and communication skills of federal civil servants.** Language is still too often an important barrier to collaborative innovation since only very few civil servants are effectively bilingual. Allowing the use of English could be a partial solution to this problem.

² More information can be found on: <https://overheid.vlaanderen.be/regelgeving/wetgevingstechniek/tijdelijke-wetgeving-experimentenwetgeving-en-regelluwe-zones-wat>

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