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Deliverable (5.1.1 – 5.1.2.)
*Organizing multidisciplinary learning in
Emergency planning and Crisis management
(test cases 1 & 2)*

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**Public sector innovation through
collaboration (PSI-CO)**

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INTRODUCTION

This report is the final report of work package (WP) 5 which is designed to test the validated findings of WP4 in real-life cases in order to assess their functionality and develop more operational guidelines for innovations through coordination and collaboration. These so-called Living Labs are user-centric environments for open innovation with an early and continuous involvement of users. They organize conditions for strengthening users' involvement and for access to common resources, fostering the possibility for user driven innovations (Schaffers et al. 2011). Co-creation in open innovation requires an open mindset towards sharing and collaboration, which can be supported by techniques such as "context mapping" which involves users intensively in creating an understanding of the contexts of service use (Sleeswijk Visser 2005) and "generative" techniques which can reveal tacit knowledge and expose latent needs (Sanders, 2000). The real-life context of the innovation process contributes to a better understanding of the tacit and domain-based knowledge needed to assess needs and built feasible, appropriable solutions. The participatory techniques which are mobilized in the LL are very seldom techniques "out of the shelf" : the LL mobilizes a set of adapted techniques which respect the principles to ensure the sensitization and collaboration of participants but they must also be adapted to the specific issue at stake. This issue of methodological developments within a LL setting is central to the organization of such specific places.

The main issue in this work package was to achieve cooperation for innovation between the groups of professionals involved in specific fields on two "test cases": crisis management and emergency planning on one side and the fight against intimate partners violence on the other. The operational objective of the interventions was to support these professionals (whether from public organizations or NGOs) in developing a process for organizing collaboration on specific issues where innovations were badly needed. The fieldwork was organized to "follow the actors and the objects", with an interpretative methodology for analyzing framings, boundaries, institutional discourses, actors identities and relations. It also allowed us to understand how these change and develop over time during the activities which were proposed to help develop a creative design.

After a short presentation of research issues linked to public sector innovation through collaboration (1), the report first presents the main results and recommendations of the main findings of the comparative case studies from WP3 and WP 4.1. It then (2) presents the objective of organizing "test-cases" using Living Labs inspired methods that support innovation through collaboration. Hereafter, (3) the rationale, methodology and results obtained from two "test-cases" are described. These 'test cases' entail the development of new tools for multidisciplinary debriefing and learning from experience with the professionals in crisis management and emergency planning (4.1); the development of innovative collaboration spaces between NGOss and public actors (police, health and justice) involved in the fight against "intimate partners violence" (4.2).

1. PUBLIC SECTOR INNOVATION THROUGH COLLABORATION (PSI-CO)

Public Sector Innovation (PSI) is high on the policy agenda because public authorities are not only confronted with budgetary pressures, but also wicked policy problems and rising citizens' expectations that demand innovative solutions to new problems. Existing solutions to new problems do not suffice. The PSI-CO project addresses PSI with the overall research question: **how and under which conditions do collaborative governance arrangements foster the initiation, adoption and diffusion of innovations in policies and services?**¹.

Literature on public sector innovation increasingly asserts that innovative capacity is determined by organizations' ability to engage and set-up collaborative interaction: with reference to (Sørensen and Torfing, 2011: 849), we define 'collaborative innovation' as *'an intentional and proactive process that involves the generation and practical adoption and spread of new and creative ideas, which aim to produce a qualitative change in a specific context through collaboration with other public and private actors, within and across governmental levels and with societal actors, like citizens, firms and organized interests'*.

Collaborative governance arenas enhance problem understanding, formulation of new visions, solutions, strategies and problem solving capacities, and mobilize societal actors to help generate, adopt, and diffuse innovations (Sørensen and Torfing, 2011). But multiple questions arise when dealing with collaborative innovations. For example: How do collaborative governance arrangements result in meaningful innovations in services and policies? And: How do different arrangements of collaborative governance interact and reinforce each other?

The PSI-CO project addresses two types of collaborative arrangements: either arrangements for transversal coordination within and between public organizations, or forms of co-production between public service agents and private actors.

Different types of innovations can be distinguished. Service innovations go beyond technological innovations, being focused on the creation of new services or new ways of supplying services. Policy innovations refer to transformations in problem understandings, policy visions and objectives, and strategies and policy instruments for solving policy problems. As outlined by Sørensen and Torfing (2011), most service and policy innovations require collaborative interactions between public and private actors, including politicians, civil servants, experts, private firms, user groups, and interest organizations. Interaction between different organizations, or policy sectors and governmental levels happen in 'arrangements for transversal coordination' (Bouckaert, Peters and Verhoest 2010): they can entail structures for concertation as well as processes and instruments such as transversal plans, joint budgets, and shared information systems. 'Arrangements for co-production' allow for interaction with a wider set of stakeholders, and can range from consultation, to co-planning, co-design, co-prioritization, co-financing, co-delivery, co-monitoring, and co-evaluation. All these arrangements can be analyzed as governance networks, which regulate the behavior of their participants by specific formal and informal rules.

¹ The research network associates four Belgian and one Dutch university in the interuniversity consortium 'Public Sector Innovation through Collaboration' (September 2016- August 2020: UCL-LLN, KULeuven, ULiège, under the leadership of UAntwerpen) funded by the Belgian federal service BELSPO (ref. Contract nr. : BR/154/A4/PSI-CO)

With reference to the analytical model presented by Sørensen and Torfing (2011), collaborative innovation takes place when synergy among actors occurs, engage in mutual transformative learning processes, and develop joint ownership.

The development of “Living labs” as innovative space is based on the hypothesis that collaborative innovation can be fostered with the use of adequate techniques for the involvement of “actors with field experience” : this work package has proposed to work out this hypothesis in two case-studies to check the possibility and usefulness of creating such LL places and associating field actors.

