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NETWORK

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MANAGEMENT SUMMARY

The Public Sector Innovation through Collaboration (PSI-CO) project aims to contribute to the empirical understanding of collaborative innovation in the public sector. Budget pressures, wicked problems and globalization force public sector organizations to innovate their policies and services. Traditional approaches to setting up and implementing innovation are not sufficient anymore. Collaborating with other actors such as public organizations, private partners, interest groups and citizens is a possible new approach for developing innovations (Bommert, 2010; De Vries, Bekkers, & Tummers, 2016; Sørensen & Torfing, 2011).

This report is the result of Work Package 7 (WP7) which examines the extent to which New Ways of Working (NWW) foster or hamper (the conditions for) collaborative innovation. It explores the direct effects of NWW on (collaborative) innovation as well as the indirect effects wherein NWW impact the conditions of collaborative innovation (i.e. individual, organizational and metagovernance) and these in turn impact collaborative innovation itself. The research approach included a quantitative part and a qualitative part. In the quantitative part we used data from the survey of Work Package 6 (WP6) which examined the extent to which the conditions for collaborative innovation are present in the federal ministries and agencies of Belgium and the effect of those conditions on different aspects of innovations. For the qualitative part, we selected two collaborative innovation projects as cases. We conducted semi-structured interviews with key participants in these projects to gain a deeper understanding of the relationship between NWW and collaborative innovation.

This management summary is structured as follows: (1) main conclusions of the literature review, (2) methodology used, (3) main conclusions, and (4) recommendations.

MAIN CONCLUSIONS OF THE LITERATURE REVIEW

New Ways of Working (NWW) is an integrated set of working methods and principles that provides more flexibility and autonomy to employees. Since the 1960s, the environment around organizations has become more volatile, uncertain, complex and ambiguous as a result of increasing new demands such as flexibility, innovativeness and workability (Van Hootehem, 2015). Concepts as New Ways of Working or Workplace Innovation, which are based on the principles of Modern Sociotechnology, have gained popularity to achieve a more flexible work organization. Most recently, the COVID-19 crisis forced employers and employees to adapt their way of working to the principles of NWW. Baane, Houtkamp and Knotter (2010) identified four work principles of NWW: (1) time and place independent working, (2) management by results, (3) free access to and circulation of knowledge, information and experiences, and (4) flexible employment relationships. In this Work Package, we focus on the first three principles.

When reviewing the literature, we found that many effects of NWW on the individual level and the employee well-being have already been identified. However, research on the potential contribution of NWW to collaborative innovation is scarce or almost lacking (Lindsay e.a., 2018). As direct effects we found that NWW could be beneficial for the innovative work behaviour of employees (De Spiegelaere, Van Gyes, Benders, & Van Hootehem, 2013) and for collaboration due to the flexibility of working on other locations (Bijlsma, Janssen, de Koning, & Schlechter, 2011). Indirect effects are effects of NWW on the conditions of collaborative innovation. NWW could be advantageous for knowledge and information sharing, trust, organizational culture, red tape and leadership, conditions that at their turn positively influence collaborative innovation.

METHODOLOGY

For the quantitative study, we used data from the survey of Work Package 6. This was an online survey administered to the three highest managerial levels of the federal ministries and agencies of Belgium. In total, 628 people completed the survey, which represents a response rate of 35.2%. For this report the main dependent variables were: (1) extent of developed innovations per type, (2) origin of developed innovations, (3) satisfaction with developed innovations, (4) degree of implementation or testing of developed innovations in the own organization, and (5) extent of collaboration of organizations with other actor. The main independent variables, related to NWW, were: (1) degree of teamwork, (2) degree of self-management of teams, (3) time independent working, (4) place independent working, and (5) motivations for implementing new ways of working.

For the qualitative part study, we selected two cases of collaborative innovation involving the federal government. The cases were selected based on the following criteria: involving ongoing collaboration projects aimed at some kind of innovation involving multiple public actors. The two cases studied are: 'Work Integration' and 'Domestic Violence'. These cases aimed at an innovation of a public policy or service by collaborating with different actors, namely federal, Flemish, local or regional governmental organizations, and non-profit organizations. The data collection included semi-structured interviews in which respondents were asked about (1) their experiences with the project in terms of collaboration and innovation, (2) the extent to which NWW was implemented in their organizations, and (3) whether they perceived an effect of NWW on the collaborative innovation project and how this effect was perceived.

MAIN CONCLUSIONS OF THE QUANTITATIVE AND QUALITATIVE PART

When we bring together the results of the quantitative and qualitative part, we can conclude that NWW has both a direct and indirect effect on collaborative innovation. Although it is not self-evident to link NWW with collaborative innovation, the presence of NWW in federal organizations can indeed be beneficial for the organizations itself and in supporting collaborative innovation. We found that **teamwork and teams having autonomy over work-related matters** seems to have the most important direct impact on collaborative innovation. Furthermore, **time and place independent working** have both direct and indirect effects on collaborative innovation. The direct effects showed an obstructive effect of low time flexibility, yet **a conducive effect of high time flexibility on the development of some types of innovations**. Additionally, place independent working can have a direct effect in terms of **mobile work positively affecting the involvement of and engagement with dissimilar collaboration partners** such as citizens and non-profit organizations. However, the indirect effects show that while overall having little flexibility in terms of time and place independent working does not seem to substantially hamper collaborative innovation, it can still be beneficial if one can make use of time and place independent working. For example, our research emphasized the importance of **job autonomy and time and place independent working** for participants to manage their different job and project responsibilities, enabling them to participate better in the project. Markedly, a high degree of job autonomy does not only apply for the regular job responsibilities but also for the project, setting clear boundaries in which they can work autonomously as they see fit in such collaborations. This means that participants in collaborative innovation projects should receive a mandate for their participation in the project. Lastly, being able to **use one's own laptop** or to have access to **information sharing tools** seems to be facilitating for the process of collaborative innovation.

RECOMMENDATIONS

Based on our results, we formulated some recommendations for policymakers in the federal government and for management in the federal ministries and agencies.

- **Commit to more team-based organizations.** Organizations in which more than half of the employees work in teams seem to have a fostering climate for the development of innovations as well as the satisfaction and experimenting with it. Furthermore, working in teams could also advance the engagement in collaborations aimed at innovations and in collaborations with citizens.
- **Reflect on which types of decision making autonomy could be allocated to teams.** The autonomy to choose a team leader could enhance collaboration with governmental actors. However, this is a power that not many teams in the federal government have and thus it could be considered whether this is something teams could decide on for their selves. Team-based decision making powers related to the work organization (i.e. mutual division and planning of work, working method and quality management) are already assigned to many teams. Granting these decision making powers to teams seem to be positive for the development of technological and service innovations, the experimenting with innovations and the involvement in collaborations for innovation.
- **Stay committed to allowing enough flexibility in terms of time independent working.** Time independent working could facilitate the development of service innovations and innovations that are being developed more externally. Moreover, time independent working can offer employees the needed flexibility for their participation in a collaborative innovation project.
- **Weigh up the advantages and the disadvantages of time registration.** Time registration can entail advantages (i.e. controlling for too much overtime and compensating) yet also brings with it disadvantages (i.e. administrative burdens and sense of distrust). Engage in conversation with your employees on their needs and their opinion about whether or not to register working hours.
- **Accommodate the legislation to the current needs of employees and employers.** In May 2019, the European Court of Justice clarified the interpretation of the European directive regarding working and resting times. It said that member states should impose an obligation on employers to provide a system which records daily working time. This system should guarantee the legal working and resting times of employees. However, such a system would imply a restriction on time independent working without time registration. This shows that the legislations regarding working times are not in line with the principles of time independent working. We, therefore, recommend assessing how legislation can protect employees in (precarious) jobs both in the private and public sector while at the same time taking into account the current needs of employees and employers more broadly.
- **Strengthen the ability to do mobile work.** Mobile work includes working from different locations such as telecommuting or from other locations than home or satellite offices. Mobile working is not yet highly applied in the federal government. Nevertheless, it could advance the collaboration with non-public actors such as citizens and non-profit organizations, as well as with public organizations from other policy domains.
- **Consider the ability of homeworking in the context of collaborative innovation projects.** The ability to work from home was perceived as facilitating for the engagement of participants in collaborations projects aimed at collaborative innovation. According to the respondents, this allowed them to manage their responsibilities for both their normal job and the project efficiently and effectively.

- **Apply NWW as a tool for managing tensions between project responsibilities and regular job responsibilities.** The engagement in collaborative innovations projects often comes extra, on top of the regular job responsibilities. The flexibility and freedom accompanied by job autonomy and time and place independent working offers the necessary flexibility to deal with the tensions this brings about.
- **Assign part of the employees' working time to their participation in collaborative innovation projects.** Many respondents mentioned the conflict of investing enough time in the collaborative innovation project while maintaining their regular job responsibilities. Whereas they emphasize the importance of combining the project with their normal job, a good balance between the two is only achievable when reviewing the normal task package in order to allocate a part of the working time to the collaborative innovation project.
- **Give employees a mandate for their engagement in collaborative innovation.** Not having to ask consent by superiors for actions planned and decisions taken in the project itself, is perceived as essential for the efficient process of collaborative innovation. Job autonomy thus not only applies to participants' performance inside the own organization but also in collaborative innovation projects. This mandate should set the boundaries within which the employees act in the way they see fit in such collaborations.
- **Invest in (further) digitization.** ICT is one of those indispensable NWW elements which is also of great importance for the process of collaborative innovation. Efforts to further implement or maintain the digitization (i.e. providing employees an own laptop) of federal ministries and agencies are needed. This, additionally, includes training of employees aimed at increasing digital literacy.
- **Use of information sharing tools.** The use of an ICT tool aimed at sharing information outside project meetings is perceived as facilitating for the collaborative innovation process. With this tool, information can be exchanged in an organized and efficient way outside the project meetings. However, communication and information regulations (i.e. privacy and confidentiality) need to be taken into account when introducing information sharing tools.
- **Find the optimal balance between face-to-face and virtual contact.** Our research confirms the premise that a minimum of face-to-face contact is crucial for trust building and information sharing between project participants. Additionally, this facilitates people's collaboration on issues not related to the project which, in turn, increases the *interconnectedness* of organizations within the federal government as well with other (governmental) actors. Nevertheless, virtual communication should be used to stay connected next to the physical meetings.