Our crucial question is: Is it possible to create, stimulate and sustain innovation-enhancing collaborative governance arrangements? What institutional design and which process management dynamics would make this possible within the Belgian politico-administrative regime

2. LESSONS LEARNED FROM THE CROSS CASES ANALYSIS (WP 3)

COMPARATIVE CASE STUDIES

This work package builds on the previous work packages of PSI-CO. First, multiple case studies (nine cases), from different policy sectors with different practices of collaborative innovation, were conducted at the federal level of the Belgian administration: the field work addressed the context, features of the involved actors, and multi-actor and multi-level interactions in the collaborative governance arrangements. These different case studies were then compared to each other.

For each case, the data collection focused on the following aspects: (a) arrangements for transversal coordination and co-production with involved actors, procedures and instruments, type of resources; (b) formal and *de facto* functioning of arrangements (c) estimating the level of achieved innovation in services or policies through self-assessment by involved civil servants and stakeholders (d) asking how the settings (including metagovernance characteristics and organizational contexts) contributed to policy learning.

The conclusion of the comparative multi-case study led to a first report (see the final report of work package 3) about how and under which circumstances collaborative governance arrangements resulted in policy and service innovations; which capacities and instruments government needs for transversal working in such a way that policy and service innovation are enhanced; what individual conditions (skills, attitudes and positions, incentives) lead to empowering and motivating civil servants to participate, engage in transformative learning and develop ownership; how (different types of) coproduction with external stakeholders contributed to the initiation, adoption and diffusion of policy and service innovation.

These conclusions arising from this cross-case analysis were validated with a participative online Delphi survey, with civil servants and stakeholders that took part in the cases (see work package 4).

MAIN RESULTS FROM THE DELPHI SURVEY

The Delphi Survey organized with the actors involved in the 9 case studies (WP4, Deliverable 4.1) had confirmed the main conclusions of the analysis of the case studies: there are different types of deadlocks related to the needs for political support, the need to include the relevant actors, and the time constraint of collaborative innovation.

The main conclusions of the comparative case studies can be summarized as follows²:

- A central element in the success or failure of the innovative process seems to be related to the **competences of the metagovernor and the structure of metagovernance** (set of formal and informal rules for communication and collaboration; management style by the metagovernor) to manage the dynamics of collaborative innovation: the role of the metagovernor is indeed central in the establishment, development and success of an innovation, supported by project and process management skills.
- The collaborative network must incorporate “**end users**” (such as local officials or citizens)
- Implementation and testing are the most difficult steps in the innovation process. Most of the respondents support the idea of **pilot projects**. It leads to results more rapidly and has positive dimensions: testing increases the collaboration between partners because the questions and problems are very concrete and results are more visible, it increases the involvement of the partners, and it is also easier to look for solutions at a smaller scale addressing each problem efficiently.
- Two important obstacles are to be considered: An innovation process can develop without political support, but cannot survive political blockage. Time constraints limit the possibility of collaborative innovation and the new ways of working only increase the problem: Granovetter (1985) already put at the fore the importance of “weak ties” for the circulation of innovative ideas. The constraints in terms of time management, the increasing use of distance meeting does impact the possibilities for unplanned discussions with persons which are not part of the central circle of the worker: the exchanges are planned within the central circle (the clique) and they are less possibility for sharing new ideas around the coffee machine with other persons, neglecting these “weak ties” pointed by Granovetter.

THE IMPORTANCE OF SYNERGY, LEARNING AND COMMITMENT SUPPORTING PROCESSES

The survey confirmed the importance of synergy, learning and commitment supporting processes for innovation in collaborative governance arrangements. **Synergy** refers to “*the power to combine the perspectives, resources, and skills of a group of people and organizations*” (Lasker et al, 2001). Different perspectives can be established by adding actors with different backgrounds to the collaborative governance arrangement: other government levels, private actors or citizens. **Commitment** refers to the joint ownership of the innovation: 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. The participants should have enough in common to understand each other and be ready to share information without knowing beforehand what the outcome of the process will be. Concerning the involvement of different perspectives, it is important to look at the way actors are included in the project. Respondents generally argued that getting to know, or already knowing, the involved actors was beneficial for the process and that it facilitated smoother interactions. Having strong ties with each other may support trust building but it can also create group thinking and exclude relevant actors, which might be detrimental for the innovation process. Not being familiar with each other allows actors to break out of the ‘group thinking’ that closed networks can have (Lewis and Ricard, 2014). In the creation of networks, the analysis presented

2 Fallon C. & Thiry A., 2019, PSI-CO : Validation of findings by Delphi study, BR/154/A4/PSI-CO, Work package 4, Deliverable [WP4.1.1]

three initial situations: (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.

The amount of synergy (especially concerning expertise and differences of opinion) 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: **it relates to the open-endedness of the innovation process.** Whereas a project with a clear goal formulated upfront tends to consist of actors that are able to get 'things done', a project with no definite goal tends to consist of actors 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.

THE CENTRAL ROLE OF THE METAGOVERNOR FOR THE QUALITY OF THE COLLABORATIVE PROCESS

The process quality refers to the evaluation by actors of the interactions between the different actors in the collaborative arrangements. The metagovernor is in almost all cases considered as being the most important actor, because he/she coordinates the project. It is far from self-evident that collaborations in collaborative innovation arrangements run smoothly. Differences in preferences, expectations and interests and the absence of a clear leader ensure that sometimes a lot of time is being lost by discussing the priorities and direction of the project. This leader is a point of contact for the other actors in case of haziness in the project and he or she is able to lead the process to a clear end goal. With an active 'hands-on' role, he/she should be actively involved in the network, be visible for the other actors and establish the circulation of information and/or ideas. The metagovernor can apply different strategies.

A common categorization of strategies is the introduction of process rules; arranging structures for interaction, exploring ideas and supporting connecting strategies to remove obstacles to cooperation (Koppenjan and Klijn 2016). It is also necessary to consider the periodization of the process: milestones seem to be an important tool to keep actors motivated, and the cases studied showed that people got motivated by early success (eg. through pilot activities) while cases without implementation led to frustration.

The collaborative arrangement must consist of a diverse group of actors which are brought together and their different resources, opinions and perspectives should be connected. Performing an actor analysis helps to 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 or she can bring to the process. The end-users are valuable to be included in the process, and must have enough commitment to the innovation, because they are often the ones who have to implement the innovation in their organization and they are usually the most affected by the implementation of the innovation, because it often changes the way of working for them. Achieving synergy is important for delivering innovative outcomes, but 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. If the metagovernor decides to create subgroups, he or 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 stay connected with each other.