THE PSI-CO PROJECT ON PUBLIC SECTOR INNOVATION THROUGH COLLABORATION

Nowadays, public sector innovation (PSI) is high in government agendas across OECD countries. New evolutions with concomitant challenges, such as budgetary pressures and wicked problems, oblige public organizations to find a new way to handle these new issues. Whereas traditional approaches are not sufficient anymore, collaboration (CO) with citizens, interest groups, private partners or other governmental organizations is perceived as a possible answer to this changing reality. Despite the growing awareness of the need for collaboration, there is a lack of knowledge about how such collaborative governance arrangements result in meaningful innovations regarding policies and services, and how different forms of collaborative governance interact and reinforce each other. Furthermore, it is unclear which organizational and individual conditions need to be present within administrations to foster collaborative governance arrangements.

The Public Sector Innovation through Collaboration (PSI-CO) project wants to enhance the existing scientific knowledge on collaborative innovation in the public sector and, additionally, wants to formulate evidence-based recommendations for policy and practice. The overall research question of this project is: *how and under which conditions do collaborative governance arrangements foster the initiation, adoption and diffusion of innovations in policies and services?*. To answer this central research question, different sub questions have been formulated and assigned to different Work Packages, using various types of research methods. Following an extensive study of the literature, nine in-depth case studies were conducted, providing qualitative (interviews) and quantitative (survey) insights into nine cases of collaborative innovation within the Belgian federal government (**Work Package 3**). By conducting more than 100 interviews with public actors, citizens, private actors and other stakeholders, first findings could be developed in terms of which variables were most relevant to stimulate collaborative innovation at the individual, organizational and network level. In **Work Package 4** these initial findings were validated by conducting a Delphi study among the case study respondents and other civil servants, and validated with the findings of recent international research. In addition, two living labs are ongoing (**Work Package 5**), in which interventions in processes of collaborative innovation are actively tried, studied, and adjusted at the same time. In **Work package 6** of the PSI-CO project a gap analysis based on a survey in the federal government organizations was conducted. Work Package 7 and Work Package 8 respectively studied New Ways of Working and the innovation architecture. Case studies and interviews serve as a basis in these two Work Packages to see how (aspects of) News Ways of Working affect collaborative innovation (**Work Package 7**); and which instruments, technologies and processes can stimulate radical innovation and co-creation (**Work Package 8**).

THEORETICAL AND CONCEPTUAL FRAMEWORK OF THE PSI-CO PROJECT

The PSI-CO project's main assumption is that public sector innovation is enhanced by collaboration between different actors. Due to the complexity of many societal problems and the increased demands of citizens for government services, public sector innovation is increasingly a process in which different actors bring together different resources that are necessary for the development of such innovations. We identified three types of conditions (individual, organizational and metagovernance) which influence the process of collaborative innovation. Figure 1 shows how these concepts are linked with each other.

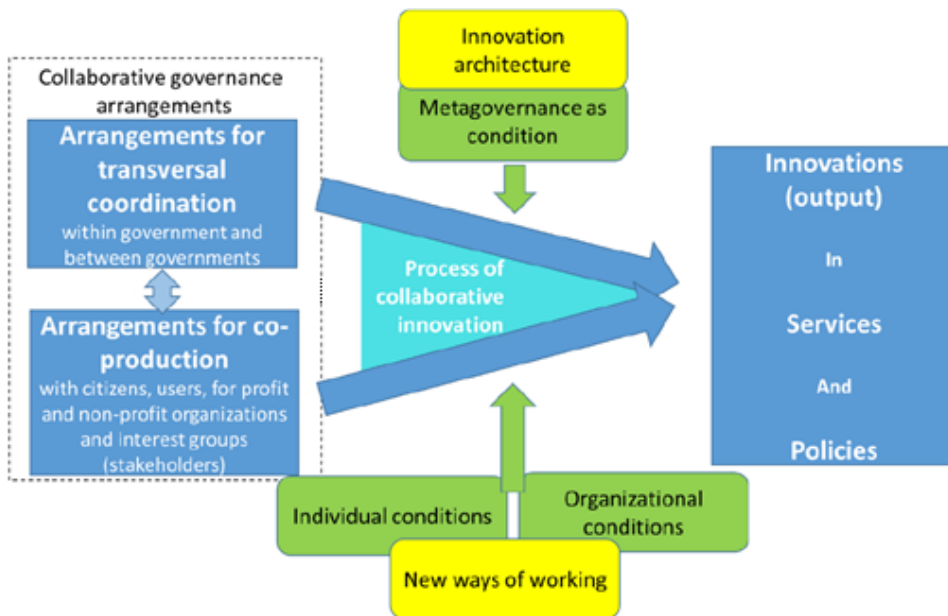


Figure 1: Conceptual framework of the PSI-CO project

The aim of the research project is to study how the different conditions lead to public sector innovation through collaboration. Collaboration can be (1) within and between governments, and (2) with citizens, users, for profit and non-profit organizations and interest groups. The output are innovations in services and/or policies. This research project tries to unravel the black box in-between: the process of collaborative innovation. Furthermore, New Ways of Working and the innovation architecture is expected to have an influence on the different conditions for collaborative innovation.

GOAL AND APPROACH OF WORK PACKAGE 7 IN THE BROADER PSI-CO PROJECT

This report covers the results of Work Package 7 (WP7), called New Ways of Working and collaborative innovation, of the Public Sector through Innovation (PSI-CO) project. New Ways of Working is an integrated set of working methods and principles that provides more flexibility and autonomy to employees. The central research question of WP7 is: *to what extent do new practices of organization and HRM like New Ways of Working in the federal ministries and agencies of Belgium hamper or foster (the conditions for) collaborative innovation?*. In this Work Package we, therefore, aim (1) to identify the implementation of New Ways of Working in the Belgian federal government and (2) to determine the effect of New Ways of Working on (conditions for) collaborative innovation. In order to answer this research question we studied the features of New Ways of Working in federal ministries and its relationship with collaborative innovation.

As a result of this, a mixed methods research design was chosen. We collected qualitative data through case studies, including two collaborative innovation projects, in which we conducted semi-structured interviews.¹ Next to this, a quantitative survey was conducted in which the different variables of the PSI-CO conceptual

¹ In the original PSI-CO plan, it was foreseen to use the interview data from the nine case studies of Work Package 3. However, after a first exploratory analysis, it became clear that there was not sufficient data regarding New Ways of Working to research the relationship between New Ways of Working and collaborative innovation in depth. To avoid over-questioning of respondents, we decided to select two new case studies in which we fully focused on studying New Ways of Working and its impact on collaborative innovation.

model were measured. This survey was part of Work Package 6, the quantitative phase, and was aimed at the three highest managerial levels of the federal ministries and agencies. By combining the results of these two methodologies we aspire to get an as complete as possible answer on our research question (Bryman, 2012).

The first part of this report provides a theoretical framework in which we clarify the concept of New Ways of Working and overview the literature on the relation between New Ways of Working and collaboration and/or innovation. Part 2 describes the quantitative results while Part 3 shows the findings from the qualitative research. The corresponding elaborated methodology is described separately for the quantitative and qualitative part respectively. In the Part 4, the main results of the qualitative and quantitative parts will be brought together, which leads to a general conclusion that provides an answer to the research question. Based on this, Part 5 formulates some recommendations for both the federal government (political level) and the federal ministries and agencies.

1. THEORETICAL FRAMEWORK

Due to the COVID-19 crisis, everyone was forced to switch en masse to work from home (eventually on different times as well) and to manage tasks and employees from a safe distance. These relate to one of the main work principles of 'New Ways of Working' which becomes the new normal in a fast pace. However, this phenomenon is not something new. Since the beginning of the 21st century, concepts as 'New World of Work' and 'New Ways of Working' (NWW) have emerged as a result of an increasing sense that the traditional way of work organization is no longer tenable. A changed environment and concomitant new demands such as flexibility, innovativeness and workability have forced organizations to search for a more flexible work organization (Bijl, 2009; Blok, van der Meulen, & Dhondt, 2017; Van Hootegem, 2015). Both private and public organizations have widely implemented the principles of NWW, drawing upon the approachable insights from NWW 'founders' and business professionals Baane, Houtkamp and Knotter (2010) and Veldhoen (2005) (Blok e.a., 2017). However, the downside of this popularity is that there exist multiple interpretations of NWW and, additionally, that in practice NWW is often equated with the implementation of small and isolated changes such as teleworking and open-plan offices (Blok, Groenesteijn, van den Berg, & Vink, 2011; Blok e.a., 2017; Delagrance, 2014).

In this theoretical framework we will first briefly discuss the background of NWW, followed by a conceptual explanation of it. Next, an overview of the theoretical findings about the potential effect of NWW on collaborative innovation will be given.

1.1. BACKGROUND

The concept of New Ways of Working is associated with a new way of work organization. Work organization is *"the way tasks are organized and coordinated within the context of an overarching work system"* (Cordery & Parker, 2007, p. 188). The current way of work organization, in which New Ways of Working has its foundation, is based on the insights of the (Modern) Sociotechnology (see infra).