Organizing the process for collaboration supposes giving attention to the development of a common basic ground of knowledge and culture for communication. This is sometimes considered as an issue: people coming from different organizations or sectors have to develop a common language, as well as shared objectives. In networks with no previously defined goal, the management need to apply a more process-oriented or relational oriented.

If the goals are already defined, project management (focused on deadlines, etc.) is more important and easier to realize. The actors also should know what they can expect from the process.

The innovation process is a very uncertain process for the actors and it destabilizes them (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. One of the possibilities to address this concern is to aim for a quick implementation (through a pilot project). Projects which are evaluated higher on innovative outcomes are characterized by piloting or implementation of the innovation. 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. Similarly, pilot projects are seen as an effective way to support continuous support thanks to quick wins and quick feedback from the field. When no concrete action occurs, dissatisfaction grows among the actors as they come to experience the whole process too slow in relation to the time they have to invest and their expectations are not met. Having the feeling of making no progress is very disadvantageous for the motivation of the actors.

3. ORGANISING "LIVING LABS" TEST – CASES AS ACTION-RESEARCH

The main objective of the test cases was to put in perspective the possibilities of using living labs inspired environment and techniques to support new forms of collaborations and new paths for innovation between public servants and external partners.

Policy innovations refer to transformations in problem understandings, policy visions and objectives, and strategies and policy instruments for solving policy problems. Interaction between different organizations, or policy sectors and governmental levels happen in 'arrangements for transversal coordination' (Bouckaert, Peters and Verhoest 2010): they can entail structures for concertation as well as processes and instruments such as transversal plans, joint budgets, and shared information systems. 'Arrangements for co-production' allow for interaction with a wider set of stakeholders, and can range from consultation, to co-planning, co-design, co-prioritization, co-financing, co-delivery, co-monitoring, and co-evaluation. All these arrangements can be analyzed as governance networks, which regulate the behavior of their participants by specific formal and informal rules.

Co-creation in open innovation requires an open mindset towards sharing and collaboration, which can be supported by techniques such as "context-mapping" which involves users intensively in creating an understanding of the contexts of service use (Sleeswijk, Visser, 2005) and "generative" techniques which can reveal tacit knowledge and expose latent needs (Sanders, 2000). The real-life context of the innovation process contributes to a better understanding of the tacit and domain-based knowledge needed to assess needs and built feasible, appropriable solutions. The participatory techniques must respect some principles

to ensure the sensitization of participants but they are to be adapted by the research group to the specific context and issue at stake.

Pragmatist intervention in policy innovation (Hajer & Wagenaar 2003) is best engaged through research-action, which gives the possibility of organizing concrete activities engaging the actors themselves, in line with the “living lab” methodology.

An action research was therefore organized. It used a Living Labs inspired methodology (LL). Living Labs are user-centric environments for open innovation with an early and continuous involvement of users. They organize conditions for strengthening users’ involvement and for access to common resources, fostering the possibility for user driven innovations (Schaffers et al. 2011).

An “action research” framework supposes a hybrid research strategy related to the production of knowledge, knowledge that wants to be innovative through action, i.e. by the deliberate intervention of the researcher on the basis of hypotheses of action. The researcher is then him/herself part of a collective of actors (participative research) to change the reality based on the hypotheses of action to solve a problem situation (prescriptive model). Action research is by definition participatory since it associates from the start a series of actors sharing the same desire to reflect on the dysfunction / problem to solve it. It involves interdisciplinary practices. The action research strategy is in line with the rationality of the Living Lab (LL) approach (co-construction with stakeholders), because a Living Lab cannot be decreed: it is built together if and only if the stakeholders consider it relevant, in line with their needs.

Organizing action research for collaborative innovation in public sector relies on the uses of techniques and processes of collaborating with (policy) actors to produce scientifically and socially relevant knowledge and transformative action. It requires being at the same time critical and relational by maintaining trust, shared goals, commitment, as well as pragmatically accepting the constraints of the situation at hand and to be limited by what is practically possible. The action researcher acts as a facilitator of policy learning, while mobilizing a relational view of learning. Knowledge is considered as the result of a social construction and the main concern is to organize the conditions leading the participants to share their thoughts and experiences through processes of deliberation, and discourse, and argumentation. Our action research was grounded in social practices according to the propositions of Hajer & Wagenaar (2003) for a deliberative policy analysis built on the three pillars of interpretation, practice-orientation and deliberation. It imposes to grasp the relevant meanings, beliefs and values of the people in their context of action: this is possible with action research by intensive fieldwork and embracing the actors’ perspectives seriously by focusing on both activities and meanings and narratives. The researcher then has to develop a high level of reflexivity about its own role in the analysis, giving due attention to power relations between the researcher pre-concepts and the informants, as discourses themselves produce subjectivities. The participants are in interaction and cannot be separated: a full understanding needs a reciprocal, dialogical relationship and it is the quality of the debate with a strong practice orientation which ensures the quality of the information produced. The network for emergency planning is deeply “plural” : each group within the network is a “discipline” which have to adjust to emerging practices ... The center of the attention is the understanding of networks change when participants discuss about transformation of their own practices and transform multiple alternative accounts at these moments when “the continuing juggling among a set of stories is resolved into the account from which the next phase of reality constructing takes off, among relations cohering through that there and then” (White 1996: 1049, cited in Emirbayer 1997).

The sequences of interventions is different for each case as the researcher has to adapt the intervention according to the specific groups and the problem to be handled. The methods mobilizes and the results are presented in the next section for the two test-cases.

3.1. THE “LIVING LABS” TEST – CASE IN CRISIS MANAGEMENT

The first Living Lab was organized in the sector of emergency planning and crisis management (further EP&CM) on the issue of the possibility of developing “procedures for multidisciplinary learning through RETEX practices”.

CONTEXT OF THE ACTION RESEARCH

Emergency planning and crisis management was reframed in Belgium under a new law in 2007 with a stronger interdisciplinary and interdepartmental stance (Interiors, Public health, and other such as mobility ministers) and with a reframed distribution of operational responsibilities between the federal administration (a.o. crisis center), and local authorities (municipalities and district governors) as well as emergency planners and intervention groups and private actors. There is now a plea for new modalities for cooperation to increase multidisciplinary collaboration between the different “disciplines” (such as firemen, health specialists, policemen, logistics, communication), but also between the disciplines and the local authorities and private actors, as well as between operational levels and federal authorities and agencies. There is currently a concern about a poor sharing of experiences due to legal, organizational and political reasons and there is a parallel demand for the creation of “community of practices” integrating the stakeholders. Such a network based approach to support co-creation needs to go beyond the hierarchical organizations and the formal distribution of competences. The research objectives were: (1) Strengthening of the emergency planning case by fostering efficiency and legitimacy; (2) Testing the applicability of the findings in PSI-CO research network.

The case was selected because the SPIRAL research group has a long history of cooperation in the sector of EP&CM, developing training sessions for the civil servants on the field. Glesner (2018) recently published a first research report on the subject of RETEX. The EP&CM unit of the Liege District (Province de Liège) asked ULG-SPIRAL for support for implementing a action research for the “construction of a framework supporting RETEX”. Their objective was to develop a learning process based on the “multidisciplinary exercises” they regularly organize to try to respect the legal frame, and their question was : “how to better learn from the exercises ? How to share such expertise?”

When negotiating the agreement between the district governor and the research unit, we came to an agreement to work in an ‘action research’ framework.

THE STEPS OF THE INTERVENTION

Activity	Preparation of the workshop. Selection of participants.	In depth interviews ; field work with observation of debriefing activities	Workshop	Preparation of the online Delphi enquiry - Mesydel (data base; questions) More interviews	Follow Up of the enquiry Writing of a proposition	Methodology test	Focus group and finalization of the practical guide
Date	Sept-18	Oct- 18	Dec-18	Jan-March-19	April-Sept - 19	Nov-19	Jan.20
Output					1st Project report		Final report

ORGANIZATION OF A WORKSHOP

A workshop was organised on 4 December 2018, with the following objectives: on the one hand to disseminate the results of the research on RETEX (Glesner 2018) and on the other hand to train and involve in the process the various actors involved in crisis management in the province of Liège. The list of participants in the workshop was determined by the research team in consultation with the services of the governor of the province of Liège. A total of 39 people took part in this event. The main themes discussed were: the challenges of the learning culture, the normative framework for feedback in crisis situations, the structuring and framework for feedback, the challenges posed by mono and multidisciplinary. In concrete terms, the half-day workshop was organized in three phases with three moments:

- First, the research team presented the main lines of research analysis. Some D1 or D3 actors who practice RETEX in their departments also took the floor to briefly present their working methods;
- in a second step, scenario workshops were organised. Participants were divided into different multidisciplinary groups. In each group a facilitator and a rapporteur from the University of Liège were present;
- Finally, the afternoon ended with sharing the different results obtained in the parallel workshops.

PARTICIPANT OBSERVATION AND INTERVIEWS WITH FIELD ACTORS

Semi-directive interviews were conducted throughout the research with key actors in order to deepen certain dimensions and deepen the discussion. In addition, the researchers participated as observers in several crisis exercises and their debriefings.

The objective of this phase was to "bring up" examples of good practices in the Walloon region, within disciplines as well as local civil servants in charge of emergency planning. To carry out this phase, the Mesydel software (<https://mesydel.com/fr>) was used. It is a computer tool designed to implement the modalities of a Delphi-type research: data collection, multiple rounds of questionnaires, address book management, processing and analysis of qualitative and quantitative questions and dedicated analysis tools. This software has been specially developed to facilitate the construction of a shared vision between the actors. The Delphi method, one of the most famous so-called "expert" methods, is a prospective method, which makes it possible to interview a panel of experts - according to its most recent developments, the word "expert" can be understood as "expert of use" which, by its position, has knowledge on a given subject -, iteratively. A typical Delphi survey consists of at least two rounds, with, between each round, a synthesis which serves as a basis for the following questionnaire, allowing "controlled feedback".

The first round of the online survey aimed to identify good practices on the themes discussed in the workshops: the challenges of the learning culture, the normative framework for feedback in crisis situations, the structuring and framework for feedback, the challenges posed by mono and multidisciplinary. It was then possible to test the concrete results of the workshop while continuing to involve in the process the various actors of crisis management in the province of Liège - 76 actors of crisis management and emergency planning responded to the questionnaire. After the analysis of the responses from the first round of questionnaires was conducted, a second questionnaire was sent to the participants. Entirely based on the answers from the first round, it gave stakeholders the opportunity to read and react to the results of the first round of questionnaires as well as to summary proposals written by the researchers. This second questionnaire closed on July 3, 2019 with the participation of 64 people. The different aspects addressed by the online survey are: the definition of concepts (including a clarification of objectives), learning logics, the RETAC/RETEX operational framework, the organisation of feedback meetings (definition and follow-up of action plans), the question of individual responsibility within the RETAC framework.

Writing a guide and testing the proposed methods (PILOTING the proposition): During the third phase of the research, the researchers proposed an operational guide based on the results obtained in the Delphi study. The objective was to make a very concrete proposal for the implementation of a feedback framework. This report is composed of practical tools. This was to be put into practice - as a pilot test - during an exercise organised by the services of the governor of the province of Liège in a Seveso company (November 2019).

A validation focus group : from the very start, it was proposed to organise a last step of confirmation: with a focus group with key stakeholders from the province of Liège. The objective of this last step was to construct the final procedures for RETEX/RETAC structure and validate it with the operational teams. This step was not possible because the Covid-crisis put too much pressure on the different operational groups in charge of crisis management.

This planning shows that time is necessary for the activities: at each step, a lot of attention must be given to the propositions of the participants: enlarging the issue? Enlarging the network? The ‘metagovernor’ cannot use too much of constrain, because this would limit the quality of the input proposed by the active participants.