However, this approach needs to be framed in a broader evolution of organizational approaches, starting with the Scientific Management of Frederick Taylor (1856 – 1917) in which vertical and horizontal division of labor was one of the key principles (Anseel & Lievens, 2015; Berings, Steen, & Grieten, 2016). Reacting against this rational approach, a new movement emerged: the Human Relations Movement. This approach, mostly known for the Hawthorne-experiments of Elton Mayo (1880 – 1949), had more attention for the social aspects related to work (Anseel & Lievens, 2015; Berings e.a., 2016; Boselie, 2014). In the 1950s motivation theories of Abraham Maslow (1908 – 1970), Frederick Herzberg (1923 – 2000) and Douglas McGregor (1906 – 1964) arose in the context of a new movement the Revisionism which reacted against but also built on both the Scientific Management and Human Relations Movement. The main idea in the Revisionism is that employee engagement could be increased by linking employee behavior to organizational performance (Berings e.a., 2016; Boselie, 2014). Almost simultaneously with the Revisionism, which was mostly advanced in the United States, the Sociotechnology was being developed in Europe (Berings e.a., 2016). This movement has its origins in the studies of the Tavistock Institute of Human Relations concerning the Durham coal mines (1950 – 1958). The socio-technical design approach state that some kind of joint optimization must be achieved between the technical subsystem (production process) and the social subsystem (people and their interrelationships) of organizations. This can be achieved by increasing local control capacity in the social system, which in turn benefits the manageability of the technical system (Berings e.a., 2016; Kuipers, van Amelsvoort, & Kramer, 2018). While the Sociotechnology mainly focused on the quality of the work and the (re)design of the group

task, over the years it has evolved towards a more integrated design approach, with attention also being paid to other demands such as the quality of the organization and the labor relations. This has led to a new movement, namely the Modern Sociotechnology, partly thanks to the work of Ulbo de Sitter (1930 – 2010) (Kuipers & van Amelsvoort, 1992; Kuipers e.a., 2018).

This evolution of organizational approaches can be summarized as a shift from a Tayloristic organization – characterized by vertical and horizontal division of labor, control mechanisms, many rules and procedures, hierarchy and central coordination (Anseel & Lievens, 2015; Tjepkema, 2003a; van Amelsvoort & Van Hootegem, 2017; Van Hootegem, Huys, Van Beek, & Beens, 2008; Van Hootegem, Van Amelsvoort, Van Beek, & Huys, 2008) – to a flexible organization with a process oriented structure and minimal segmentation of the work process (Molleman & Van der Zwaan, 1994 in Tjepkema, 2003a). From the 1970s organizations had to face an environment that is volatile, unsecure, complex and ambiguous (i.e. VUCA-world). Until then, productivity was the main focus for organizations. However, more demands like quality, flexibility, innovativeness, sustainability and workability arose from the market (Van Hootegem, 2015).

Although this shift in organizational approaches took place in a broader context, a parallel evolution is also noticeable in the public sector (Van Dooren, 2017). At the end of the 19th – early 20th century, the public administration could be seen as a typical example of Weber's rational bureaucracy in which hierarchy, defined tasks and procedures were central (Hondeghe, 2017). New Public Management (NPM) emerged in the 1980s with a greater emphasis on results rather than procedures (Hondeghe, 2017; Hood, 1991). Additionally, the public sector organizations evolved to being more product-oriented and characterized by a flatter hierarchy (Dunleavy, Margetts, Bastow, & Tinkler, 2005 in Hondeghe, 2017). In response to the NPM, a new model emerged, namely the New-Weberian State model (NWS) that emphasized that the public sector cannot simply be mirrored to the private sector (Mazur & Kopycinski, 2017). It therefore combines some Weberian elements with some new ones, such as more customer focus (Berings e.a., 2016). Finally, at the beginning of the 21st century, a new approach in the public sector emerged: the New Public Governance model, which focuses on flexibility towards citizens and the re-engineering of back-office processes (Hondeghe, 2017). This evolution shows that the public sector is also subject to the changing environment and is therefore also forced to evolve in its way of work organization.

1.2. WORKPLACE INNOVATION AND NEW WAYS OF WORKING

1.2.1. WORKPLACE INNOVATION

While the contradiction between a Tayloristic and flexible organization is situated at a rather theoretical level, a more practical work organization model, also inspired by the principles of Sociotechnology, emerged. This model, (Total) Workplace Innovation, already has many applications in the Netherlands and Belgium. In 2013, the European Commission established a European Network for Workplace Innovation (EUWIN) to encourage its use. Workplace Innovation finds its foundation in different theories but is mostly based on the insights of the Modern Sociotechnology theory from De Sitter (De Sitter, 1981; Pot, Totterdill, & Dhondt, 2016). Workplace Innovation (WPI) can be defined as:

“... an integral set of participative mechanisms for interventions relating structural (e.g., organizational design) and cultural aspects (e.g., leadership, coordination and organizational behavior) of the organization and its people with the objective to simultaneously improve the conditions for the performance (i.e., productivity, innovation, quality) and quality of working life (i.e., wellbeing at work, competence development, employee engagement). (Oeij & Dhondt, 2017, p. 66)

From this definition we can infer that WPI aims at combining a better organizational performance with a better quality of working life. Instead of tackling separate problems ad hoc, WPI is an integral approach that incorporates strategical, structural and cultural aspects (Oeij & Dhondt, 2017; Oeij, Dhondt, Žiauberytė-Jakštienė, Corral, & Preenen, 2016).

EUWIN developed a framework for WPI called “The Fifth Element” which connects research evidence with practical experience. The idea behind this Fifth Element is that combining four elements would lead to a fifth one, WPI. The First Element is job design and work organization in which jobs are designed in a way that fosters the development and deployment of employees’ competencies. It includes empowered jobs, high demand-high control jobs, and self-managed teams. The Second Element is about structures and systems that entail less hierarchy, thus a more horizontal organization, and less control systems and procedures. The Third Element contains learning, reflection and innovation. It is hereby important to encourage and support employees to be creative and innovative and to search for improvements. The last and Fourth Element is workplace partnership. This workplace partnerships between management, employees and trade unions can be characterized by dialogue, employee voice and involvement. Combining these four elements would result in enterprising behavior, positive employment relations, resilience, an enabling culture, employee engagement and customer focus; or in short an organization organized in accordance with WPI (Totterdill, 2015; Totterdill & Exton, 2014).

1.2.2. NEW WAYS OF WORKING

New Ways of Working (NWW) is seen by some scholars as a specific variant of Workplace Innovation (Pot, Dhondt, De Korte, Oeij, & Vaas, 2012). NWW builds on this approach by providing a vision to implementing flexible work arrangements in which employees are less tied to time and place while having more autonomy and freedom in performing their work (Coun, Gelderman, & Pérez-Arendsen, 2015; Pot e.a., 2012). De Leede and Kruijenbrink (2014) provide an unambiguous definition that includes the most important elements of NWW:

“An innovative configuration of work, technology and people whereby the employee is able to work independent of time, place and organization. It is supported by a flexible work environment which is facilitated by the latest technology and ICT. In addition, it provides more responsibility and autonomy to employees, and management will change into managing by output and trust.” (p.7)

This definition closely matches the framework of Baane, Houtkamp and Knotter (2010). They state that NWW consists of four work principles: (1) time and place independent working, (2) management by results; (3) free access to and circulation of knowledge, information and experiences, and (4) flexible employment relationships.

- Time and place independent working

Time independent working is the possibility for employees to deal flexibly with their working hours. This flexibility depends on the extent to which employees can choose their working hours themselves (De Spiegelaere e.a., 2013) and/or have to register their working hours (D’Hondt & Wayenberg, 2019). Place independent working offers flexibility in the location of working. This applies to both inside and outside the office by implementing activity related working and teleworking respectively. Activity related working is *“the use of work locations within their organization that correspond most effectively with the specific task they are carrying out at a particular moment. Ideally, employees should use a different workspace for each distinct task”*

(Blok e.a., 2011, p. 6). Teleworking includes working from home, working from satellite offices or mobile working (Blok e.a., 2011).

- Management by results

This means that employees are being enabled to work independently without active interference of their supervisor. The employee receives autonomy over how, when and in what order they work on the predefined objectives. As a consequence of this, supervisors have to adopt a more coaching and supporting management style that is based on mutual trust between the supervisor and employee (Baane e.a., 2010; Blok e.a., 2011; De Spiegelaere e.a., 2013). According to Baane and colleagues (2010) this could also include the implementation of self-managing teams which can be defined as:

“a permanent group of employees who work together on a daily basis, who, as a team, share the responsibility for all interdependent activities necessary to deliver a well-defined product or service to an internal or external customer. The team is, to a certain degree, responsible for managing itself and the tasks it performs, on the basis of a clear common purpose. In order to do so, the team has access to relevant information, possesses relevant competences and other resources, and has the authority to independently make decisions with regard to the work process (e.g. solving problems).” (Tjepkema, 2003b, pp. 6–7)

- Free access to and circulation of knowledge, information and experiences

The third work principle involves “a less hierarchical organization in which employees and management frequently communicate. Information must therefore be spread smoothly, both horizontally and vertically and both top-down and bottom-up” (De Spiegelaere e.a., 2013, p. 251).

- Flexible employment relationships

Flexible employment relationships concerns the individualization of the employees’ employment, including fixed-term contracts, working part time and variable remuneration (Baane e.a., 2010; De Spiegelaere e.a., 2013).