The planning presented here is based on the involvement of two experienced researchers who knew the field of EP&CM very well and whose reputation in the field was quite high. Consequently the cost of entry in the project was quite low and it did not take long to start the activities. Nevertheless, if such a project had been launched in a more “cost sensitive environment” for policy design, it could have taken less time: 9 months instead of 16.

3.2. THE “LIVING LABS” TEST – CASE : POLICY DESIGN AGAINST INTIMATE PARTNERS VIOLENCE

For the second Living Labs, the research team has proposed to address another field of action where more private actors (particularly NGO’s) are involved in the policy implementation. Therefore the work practices for collaborative policy design (and innovation development) will be implemented with partners, which are more used to such activities. This research action identifies the problems related to policy innovation using a bottom up dynamic from the very start, with a different type of metagovernor involved in a complex and non-hierarchical environment. This environment is more similar to the ones promoted by “social innovation labs” such as LEF Future Center (Utrecht – NL)³. The intervention was supposed to be much shorter in time, focusing mainly on the issues of **coordination between NGO’s and public administration (and authorities)** for supporting social innovation.

We decided to organise this action-research in the sector of “intimate partners violence”. In Belgium, domestic violence was defined in 2006 as part of the Belgian national plan. Since 2002, provincial coordination has been mandated to apply locally the various national action plans to combat violence between partners. In Belgium, there are two different implementation approaches in the north and south of the country. In the north of the country, provincial coordination has disappeared in favour of the establishment of Family justice centres (FJC) since 2015. The emergence of CJFs in Flanders is in line with the implementation of the Istanbul Convention , an integrated policy for dealing with cases of domestic violence and multidisciplinary work with a particular focus on the protection of victims. In Wallonia, the various provincial coordination continues to coordinate and facilitate multidisciplinary consultation through networking. Since 2009, a Walloon equal opportunities system and an intra-French-speaking plan to combat gender-based and intra-family violence have been put in place. In the different regions, NGO’s play a very active role in policy analysis, design and implementation.

³ For a good example of such activities: Rijkswaterstaat, 2019, Body of Practice LEF Future Center : ten years of practical experience in (social) innovation and facilitation;

On the development of such activities: Fuller, M. & Lochard, A.,2016, Public policy labs in European Union member states. Publications Office of the European Union.

THE PLANNED STEPS OF THE INTERVENTION

Phase 1: exploratory interviews + literature review + stakeholder mapping + analysis of available evaluation reports. The work was based in particular on the conclusions and recommendations of two recent evaluations: the evaluation of the mechanism to combat violence between partners conducted by the non-profit organisation Engender in 2017 for the Walloon Region⁴ as well as on the feasibility study carried out in Namur on the establishment of a CJF, carried out by CERIAS consultancy in 2018 at the request of the Provincial Coordination for Equality of Women and Men of the province of Namur⁵.

Phase 2: the group first planned to organize a workshop in February/March 2020 with field actors in Wallonia (justice centres, reception centres, non-profit organisations active in the sector, etc.). The programme (half a day) will be divided into two parts: two presentations **to create a common reference framework between actors** and then sub-group work in the form of a workshop. The objective will be to encourage participants to "think out of the box" through a participatory group facilitation technique. Participants will be invited to share their concrete work experience. Each workshop will be supervised by a facilitator and a rapporteur, the group discussions will be recorded and then transcribed. These groups meet the requirements of **the reflective collaborative workshop**, based on the sharing and analysis of personal experiences. Following this, a report in the form of an analysis of the content of the discussions in the workshops will be written by the researchers.

Phase 3: Writing a report with possible recommendations. Presentation to the heads of the organizations and the Provincial Coordination.

THE IMPACT OF THE COVID CRISIS

The research could not be fully executed due to the COVID crisis. Our partners (and particularly the governor's services) were submerged by other duties linked to their role in crisis management.

A series of interviews have been organised by the researchers with several NGOs and the platform coordinators in the Province of Liege and of Namur, with the heads of two police zones, of health services dedicated to sexual violence, and a member of the justice department in Liege.

We had finalised the list of persons to be invited by the governor to this day of work and there was a large interest from the NGO's to be associated to the discussions. But the workshop could not be organised and we had to stop the activity in the middle of phase 2.

4 Within the framework of the Regional Policy Declaration, the 2015-2019 National Action Plan to Combat All Forms of Gender-based Violence and the 2015-2019 Intra-French-speaking Plan to Combat Gender-based and Domestic Violence, the Walloon Government has undertaken to evaluate the Walloon system to combat violence between partners. This evaluation work was awarded by public contract to Engender vzw with a lead time of June to December 2016.

5 Presentation "Process for the implementation of a possible DCF model in the Province of Namur: strengths and weaknesses highlighted by the feasibility study of CERIAS Consultance and courses of action recommended by the project steering committee: Province and City of Namur, on 15/10/2018.

The length of the Covid crisis led the researchers to develop all their activities on line: it was the case for the meeting organised by the Province with NGO's. The collaborative approach has been organised on line through the same type of Delphi survey (January 2021): the participation of the operational groups was very high (NGO's, police and justice) giving more precise visions on the lines of tensions between the groups. Also the policy visions (and methods) mobilised in the French speaking and Flemish parts of the network are very different. This last point is a very interesting one: one part of the policy networks (justice and police) works in line with principles developed at the federal level while the other part (social workers and NGO's) develop their operational strategy and intervention within a more regional approach.

4. MAIN RESULTS FROM THE TEST CASES

Our main question at start was: Is it possible to create, stimulate and sustain innovation-enhancing collaborative governance arrangements by developing LL inspired institutional design and process management dynamics, within the Belgian politico-administrative regime. The main answer from the two case-studies is : YES. But two conditions are to be fulfilled, which are both in line with the principles of the LL methodology.

1. The methods must be open: no method "out of the self" can be applied from one case to another. Methods are to be selected and adjusted according to the context and the groups involved and the problem at stake
2. The LL is organized as an "action research" by taking stock of the experience of the field actors and with the by the deliberate and reflexive intervention of the researcher on the basis of hypotheses of action. Action research is by definition participatory since it associates from the start a series of actors sharing the same desire to reflect on the dysfunction / problem to solve it.