These work principles can only be implemented in the organization by means of three levers, indicated as the three B’s: Bricks, Bytes and Behaviour. The physical or Bricks dimension covers the workspace in the office, i.e. the infrastructure and office environment. The virtual or Bytes dimension facilitates the new way of working by utilizing new technologies which makes it possible for employees to work anytime and anywhere. While the previous dimensions make the way of working more flexible, the mental or Behaviour dimension takes the behavioural aspects and HRM in a broad sense into account. This concerns giving autonomy and trust to employees, reducing rules and procedures, involving employees in the decision-making process etc. (Baane, 2011; Baane e.a., 2010; De Leede & Kraijenbrink, 2014).

In itself, these elements of NWW are not ‘new’, but it is the coherence between all of them that makes it a *new way of working*; it is a holistic approach in which the elements cannot stand alone (Baane e.a., 2010). Such an integrated NWW is seen as a panacea that resolves different organizational questions. Baane, Houtkamp and Knotter (2011; 2010) distinguish two main group of arguments for implementing NWW. The first group is the improvement of employee well-being and the enhancement of sustainable organizational growth. The second is the improvement of the organizational performance in the short term. Additionally, Bijl (2009) describes NWW as a more human centric design in which resources, services and processes are added following the needs of the employee. Consequently, employees work more effectively which, in the end,

positively affects the organization. This is consistent with the Modern Sociotechnology model, which recommends abolishing maximum work division and giving more control capacity to employees. This strategy would result in more employee commitment, less stress and more control over the work process (Tjepkema, 2003a).

Although an integrated implementation of NWW is often recommended, this is not the case in many organizations (Blok e.a., 2017; De Spiegelaere e.a., 2013; Delagrange, 2014). Nevertheless, when organizations want to implement NWW practices, they have a broad variety of expectations regarding its outcomes (Blok e.a., 2011, 2017; van der Meulen, 2014). Common effects attributed to NWW are cost savings, improved employer image, and increased employee satisfaction and productivity (Baane e.a., 2010; Bijlsma e.a., 2011; Blok e.a., 2011; De Leede & Kraijenbrink, 2014). According to the National NWW barometer of 2013 (van der Meulen, 2014), the top three highest expectations of implementing NWW were (in correct order): (1) saving on housing costs, (2) improving employee satisfaction and (3) improving work-life balance. However, respondents experienced different effects after implementing NWW: (1) improved work-life balance, (2) improved employee satisfaction, (3) improved employee well-being and increased flexibility of the organization. Whereas the focus of most organizations is on reducing costs, it is of equal importance to pay attention to employee satisfaction and productivity to increase the profits. This is the only way in which NWW can ensure structural growth of organizations (Baane, 2011; Baane e.a., 2010).

1.3. NEW WAYS OF WORKING AND COLLABORATIVE INNOVATION

1.3.1. COLLABORATIVE INNOVATION

As a consequence of increasing demands and expectations towards the public sector, budgetary pressures and wicked problems, public sector innovation has received more attention nowadays (Sørensen & Torfing, 2011, 2012). However, the traditional way of innovation, characterized as bureaucratic and closed, is no longer believed to be sufficient for coping with these challenges (Bommert, 2010; Sørensen & Torfing, 2012). This is certainly the case for wicked problems, such as climate change and poverty, which are hard to define and solve due to their complexity, uncertainty and divergence (Head, 2008; Sørensen & Torfing, 2012). Collaborative innovation could provide an answer to this, especially since many stakeholders are involved and specialized knowledge is required for tackling such wicked problems (Bommert, 2010; Head, 2008; Sørensen & Torfing, 2012). Collaborative innovation in the public sector can be defined as a:

“...public innovation – defined as the development and implementation of new ideas – emerges as a result of network-based collaboration between public and private stakeholders who together possess the necessary motivation, ideas, skills, and resources to craft new public solutions that seem to outperform previous practices or to meet hitherto unfulfilled demands.” (Torfing, 2016, p. 2)

In these collaborative arrangements, the innovation process is opened up to a wide variety of actors or stakeholders (Bommert, 2010). Herein, we can make a distinction between internal and external stakeholders. Collaboration with internal (public) stakeholders can be described as transversal coordination, which refers to the collaboration of governmental organizations, departments or agencies within the same level or across different levels of government (Head, 2008). External collaboration can then occur with interest groups, non-profit organizations, private organizations and/or (groups) of citizens, whereby the latter can be seen as co-production which is a specific type of collaboration (Brandsen, Pestoff, & Verschuere, 2012; Head, 2008). Including these different types of actors could foster the innovation process since they can bring in their own innovation assets (e.g. knowledge and money). It could also foster the actual implementation of the innovation

because the involvement of key stakeholders may foster engagement and limit resistance to innovation (Bommert, 2010; Sørensen & Torfing, 2011).

1.3.2. EFFECTS OF NEW WAYS OF WORKING

All things considered, both NWW and collaborative innovation are upcoming in public sector organizations. Moreover, NWW can itself be seen as an innovation of the internal work organization (De Vries e.a., 2016). Despite this and the fact that many effects of NWW have already been identified, research on the potential contribution of NWW to collaborative innovation is scarce or almost lacking. We, therefore, conducted a short literature review regarding the effects of NWW. This allowed us to find potential relatedness between NWW and collaborative innovation. As a result, we can distinguish three groups of main effects: (1) effects on the individual level, (2) direct effects on collaborative innovation, and (3) indirect effects on collaborative innovation.

1.3.2.1. EFFECTS ON THE INDIVIDUAL LEVEL

Despite the extensive literature on the relationship between NWW practices (i.e. teleworking, autonomy, management by results) and individual employee outcomes, the findings are ambiguous; both positive and negative effects are assigned to the degree of NWW in an organization.

Although NWW can be related to an increased employee productivity and organizational commitment (Beauregard & Henry, 2009; De Leede & Heuver, 2016; De Leede & Nijland, 2016), this positive effect is only observable below a certain level of NWW since too much NWW was found to be counterproductive (De Leede & Heuver, 2016; De Leede & Nijland, 2016). Research on the impact of NWW on the individual well-being is, however, less consistent. Employees working under NWW can work longer, and can experience more work stress and work-life conflict (Beauregard & Henry, 2009; Bourdeaud'hui & Delagrange, 2017). Nevertheless, NWW can also be associated with increased motivation, and decreased mental demands and workload (Bourdeaud'hui & Delagrange, 2017; Van Steenbergen, Van Der Ven, Peeters, Taris, & Steenbergen, 2018).

Whereas research on the effects of NWW as a whole is rather scarce and limited to work by Dutch and Belgian scientific authors, research on specific NWW practices is more extensive. For example, giving autonomy, managing by output or the possibility to telework could foster the physical and psychosocial well-being as well as the work engagement of employees (Allen, Golden, & Shockley, 2015; Cañibano, 2013; Chen & Fulmer, 2018; De Leede & Heuver, 2016; De Leede & Nijland, 2016; Golden, 2006; Jain, Dediu, Zwetsloot, & Leka, 2017; Peters, de Bruijn, Bakker, & van der Heijden, 2011; Peters, Kraan, & Van Echtelt, 2014; ten Brummelhuis, Bakker, Hetland, & Keulemans, 2012). Moreover, teleworking could enhance the productivity of employees (Beauregard & Henry, 2009; De Leede & Heuver, 2016; De Leede & Nijland, 2016; Delanoëije, 2019; Peters e.a., 2011). At the same time, research also points to possible negative effects of teleworking. Frequently found downsides of telework are: work stress when having high job demands or insufficient regulating capacity (Bourdeaud'hui & Delagrange, 2017), intensification of work (Kelliher & Anderson, 2010), more working hours (Possenriede, Hassink, & Plantenga, 2016; Russell, O'Connell, & McGinnity, 2009), social and professional isolation (Allen e.a., 2015; Baruch, 2000; De Leede & Heuver, 2016; Vander Elst e.a., 2017) and psychosocial risks (Mann & Holdsworth, 2003; Vander Elst e.a., 2017). Other research, however, states that teleworking could also be beneficial for the aforementioned variables (Allen e.a., 2015; Peters e.a., 2014).

1.3.2.2. DIRECT EFFECTS ON COLLABORATIVE INNOVATION

Lindsay et al. (2018) state that collaborative innovation could be synergistic with the advantages (e.g. adaptability to changes) of implementing Workplace Innovation (WPI). However little research has been done connecting NWW and collaborative innovation. They, therefore, emphasize that further research is needed on WPI practices and forms of work organization that may support collaborative innovation.

To explore this synergy between NWW and collaborative innovation, we will look into potential links between (elements of) NWW and collaborative innovation. We will first give an overview of the potential direct effects of NWW on collaborative innovation (section 1.3.2.2.). However, not many direct effects could be identified and hence we also searched for indirect effects of NWW, i.e. the effects of NWW on the antecedents of collaborative innovation (section 1.3.2.3.) (Langbroek, Van Dijck, Riche, Thiry, & Callens, 2018).

We found two potential direct effects of NWW on collaborative innovation, related to the collaboration and the innovation aspect respectively. First, some authors found that (aspects of) NWW can be beneficial for creating a workplace that enhances individual innovative working behaviour (Bondarouk & De Leede, 2016; De Spiegelaere e.a., 2013; Moll & De Leede, 2016). Moreover, Bondarouk and De Leede (2016, p. 169) argue that *“NWW offers a brilliant arena or innovativeness among employees, due to its basic principle – freedom and anytime – all-the-time working”*. This means that employees from organizations with NWW could be characterized by an increased innovative capacity which could be beneficial for their engagement in collaborative innovation projects. Second, Bijlsma et al. (2011) indicates that time and place independent working can facilitate working at collaboration partners’ workplaces which could be favourable for the collaboration in projects aimed at an innovation.

1.3.2.3. INDIRECT EFFECTS ON COLLABORATIVE INNOVATION

As we found limited discussion of direct effects of NWW on collaborative innovation in the literature, we continued our search by examining the potential effects of NWW on the conditions of collaborative innovation, and more specifically on the individual and organizational conditions (Langbroek e.a., 2018). We will discuss the following conditions: learning, information and knowledge sharing, trust (individual); organizational culture, red tape, and leadership (organizational).

With regard to the individual conditions, we mostly found research on the effect of NWW on knowledge sharing inside the own organization; NWW can have a positive effect on knowledge sharing if employees have access to ICT for time and place independent working (van der Kleij, Blok, Aarts, Vos, & Weyers, 2013). Knowledge sharing can be defined as *“the exchange of relevant information, ideas and expertise between employees”* (van der Kleij e.a., 2013, p. 66). However, Tregaskis and Daniels (2000) state that the decreased face-to-face contact, as a result of an increased use of teleworking, might hamper the trust-building between colleagues (Tregaskis & Daniels, 2000) or even negatively affect the level of trust in the relationships between colleagues (Taskin & Bridoux, 2010). This, in turn, can be detrimental for knowledge sharing and individual learning (Taskin & Bridoux, 2010; Tregaskis & Daniels, 2000). Baane, Houtkamp and Knotter (2010, p. 60), therefore, also mentioned the *“physical minimum that facilitates the virtual optimum.”*

Although the use of ICT can thus facilitate knowledge sharing between employees when working remotely, enough face-to-face communication must be monitored since the latter is relevant for building and sustaining trust. This could be an interesting assumption to further explore in our research on collaborative innovation. The degree of information exchange and trust between project partners affects the individual learning, which

is crucial for innovation (Langbroek e.a., 2018; Sørensen & Torfing, 2017). The question, therefore, is if the same effect of NWW on knowledge sharing and trust *inside* the organization also applies *outside* the organization, i.e. with project partners. Can we expect similar effects of NWW on knowledge sharing and trust regarding collaborative innovation (thus vis-a-vis external partners) as found on knowledge sharing and trust within organizations?

Organizational conditions for collaborative innovations include organizational culture, red tape and leadership (Langbroek e.a., 2018). Concerning the organizational culture, Van Dijck and colleagues (2018) discovered that an adhocracy and clan culture (i.e. with flexible organizational structures) may be nurturing collaborative innovation (Cameron & Quinn, 2006). When comparing the characteristics of NWW with those of the different organizational cultures of the Competing Values Framework, we see most similarities with the adhocracy and clan culture. Whereas the adhocracy culture focuses on innovation, flexibility and freedom; the clan culture focuses on teamwork, coaching and engagement (Cameron & Quinn, 2006). This could imply that NWW can be associated with organizational cultures that offer a good atmosphere for innovation. However, research from Work Package 3 of the PSI-CO project, indicated that the similarity of organizational cultures of the different organizations engaged in a project is most crucial for collaborative innovation: either all flexible or all control-based (Langbroek e.a., 2018). An assumption, therefore, could be that a similar degree of NWW in the different partner organizations could be important for collaborative innovation.

Closely connected to organizational culture is red tape, or the presence of rules and procedures that negatively affect performance (Bozeman, 1993). The central idea of NWW, that is based on the Sociotechnology theory, is providing more control capacity to employees by simplifying procedures and deregulation. This allows employees to have more freedom and hold control over their own work. This closely relates to a more coaching leadership style that is based on mutual trust (Baane e.a., 2010; Bijl, 2009). Results of Work Package 3 showed that organizations with flexible cultures also reported lower levels of red tape. Moreover, the presence of different kinds of red tape could affect collaborative innovation both in an indirect (i.e. through lack of motivation or decrease in efficiency) and a direct way (Langbroek e.a., 2018). An assumption, therefore, could be that the implementation of NWW, which should be accompanied by less red tape and a more supporting leadership style, creates enhancing conditions for collaborative innovation.

The discussion above shows that research did find some indirect ties between NWW and the conditions of NWW. However, this does not necessarily mean that there is also an effective (in)direct effect of NWW on collaborative innovation. This complex interplay of NWW and collaborative innovation, therefore, needs to be examined empirically.

2. QUANTITATIVE PART

In Work Package 7, we want to examine the (degree of) presence of New Ways of Working in federal ministries and its relationship with collaborative innovation. Hence, we conducted a quantitative survey in the federal government. In the following section we will discuss the methodology and present the results of the quantitative part of Work Package 7.

2.1. BACKGROUND: PSI-CO SURVEY

The PSI-CO survey was part of Work Package 6 in which the following research question was central: *to what extent do the meta-governance, individual and organizational conditions for collaborative innovation present in the federal ministries and agencies of Belgium lead to more innovation and how can these be strengthened?*

In order to answer this research question, we distributed an online survey to the three highest managerial levels of the federal ministries and agencies (N, N-1 and N-2) with a total of 1,900 respondents. The survey was conducted between September and December 2019 and had a response rate of approximately 35%.

The survey was divided into six parts: (1) organizational culture and red tape, (2) New Ways of Working, (3) collaborations aimed at innovation, (4) capacities to collaborate for innovation, (5) innovations in the organization, and (6) control variables such as individual attitudes and characteristics. This report solely focuses on the results of New Ways of Working. Sections 2.2.1., 2.2.3. and 2.3. are taken from the PSI-CO report of Work Package 6 written by Verhoest, K., Steen, T., Langbroek, T., Van Dijck, C., Dockx, E., Riche, C., and Lingier, P. More background information on the survey and results of the other parts can be found in the report of Work Package 6 itself.

2.2. THEORETICAL AND CONCEPTUAL FRAMEWORK

2.2.1. DEPENDENT VARIABLES

One of the main concepts in this study is innovation. Although there has been a growing demand for innovation, there is no real consensus about the definition of this concept. A study by De Vries, Bekkers and Tummers (2016) reviewed 181 articles about innovation in the public sector and found that a vast majority of these articles (76%) did not provide a definition of innovation. In the articles that did provide a definition, however, two recurring elements were identified: first, definitions focus on a perceived novelty, and second, definitions include the first adoption of an idea by a given organization.

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

2.2.1.1. EXTENT OF DEVELOPED INNOVATIONS PER TYPE

The innovation literature distinguishes between different types of innovations. We refer to the four types of innovation identified by De Vries et al. (2016). First of all, there are **innovations in terms of policies**. Developing new policies to deal with climate change can be considered as example. The second type of innovation is **technological innovations**. This is about the creation or use of new technologies, introduced in an organization to render services to users and citizens. An example of this is tax-on-web. A third type of innovation is **service innovations**. Here, the government offers a new type of service that was not offered before. The tool by the independent authority of the Flemish energy market where citizens can freely and easily compare prices from different energy distributors is an example of this. The last group to be distinguished is **process innovations**, which refer to the improvement of quality and efficiency by new internal and external processes.

In the survey, respondents are asked to what extent the different types of innovations were developed in the last three years in which their organization was involved. This allows us to describe which types of innovation are most present within federal public organizations, and how much innovation occurs.

The extent of developed innovations per type was measured on a seven-point scale with this question: *“In the last 3 years, to what extent were actually new policies, technologies, services and/or processes developed by your organizational division - alone or in collaboration with others inside or outside your organization?”*. The answer categories were: (1) really new policies (really new, different from existing policies), (2) really new technologies (really new, different from existing technologies), (3) really new services (really new, different from existing services), or (4) really new processes (really news, different from existing processes).

2.2.1.2. ORIGIN OF DEVELOPED INNOVATIONS

Innovation can stem from different sources. Organizations can come up with innovations themselves, without input from external actors or inspired by other organizations. Alternatively, organizations can joint up with other organizations to collaborate in developing or executing an idea. In the current literature public sector innovation developed through collaboration is emphasized. Public organizations may decide to let other actors participate in the innovation process in order to increase the quality and the quantity of the innovations and so to internalize external ideas and leverage the knowledge. In other words, a success factor of innovations in the public sector is whether they are made in and through a network (Hartley, Sørensen, & Torfing, 2013).

As the PSI-CO project has its main focus on innovation through collaboration, we need to know whether the innovations in which the organization was involved were developed (a) fully within the own organization, (b) inspired by other actors, or (c) were developed in collaboration with other actors. Therefore, a question about the origin of developed innovations is included by asking the respondents what share of the innovations developed in the last three years were developed fully within the own organization, inspired by others, or developed through collaboration with others. Respondents were asked if these innovations were (1) developed purely within our own organization without input from or collaboration with other parties outside our organization, (2) developed within our own organization but inspired by input or innovations from other parties outside our organization, or (3) developed in collaborative arrangements/collaboration jointly with other parties outside our organization.

2.2.1.3. SATISFACTION WITH DEVELOPED INNOVATIONS

Innovation is a neutral concept, it describes something new but does not specify whether the novelty is perceived or evaluated as positive or not. Definitions of innovation do not imply that an innovation should inherently be an improvement; innovations could even be evaluated negatively by those involved (Meijer, 2014; Sørensen & Torfing, 2012). Since innovation is not always considered to be an improvement (for all parties involved), respondents are asked in the survey about their satisfaction with developed innovations in their organization. This variable enables us to study which factors lead to more satisfaction with the developed innovations. This concept is measured with this question: “Overall, to what extent were you satisfied with these innovations developed in the last three years...”. The answer options were: (1) developed purely within our own organization without input from or collaboration with other parties outside our organization, (2) developed within our own organization but inspired by input or innovations from other parties outside our organization, or (3) developed in collaborative arrangements/collaboration jointly with other parties outside our organization.