These two conditions are necessary to install places of "collaborative innovation" which are organised according to the principles of open innovation:

1. Organise the action research in a real-life context
2. Support an open mindset towards sharing and collaboration,
3. Develop techniques such as "context-mapping" which involves users intensively in creating an understanding of the contexts of service use
4. Develop "generative" techniques which can reveal tacit knowledge and expose latent needs

Our action research was grounded in social practices according to the propositions of Hajer & Wagenaar (2003) for a deliberative policy analysis built on the three pillars of interpretation, practice-orientation and deliberation. This is possible with action research by developing an intensive fieldwork and embracing the actors' perspectives seriously by focusing on both activities and meanings and narratives.

WHO IS THE METAGOVERNOR ? (HANDS OFF / HANDS ON)

The leadership of the action-research organized within this project (test case 1 and 2) was delegated to the university researchers (ULG-SPIRAL), who acted as a **'hands-on metagovernor'**. We were asked to develop the necessary processes, to define and contact the participants, to organize collaborative arrangements and to maintain long-term support and commitment.

It is important to distinguish these two metagovernance functions. The hands-on metagovernance is the leader of the collaborative process, the reference person for all participative activities and reports during the project. She is in contact with most of the actors taking part in the innovative dynamic. There is a distinction with the **"hands-off metagovernor"** whose involvement is more rhetorical support: he/she is delivering regularly a supportive message from the authority (here the governor services in Liege) towards all the participants, confirming as well the legitimacy of the hands-on metagovernor.

The contract with the services of the district governor was a clear sign of political support for the actors of the EP&CM sector. Although these public actors are not hierarchical dependent of the governor, the latter is considered as the authoritative reference in the sector: he/she is the referent for multidisciplinary EP&CM as a local representative of the federal Minister of Interior (the federal authority keeping the strategic and operational lead only for nuclear and terrorist crises). We consider the district governor as the 'hands-off metagovernor' of the project. It is very important to keep this in mind because PSI-CO's comparative case study emphasized the importance of political support for public sector innovation. The two metagovernors had to communicate regularly during the whole process to ensure the alignment of the operations on the strategic vision of the Governor Services: this is done through regular feedback from the researchers to the governor and some participation of the latter to large participatory events. Much attention is given to the balance between two risks faced by the researchers: on one side, developing a project which is not in line with the main objective of the political authority in the field (an issue which would prevent the active engagement of many civil servants); on the other side, being constrained by the political authority into predefined directions which would prevent open innovation and open-minded engagement of the participants (public and private).

We already had developed several participatory activities in the field of crisis intervention (EP). Ten years of discussions and participative training of field actors in the field gave us in-depth knowledge of the disciplines (D1 to D5 and the defense) and their way of functioning and collaborating (or not), as well as the structure of the sector (the roles of the disciplines, of the local and district level authorities and their relation to the federal minister of Interior) and of the legal and political frameworks at local, district, national and European levels. The researchers had taken part as observers to several large-scale exercises (TINEX, LAEX, KINEX) as well as local exercises.

During a former enquiry (Thiry et al. 2017) at the demand of federal authority, we were invited to answer to a very concrete issues for the development of the EP sector: "what are the priority dimensions to be addressed and financed in Seveso-EP?". Instead of a top down approach, we proposed to make a series of interviews and an open questionnaire to a large series of stakeholders. The main conclusion of the report was "we do not need equipment but formalized training through exercises".

With a double affiliation to the PSI-CO research project and to the district governor request, we were able to combine some resources for developing a local and dedicated "action research" on the conditions

fostering collaborative innovation between the stakeholders to have them develop a new frame for “Return from exercise” which would foster learning and sharing of information.

The Living Lab approach started with an identification of the active network with a set of interviews at the federal and district level in order to identify the main issues of concerns (problems encountered or opportunities for innovation) and with active participation in three RETEX exercises in order to identify what was identified as problematic by the field actors themselves and what was identified as problematic by the researchers. Selections of members of the network were thereafter invited to take part in participatory Living Lab activities.

DEFINING THE “BORDERS” FOR THE ACTION RESEARCH.

The first step is getting the **formulation of the problem and the context** to be addressed to start the process. The results of research published some years before (Fallon et al. 2016) had put at the fore the demand of the emergency planning sector countrywide for more exercises in emergency planning around Seveso sites. Emergency planning exercises are a legal obligation, and should be organized under the responsibility of the district governor, who told us that on her view exercises are taking place but that they are NOT contributing to any learning between the involved partners. This was the first problem definition which was presented to the participants as a starting point for consideration and was reformulated after the first participatory meeting: “there is no culture for learning in the EP&CM organizations”.

Through the larger Delphi enquiry, another problem definition was specified: “there is a learning culture in the different emergency planning organizations but there is no draft and follow up of action plans after debriefing and there is no multidisciplinary culture for learning in the sector at large”. This precision does not jeopardize the authority of the Governor, on the contrary, as he/she is the main responsible actor for multidisciplinary emergency planning.

The second step is to define the **borders for participation** (direct or indirect) to the collaborative arrangements. The metagovernors discussed a first list of participants: civil servants from all the disciplines, but on the level of actors responsible for the intervention in the field. These kind of actors are different in the different disciplines (eg. D1 for fire brigade, D2 for medical interventions and D3 for police): D1-D3 organizations are very hierarchical while the D2 is not so much an organization by itself but refers to hospital doctors trained in crisis management. The researchers also invited some private actors already involved in former discussion (Seveso industry, the bus company and railways,...) since these considered themselves as stakeholders and because they came with a “sector-as-a-whole” sight: they put at the fore their own problems but also question the problems they observed on the field and particularly the cooperation between the disciplines (eg. during a crisis or an exercise).

At the first large meeting (Dec. 2018), the stakeholders were invited to propose names of other potential stakeholders to enlarge the collaborative dynamics: we received names from the “provincial school for EP planning”, specific names from discipline actors who had already taken part in crisis / exercise management and seemed to be able to add to the process thanks to their experience, etc. The research group made contact with all the extra names to discuss with them and invite them to participate in the process. The researchers also decided by themselves to contact other persons: heads of police zones, university researcher working on post-crisis trauma healing, etc.