2.2.1.4. DEGREE OF IMPLEMENTATION OR TESTING OF DEVELOPED INNOVATIONS IN THE OWN ORGANIZATION

The innovation process consists out of four steps: Idea generation, idea selection, testing and implementation, and dissemination (Sørensen & Torfing, 2012). Research on innovation sometimes tends to focus on merely one of these steps, like the ‘abstract’ process of idea generation, or the idea selection phase. In order to also get a view on the testing and implementation phase of the innovation process, we asked the respondents about the degree of testing and implementation of developed innovations in their own organization. With a pilot test, the innovation is first implemented on a small scale after which an evaluation takes place and potential adjustments are made before the implementation on a greater scale follows. This testing phase can happen in different settings, however. Organizations can choose to test an innovation internally, or can choose to implement an innovation that was tested by a third party or in a different context. This reduces the risk for the organization. Therefore, there is also a question included about what share of the innovations developed in the last three years were (1) piloted or experimented in and (2) implemented by/in the own organization.

2.2.1.5. EXTENT OF COLLABORATION OF ORGANIZATIONS WITH OTHER ACTORS

One of the basic premises of innovation through collaboration is to open the innovation process for actors outside the organization, to internalize external ideas and leverage internal knowledge (Bommert, 2010). Collaborating with a diverse group of actors can lead to a more diverse view on the problem at hand and consequently also to a different view on the innovative solution. A common associated term is ‘synergy’ which reflects the added value of the different perspectives, but also to the combination of different resources brought by the different actors (Ansell & Torfing, 2014; Lasker, Weiss, & Miller, 2001). It means that the whole is more than the sum of all the individual parts. Less is known about the types of actors which are included in the process and how the collaboration with certain actors leads to innovation. The survey asks not only to what extent the organization is involved in collaborations for innovation, but also with what kind of actors the organization/organizational unit had worked together in the past three years in order to develop and/or implement an innovation. We distinguish between public organizations in the same or different policy domains or governmental levels, as well as between private for profit, not-for-profit organizations, research institutions (like universities) and citizens. This information allows us to determine to what extent collaboration with certain actors leads to innovation. Collaboration is defined in this study as *a mutual commitment of multiple*

actors to work together over a certain period of time towards a common end goal that can only be reached through the exchange of materials or resources, ideas and/or social relations. Collaboration refers to more than mere communication, consultation and sustained dialogue. Moreover, the focus of this study is on collaboration outside the own organization.

Collaborations for innovation can either be collaborations with the specific aim to develop/implement an innovation as well as collaborations which were established for other purposes, but in which the actors felt at some point that they had to develop/implement an innovation. Respondents were asked not only to think of collaborations which have resulted in innovations, but also to ones that in the end did not result in innovations. Furthermore, the collaborations could have been ended already or are still ongoing. The extent to which the organization(al unit) participates in collaborative arrangements was measured with this question: *“To what extent did your organizational division collaborate with parties outside your organization in the last three years where (1) actors at a certain point collaborated on the development and/or implementation of an innovation (such as new services, policies, technologies or processes), and where (2) actors did not collaborate on an innovation, but with other purposes.”*

2.2.2. INDEPENDENT VARIABLES: NEW WAYS OF WORKING

For the survey, we inquire after two aspects of New Ways of Working, namely the extent of self-managing teams and the extent of time and place independent working as independent variables. We decided to focus solely on these two work principles of NWW because based on the literature other work principles seem to be less relevant for collaborative innovation (i.e. flexible employment relationships) or were difficult to assess through quantitative study (i.e. free access and circulation of information). This latter principle, however, will be incorporated in the qualitative part of our study. Additionally, we included a question to identify the motivations for implementing New Ways of Working in the organization/organizational division.

2.2.2.1. SELF-MANAGING TEAMS

Self-managing teams can be seen as a practical application of the NWW-principle ‘management by results’ (Baane e.a., 2010). Moreover, Notebaert and Delagrange (2019) state that one of the characteristics of a Workplace Innovation organization is (self-managing) teamwork. This also indicates the degree of hierarchy and autonomy of employees in an organization, which makes it a good indicator of the ‘management by results’ work principle of NWW.

To identify the presence of self-managing teams in the organization, we relied on the IOA-questionnaire (Innovation, Organization and the use of Labor)² of the Innovation & Labor Foundation (SERV)³ (Delagrange, 2016). Notebaert and Delagrange (2019) state that there is a difference between ‘team-based organizations’, in which teamwork is a structural part of the organization, and ‘organizations having teamwork’. The criteria for being a team-based organization are that teams must consist of three to twelve employees and that half of the personnel works in teams. Since our survey is aimed at the highest public servants, we feared a methodological bias when asking respondents for the average number of team members in a team in their organization. Our respondents are at the head of an organization often with a great number of employees which could make it hard to answer a question on the average number of team members in one team.

² IOA: Innovatie, Organisatie en de inzet van Arbeid

³ Stichting Innovatie & Arbeid (SERV)

In the survey we started with a definition of teamwork to make sure all respondents had the same notion of teamwork, viz. *“a team is a group of people working together with a shared responsibility for the execution of allocated tasks, within one organizational division or across multiple divisions of the organization”* (Eurofound, 2013). We also emphasized that teamwork is not the same as working in units or departments. The first question was if there are teams in the organization(al) (unit) that meet the given definition with the following possible answer categories: (1) all employees work in teams, (2) more than half of the employees work in teams, (3) less than half of the employees work in teams or (4) we don't work in teams.

Respondents who indicated not to have teams in the organization were directed to the questions of time and place independent working. Other respondents received a second question in which they were asked to indicate which powers *most* teams themselves can decide on: (1) who the team leader is, (2) the working method, (3) mutual division and planning of work, (4) taking measures for improving the quality, (5) direct contacts with internal and external customers/users, (6) direct contact with potential external partners for collaboration and (7) their own budget management.

2.2.2.2. TIME AND PLACE INDEPENDENT WORKING

The second work principle of NWW that we incorporated in the survey is time and place independent working (Baane e.a., 2010; Bijl, 2009; Bourdeaud'hui & Delagrangé, 2017). In order to determine the extent of time and place working in the organization, we formulated two questions: one on the different types of work schedules, and one on the different types of teleworking and its frequency. For the latter question, we drafted a question that is based on the IOA-questionnaire (Delagrangé, 2016) and the Emergence 18-Country Employer Survey (Huws & O'Regan, 2001). The question was designed as a matrix in which the respondents could indicate the frequency for each type of telework, viz. home working, mobile working and working from satellite offices. The possible answer categories concerning frequency were: (1) one day a week on a structural basis⁴, (2) multiple days a week on a structural basis⁵, (3) on an occasional basis, (4) not allowed or (5) not applicable.

Regarding the different types of work schedules, we relied on the European Working Conditions Survey (Eurofound, 2015) with which we asked how the work schedule was determined: (1) employees can choose between different fixed work schedules, (2) employees can choose their working hours themselves within certain limits (e.g. flexible working hours), (3) employees determine their working hours themselves or (4) other. The last answer category was thus open. Respondents were able to indicate multiple answers if there are different arrangements in their organization or organizational division.

2.2.2.3. MOTIVATIONS FOR IMPLEMENTING NEW WAYS OF WORKING

⁴ The Royal Decree of 22 November 2006 (B.S. 01.12.2006) concerning telework and satellite work in the federal administrative public office (Koninklijk besluit van 22 november 2006 (B.S. 01.12.2006) betreffende het telewerk en het satellietwerk in het federaal administratief openbaar ambt) makes a distinction between structural and occasional telework. Structural telework means that there is a fixed settlement for teleworking of a certain time per week. Occasional means that it is occasionally done when the employee can't carry out his/her work at the normal workplace in cases of force majeure or because of personal reasons.

⁵ According to the Royal Decree of 22 November 2006, public servants cannot telework more than three-fifths of their work arrangements. As a result of this, we have chosen to make a distinction between one day a week and multiple (thus, two or three) days a week.

As already mentioned in the theoretical framework, expectations towards implementing NWW often differ from the actual realized effects (van der Meulen, 2014). Moreover, implementing NWW should not only be focused on reducing costs but also on other aspects such as increased employee well-being; only then NWW can be successful for the organization (Baane e.a., 2010). Civil servants of the highest level have, in all probability, been involved in the implementation of NWW in the organization(al) (division). For that reason, it can be relevant to inquire about the motivations for implementing NWW.

To do so, we built on the questionnaire of the Dutch National NWW barometer of Erasmus@Work (van der Meulen, 2014) by completing it with the typology of Baane, Houtkamp and Knotter (2010) and other possible relevant motivations concerning collaboration and/or innovation. This resulted in the following answering categories: (1) reduction of costs (e.g. accommodation-, mobility-, ICT costs), (2) increasing employee well-being (e.g. improving work/private balance, improving employee involvement), (3) reducing absenteeism and employee turnover, (4) increasing productivity, (5) increasing customer/user satisfaction, (6) increasing creativity/innovativeness of employees, (7) improving services and/or products, (8) improving internal communication and collaboration and (9) stimulating collaboration with external partners from outside the organization. The respondents were asked to think of the answers they indicated concerning teams and time- and place independent working in their organization and to indicate the three main motivations for implementing these measures.

2.2.3. CONTROL VARIABLES

As is common practice in any scientific survey, our questionnaire includes several control variables. Bringing control variables into multi-variate analysis enables to see whether observed correlations between dependent and independent variables are not caused by other factors (the control factors).