Constructing joint ownership can be achieved through conviviality and thanks to common field experience.

A workshop was organized in a convivial environment with an audience of 39 stakeholders from different disciplines and private actors. We presented some preliminary statements (on the basis of Glesner, 2017) and these were discussed within 4 panels organized as “focus groups”. The participants were asked to react by mobilizing examples from their own practices during the discussions in panels.

At the end of the meeting, after a wrap-up discussion, the participants were asked to fill an evaluation form and the analysis of the comments in the forms revealed that the participants did not really learn new “things” but enriched their own view by integrating others’ views: all participants agreed to continue the process. During the discussions, we received a lot of feedback and new lines for thought, such as the problem of tight resources (in terms of budgets and time) to exercise, the absence of interest with the local authority and the issue of addressing liability questions during a post-crisis debriefing.

The discussions in each panel were recorded and a summary of the items covered was provided. After analyzing the content of the 4 panels, the researchers proposed to reformulate the problem to be considered, and for more clarity, they increased the emphasis on the distinction between RETEX after an exercise and after a crisis (now called RETAC). Propositions were reformulated on the basis of the experience and practices of the participants.

In a second step, in order to analyze the issues with a larger group of stakeholders, and test some preliminary propositions, we used an online Delphi (Mesydel) (François et al., 2011): the Delphi technique is an iterative and anonymous participatory method used for gathering ‘expert’ knowledge with an efficient, inclusive, and structured approach, with reduced social pressures among respondents (Mukherjee et al, 2015). It can achieve a communication process, which minimizes hierarchical relationships, and promotes intersubjective understanding between participants.

The respondents were asked to react to propositions and to embed their answers in their own practice, mobilizing as many examples as possible: referring to examples does not only enrich the discussion process, it also helps to share good practice or to illustrate propositions / problems and it also ensures that the participants are thinking about very contextualized experience when writing their answers⁶.

All participants from the discipline had experience in crisis / exercise management and debriefing. This was not the case for the local civil servants in charge of emergency planning in their locality and who had been invited because they had a Seveso industry on their territory: their answers in the Delphi were less informative and less relevant to the question at stake, because they could not mobilize their own experience as the respondents from the disciplines did.

⁶ From the 176 persons invited, 76 did answer the questionnaire, which is a very good response rate, considering that many of the invited persons were “local emergency planning officers” and not directly involved in a discipline: the questionnaire is 90% qualitative, with open questions and it took +/- 20 minutes to fill out.

Referring to personal experience during the panel (step 1) or during the Delphi (step 2) is considered very important: it ensures that the materiality of the procedures is taken on board and that each proposition is grounded on personal expertise and is presented with a high attention to the context of intervention.

It is very important to ask respondents to enrich their answers with examples or repetitions, to make sure that the different disciplines understand what is being proposed: they do not share the same approach nor the same vocabulary.

Creating a common ground for communication on the policy/relational/political dimensions of the problem.

An important dimension of the process is to start an open-ended approach rather than impose the orientations for a solution: the metagovernors then have to create the conditions for active communication, to control power relations and dominant positions, and to leave the discussions open for as long as possible. This open-endedness is also a challenge because it means that there are no a priori joint communication tools and these have to be created during the process. The participants from the disciplines do somehow share the same concerns based on the experience of the same type of events (they all had to face crises), but an important point is that each discipline on the one hand has to intervene during the crisis with different objectives, tools, roles and priorities. On the other hand, also the type of communication (before / during / after the crisis) is specific for each type of discipline, each organization mobilizing a specific culture (e.g. firemen do not communicate in the same way as medical doctors do). Nevertheless, all the participants mobilize the same legal reference in EP&CM and they are aware of their obligations, such as the importance of exercise, of debriefing and of drafting action plans... But here again each discipline is used to its own way of working. To organize a multidisciplinary debriefing and action plan is more demanding.

The position of the industry is quite different: they comment on the discussions and they know that they have to take part to the debriefings and to design their action plans, but they refer much less to the legal frame which does not apply to them directly.

It is possible at each step to create and share conceptual categories. During the discussions in the panels and between the two rounds of the Delphi survey, the researchers had to decide how to stabilize some propositions (eg. how to organize the debriefing steps in the process?) or some categories (eg. learning from exercises or from crises are different processes and should be named differently). These propositions were thereafter presented back to the participants who had to position themselves: do they accept the reformulation of a concept or not? It was also a way to stabilize some items by “blackboxing” them. Here, the researchers were taking a step within the process to take stock of the information collected and propose initiatives to further the process.

SHOWING THE EVOLUTION AND ACHIEVEMENTS OF THE PROJECT AND MOBILIZING THE PARTNERS

It is difficult to balance the need to remain open to new stakeholders or to new issues and at the same time to show that the process is ongoing. This is a question of balance between keeping issues open (to be able to adjust them) and to sometimes close up some phases to show that the process is developing and leading to some shared positions between the stakeholders.

Another important issue is to ensure mobilization: this means that the metagovernor has to make sure that each participant is really a spokesperson from his/her organization and that he/she will not defect and remain in the collaborative process. This point refers to the methodological approaches derived from the sociology of science (Actor-Network Theory in Callon 1986) considering that innovation is constructed through a series of steps of translation coordinating heterogeneous actors. For analyzing these translation processes at work, specific 'moments' are discerned: "problematization" and the definition of the nature of the problem, the identities of the actors and the rationale behind; "interessement" and the lock-in of different actors into the proposed program of actions; "enrolment" as a set of strategies in which the spokesperson try to define and interrelate the various roles they allocated to others; "mobilization" to make sure that each spokesperson is truly representing its collectivity and that this will not defect. This last step is the most problematic for the metagovernor: the issue at stake is the question of reliability of the participants: do they represent their collectivity?

THE INNOVATION OUTPUT

The research team was able to develop a new tool for analysing the multidisciplinary debriefing : upon the demand of the Dir PCOPS, the tool was tested in a real case after a large accident. It was a successful test. The accident was an opportunity of organizing a pilot test.

Further steps for validation will be organised after the Covid-crisis.