2.2.3.1. ORGANIZATIONAL IDENTIFICATION

A first control variable is the extent of organizational identification of the respondents. We follow the literature by using the widely used conceptualization of Mael & Ashforth (1992), who define the concept as “perceived oneness with an organization and the experience of the organization's successes and failures as one's own” (Mael & Ashforth, 1992, p. 103). It is a specific form of social identification with the individual defining himself in terms of the organization he is a part of. For the organizational variables especially, it is important that this variable is included. More specifically, we want to control for the fact that respondents which strongly identify with their own organization may also be more likely to be more positive towards the organization as a whole and thus might give more positive answers towards the extent of innovation in the organization. Ergo, we controlled for organizational identification. Organization identification was measured with these items: (1) when someone criticizes the organization, it feels like a personal insult, (2) I am very interested in what others think about the organization, and (3) the organization's successes are my successes.

2.2.3.2. SOCIO-DEMOGRAPHIC DATA

Lastly, it is common in scientific surveys to include some socio-demographic variables to control for such as age, education, gender, tenure (number of years employed in the organization), and position in the organizational hierarchy (management level on which the respondent functions)... With regard to this study, such control variables are especially relevant in terms of conclusions about innovation. The literature shows

that young people are more likely to be innovative and are more open towards new ideas and situations. With age, people become more rigid and more risk-averse. Similarly, women tend to be slightly more risk-averse than men (Borghans, Heckman, Golsteyn, & Meijers, 2009). By controlling for such socio-demographics, we ensure that the observed significant relationships between dependent and independent variables are manifest and not the result of some socio-demographic factors coinciding with the other variables (e.g. such as all respondents in a certain organizational culture being male).

An extra control factor which is included is the orientation of the organizational unit which the respondent manages. This orientation refers to the main target group of the activities the unit develops, and can be towards other government organizations, towards private actors and citizens or to other units in the same organization. This orientation will determine the extent to which this unit can be involved in collaborations with external partners.

2.3. METHODOLOGY

In this section, we will briefly discuss the used methodology of the PSI-CO survey. More information on socio-demographic features of respondents can be found in Work Package 6.

2.3.1. PREPARATION AND DISTRIBUTION

The survey was developed in active collaboration with the project members of the four Belgian universities over the course of December 2018- September 2019. Regular physical and Skype meetings were organized to develop the survey and to discuss the questions. The survey was piloted twice among federal and Flemish civil servants after which adjustments were made. Before launching the survey, a language institute provided a spelling and language check of the Dutch version to make the survey as easily readable as possible.

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

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

SPF/FOD BOSA⁶ provided access to their database which includes the contact details of the top three management levels in the Belgian federal administration. The survey was distributed through the Qualtrics Software. In the meantime, a similar survey was distributed in the Flemish administration by the Politics and Public Governance (PPG) research group of UAntwerpen in the context of another research project.

To motivate respondents to participate in our survey we promised that we would provide every organization with an organization-specific feedback report with the scores of their organization, enabling a gap-analysis per organization. Furthermore, the ten organizations with the highest response rate were offered a tailor-made presentation of the result by the research team. This feedback will be given in the period of Augustus till October 2020 (due to a delay because of the Corona crisis).

2.3.2. TARGET AUDIENCE AND PRIVACY

The target group of respondents of the survey is the three highest management levels of the Belgian Federal administration. The included organizations entail four groups:

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

As data gathering is subjected to the General Data Protection Regulation (GDPR), it is crucial that we strictly follow the privacy law and GDPR in this survey. To protect the personal data, the invitation and reminder emails were sent by the FOD/SPF BOSA, which were able to identify the three highest levels of management on the basis of their Crescendo database. Once the survey was ended, these personal data (names, mail addresses ...) were deleted and replaced by a code linked to the organization and managerial level before the data was transferred to the research team. The research team has therefore only access to strictly anonymous data. At the same time, BOSA or any other organizations / actors do not have access to the collected answers or data. The organizations themselves are also not mentioned or made identifiable in any reports. Organizations were replaced by a code in the data file after the survey has been closed. Hence, the data file contains only the codes, on the one hand, and the list of organizations in relation to the codes on the other hand is separately stored on password-protected servers. This was done in order to maximize the anonymity of the data. The research and the way in which we handle data has been approved by the ethical advisory committee for social sciences of the KU Leuven.

2.3.3. SURVEY ADMINISTRATION

The first invitation email was sent on September 24th 2019 to 1788 respondents. Reminder emails were sent on October 15th, October 28th, November 12th and November 25th 2019. The survey was closed on December 5th.

The total response is 628 respondents, which represents a response rate of 35.2%. To determine whether the data sample forms a good representation of the actual distribution of the respondents in the federal

⁶ The research team would like to thank Sandra Schillemans, Bram Lauwers and Jean-Marc Everard for their great assistance with the distribution of the survey.

government, a chi-square goodness-of-fit test for the type of organization and the size of organization is performed. More detailed information of the response rate can be found in Work Package 6.

Concerning the type of organization, the actual response of the FOD-POD/SPF-SPP and the OISZ/IPSS is in line with the expected response, but we see an over-representation of the FWI/ESF and an underrepresentation of ION/OIP. Furthermore, the observed data concerning the size of the organization is not significantly different from the expected response, indicating that the actual response has a good fit with the expected response.

See the report of Work Package 6 more information, among others about the response per management level.

2.3.4. DATA ANALYSIS STRATEGY

In the remainder of this report, we present results from descriptive analyses, factor analyses and explanatory regression analyses. These analyses were conducted with statistical software packages in *RStudio* and *SPSS*. Before having analyzed the data, all variables were cleaned and recoded so as to allow their use in these statistical analyses. After this, exploratory factor analyses were conducted for some of the independent variables in order to construct aggregated variables (e.g. culture, red tape, connecting capacities, etc.) that combine multiple items.

For most questions we used a seven-point answer scale⁷. In case a different scale was used it is mentioned in the descriptive part of that specific concept. A factor analysis was done to determine how the different items load on the same factor. The factor analyses relied on the method of *Principal Axis Factoring*, which constitutes an appropriate method for dealing with data that may be non-normally distributed. For the descriptive parts, we assessed bar charts, probability graphs and descriptive tables for each individually measured item as well as for the aggregated variables. In doing so, we were able to investigate multiple statistical parameters of centrality (average and median) and dispersion (standard deviation and interquartile range), both for individual items and for aggregated variables. In reporting the results of descriptive analyses, we first explain whether multiple items load on one or more factors, after which we discuss descriptive statistics or compare groups against one another.

Two one-way ANOVAs were performed on all variables to examine if means of different groups were significantly different from each other. The examined groups referred to: (1) the four types of organizations (FOD-POD/SPF-SPP, FWI/ESF, ION/OIP, and OISZ/IPSS) and (2) the different organizational sizes, distinguishing between small organizations (<250 employees), mid-sized organizations (250-1000) employees and large organizations (>1000 employees). Significance is only mentioned when the means are significantly different from each other. An asterisk (*) next to the word 'mean' in the summary tables signifies that a significant difference exists in the means of FOD-POD/SPF-SPP, FWI/ESF, ION/OIP, and/or OISZ/IPSS. A caret (^) next to the same word signals that the means of the groups with different organizational sizes significantly differ from each other. The significance level is $p < 0.05$.

In addition to the factor analyses and descriptive analyses, we conducted ordinary least squared (OLS) regression analyses to explain various outcome variables (e.g. extent of collaboration for innovation, type of innovation, etc.). These OLS-regression analyses ranged from: simple models with one or more explanatory variables, to models with explanatory variables and all control variables and, finally, models with explanatory

⁷ 1 – not at all or to a very low extent; 2 – to a low extent; 3 – to a rather low extent; 4 – to a moderate extent; 5 – to a rather high extent; 6 – to a high extent; 7 – to a very high extent or completely

variables, control variables and dummy variables for each organization. Organizational dummy variables are included as a robustness check because the dataset is in essence clustered around the various organizations that were surveyed. Generating and examining these three OLS-regression models allow us to systematically assess whether effects appear or disappear after controlling for control variables and organizational dummies. Please note that this report only presents results of the most robust models (i.e. models with control variables and organizational dummies). Also, we cannot exclude the prevalence of common method bias with this method.

An alternative strategy of analysis would be to analyze the data with multilevel modeling, but a preliminary examination of the data indicated that for a majority of the models a multilevel analysis would not provide more robust results than conventional OLS-regression analysis.

2.4. RESULTS: NWW IN THE FEDERAL GOVERNMENT

This section presents and discusses the descriptive results of the survey for the variables of NWW. We will discuss both the results for the overall sample and for each type of organization (FOD-POD/SPF-SPP, FWI/ESF, ION/OIP and OISZ/IPSS). Please note that the overall number of respondents is 628. In the sections below we mainly report percentages of the total number of respondents.

2.4.1. SELF-MANAGING TEAMS

Figure 2 presents the extent to which teamwork is embedded in the organization. Respondents could choose between four answer options. Overall, we see that 77.5% of the respondents indicated that more than half of the employees or everyone is working in teams. This means that most federal ministries and agencies are team-based. What stands out is that the OISZ/IPSS-organizations score higher (88%) and that the FWI/ESF- and ION/OIP-organizations score lower (67.1% and 69.1%) in terms of being team-based.