5. RECOMMENDATIONS

It is possible to create, stimulate and sustain innovation-enhancing collaborative governance arrangements by developing living-lab inspired institutional design and process management dynamics, within the Belgian politico-administrative regime. Two conditions are to be fulfilled, which are both in line with the principles of the methodology of a “policy lab”:

1. The methods must be open: no method “out of the self” can be applied from one case to another. Methods are to be selected and adjusted according to the context and the groups involved and the problem at stake
2. The LL is organised as an “action research” by taking stock of the experience of the field actors and with the deliberate and reflexive intervention of the researcher on the basis of hypotheses of action.

These two conditions are necessary to install places of “collaborative innovation” which are organised according to the principles of open innovation:

1. Organise the action research in a real-life context
2. Support an open mindset towards sharing and collaboration,
3. Develop techniques such as “context-mapping” which involves users intensively in creating an understanding of the contexts of service use
4. Develop “generative” techniques which can reveal tacit knowledge and expose latent needs

From the case studies, we can propose some points of attention when organizing such collaboration

A. Defining ex ante “who are the metagovernors”

- the “**hands-off metagovernor**” whose involvement is more rhetorical support: he/she is delivering regularly a supportive message from the authority towards all the participants, confirming as well the legitimacy of the hands-on metagovernor. He/she proposes a first **formulation of the problem and the context** to be addressed to start the process.
- The “**hands-on metagovernor**” develops the necessary collaborative processes, to define and contact the participants, to organize collaborative arrangements and to maintain long-term support and commitment.

B. Defining collaboratively the borders for the living labs

- Redefine collaboratively the **formulation of the problem and the context** to be addressed to start the process.
- Redefine collaboratively the **borders for participation** (direct or indirect) to the collaborative arrangements.

C. Constructing joint ownership through conviviality and thanks to common field experience.

- Conviviality increases the possibility for sharing tacit knowledge
- Conviviality is important to create ad hoc groups which are not the usual “clique”
- Sharing experience helps develop common language
- Referring to personal experience ensures the integration of the materiality of the procedures

D. Creating a common ground for communication on the dimensions of the problem.

- Create the conditions for active communication, to control power relations and dominant positions,
- Leave the discussions open for as long as possible

E. Ensure mobilization

- Mobilize the participants to ensure collaboration to the open innovation process
- Mobilize the participants as spokesperson of their personal network
- Organize pilot steps or interim reporting to show the advancement of the work

It is difficult to balance the need to remain open to new stakeholders or to new issues and at the same time to show that the process is ongoing. This is a question of balance between keeping issues open (to be able to adjust them) and to sometimes close up some phases to show that the process is developing and leading to some shared positions between the stakeholders.

BIBLIOGRAPHY

- Bason C., 2017, *Leading Public Design: How managers engage with design to transform public governance*, PhD Series 21.2017
- Bouckaert, G., Peters, B., Verhoest, K. (2010), *The coordination of public sector organizations: shifting patterns of public management*. London Hampshire: Palgrave Macmillan
- Callon M., 1986, «Éléments pour une sociologie de la traduction : la domestication des coquilles St-Jacques et des marins pêcheurs dans la baie de St. Brieuc», *L'Année Sociologique*, numéro spécial : La sociologie des Sciences et des Techniques, 36, p.169-208.
- Emirbayer M., 1997, Manifesto for a Relational Sociology, *American Journal of Sociology*, Vol. 103, No. 2 pp. 281-317
- François, A., Rieppi, S. and Thiry, A. (2003) Démarches participatives et approches quali-quantitatives. Le projet logiciel Mesydel 2012. In: La participation en action. Edited by F. Claisse, C.
- Glesner C., 2018, Construction d'un cadre d'analyse de crise pour la province de Liège, <http://hdl.handle.net/2268/223780>
- Granovetter M., 1985, Economic Action and Social Structure: The Problem of Embeddedness. *American Journal of Sociology* 91 (November): 481-510
- Hajer M. & Wagenaar H., 2003, *Deliberative Policy Analysis: Understanding Governance in the Network Society*, Cambridge University Press.
- Koppenjan, J. F. M., & Klijn, E. H. (2010). *Managing uncertainties in networks: a network approach to problem solving and decision making*. Psychology Press.
- Koppenjan, J., & Klijn, E. H. (2016). *Governance networks in the public sector*. Routledge.
- Lasker, R. D., Weiss, E. S., & Miller, R. (2001). Partnership synergy: a practical framework for studying and strengthening the collaborative advantage. *The Milbank Quarterly*, 79(2), 179-205.
- Lewis, J.M. and Ricard, L.M. (2014). *Innovation capacity in the public sector: Structures, networks and leadership*. LIPSE working papers (no. 3). Rotterdam: Erasmus University
- Mukherjee N. et al., 2015, The Delphi technique in ecology and biological conservation: applications and guidelines, *Methods in Ecology and Evolution*, Vol.6 (9) pp. 1097-1109
- Sanders, E.B.-N. and Stappers, P.J., « Co-creation and the new landscapes of design », *CoDesign : International Journal of CoCreation in Design and the Arts*, 4(1), 2008, pp.5-18.
- Schaffers H. et al, *Integrating Living Labs with Future Internet Experimental Platforms for Co-creating Services within Smart Cities*, 17th International ICE Conference, Aachen
- Sleeswijk Visser, F., Stappers, P.J., van der Lugt, R. and Sanders, E.B.-N., « Contextmapping: Experiences from practice », *CoDesign: International Journal of CoCreation in Design and Arts*, 1(2), 2005, pp. 119-149.
- Sørensen, E., & Torfing, J. (2011). Enhancing collaborative innovation in the public sector. *Administration & Society*, 43 (8): 842–868
- Thiry, A., Verhaegen, M., Fallon, C., Bergmans, A., & Desmet, K. (2017). *Benchmark et analyse des écarts pour la planification d'urgence externe relative au risque Seveso*. ULg - UA. <http://hdl.handle.net/2268/208988>

White H. (1996), "Network Switchings and Bayesian Forks: Reconstructing the Social and Behavioral Sciences." *Social Research* 62:1049