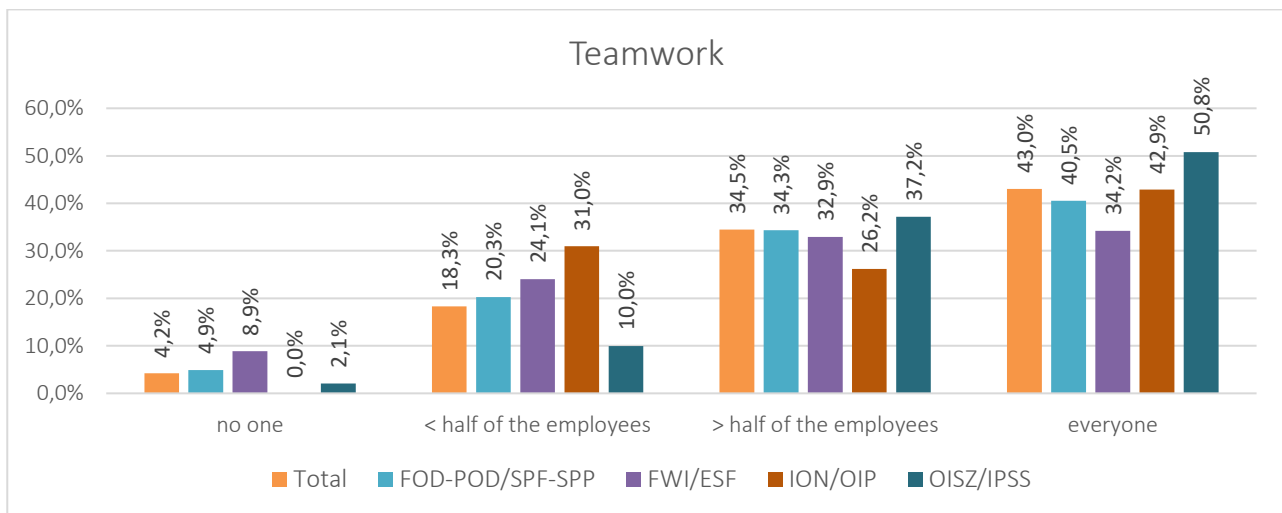


Figure 2: Descriptive results teamwork

However, being a team-based organization does not directly imply that these teams are self-managing. Figure 3 shows the percentages of respondents who indicated which powers teams can have in their organization. Please note that respondents could indicate multiple answers.

In general, most teams can decide for themselves about the mutual division and planning of work (76.1%), taking measures for improving the quality (66.1%), direct contacts with internal and external customers/users (58.6%) and the working method (47%). A minority of the respondents indicated that teams also have autonomy over the direct contact with potential external partners for collaboration (34.2%). Especially this last one is an interesting finding for the PSI-CO report; the question is therefore whether this affects the capacity for collaborative innovation (see 2.5.2.). Having power over the own budget management and choosing the own team leader were indicated the least (9.9% and 6.2%).

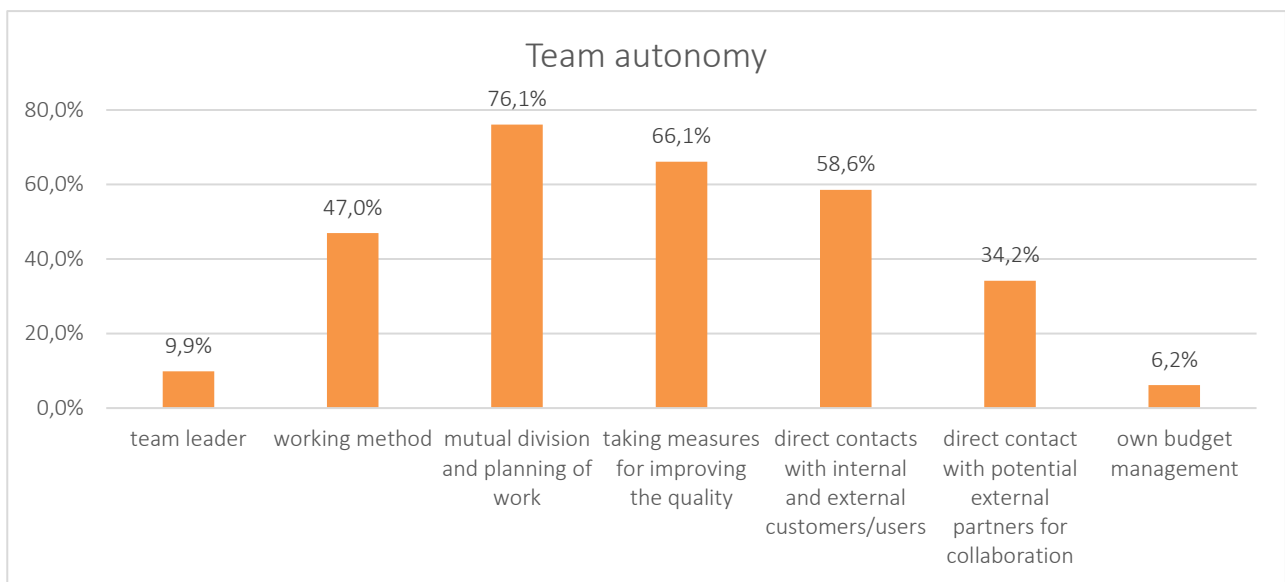


Figure 3: Descriptive results team autonomy

When we break down the results by types of organizations, presented in Figure 4, the same top four is found: in first place 'mutual division and planning of work', in second place taking 'mutual division and planning of work', and in third and fourth place 'direct contacts with internal and external customers and users' and 'working method'. However, the FWI/ESF-organizations score notably different than the other types of organizations; FWI-respondents were more likely (16.9% against 6.2% on average) to indicate teams having autonomy over their own budget management. Whereas FWI-respondents also score a bit higher on the working method (57.8% vs 47%) and the direct contact with potential external partners for collaboration (44.6% vs 34.2%) than the other types of organizations, they seem to score lower on the other answer options.

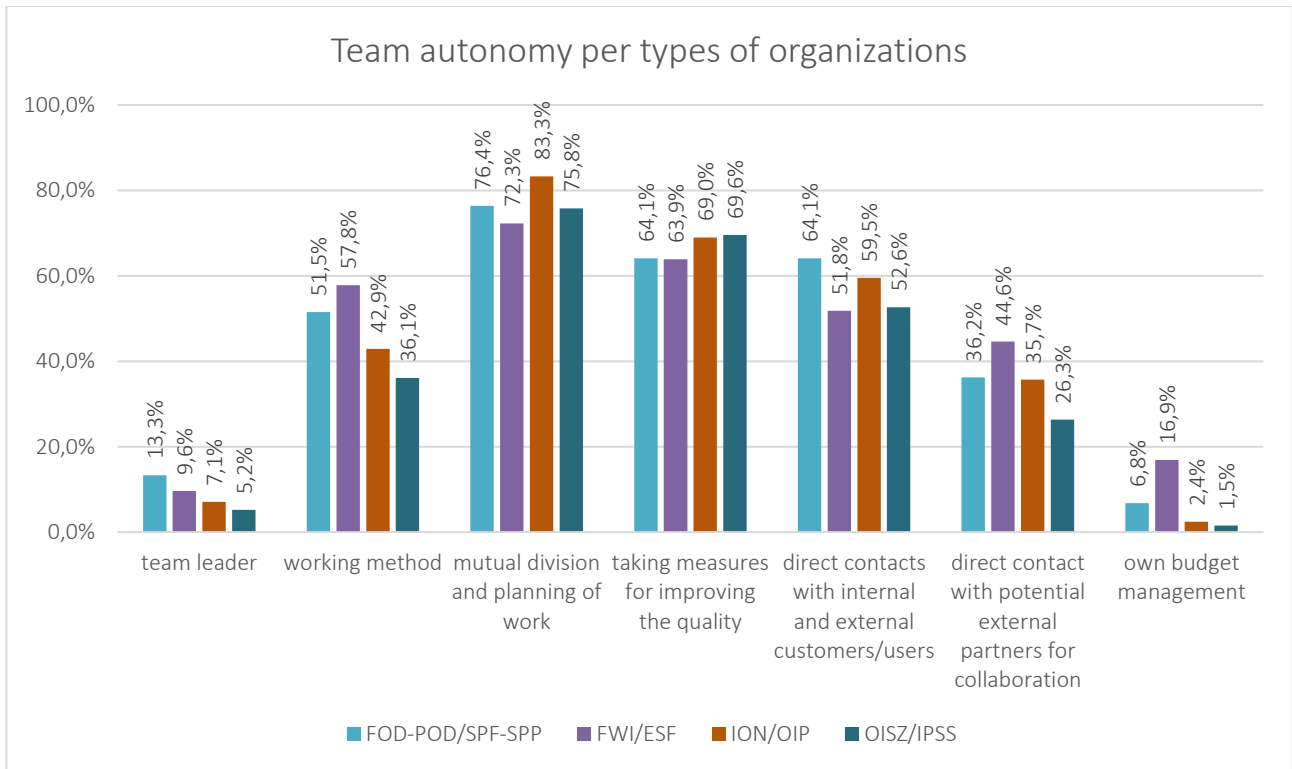


Figure 4: Descriptive results team autonomy per types of organizations

2.4.2. TIME INDEPENDENT WORKING

To examine the extent of time independent working in the federal ministries and agencies, we inquired after the type of work schedule employees have in their organization. Please note that respondents could indicate multiple answers if there were different arrangements within the organization. Figure 5 indicates that in the majority of organizations, employees can choose their working hours within certain limits (indicated by 87.3% of respondents). The figure also shows that almost no organizations work with (different) fixed work schedules (3.7% and 6.4% of respondents) signifying that most federal organizations are flexible concerning time independent working. Interestingly, 12.4% of the overall respondents indicated that employees can determine working hours themselves and thus get much flexibility. Especially the FOD-POD/SPF-SPP- and the ION/OIP-organizations score higher in this last category (i.e. 15.5% and 14.3%).

In the vast majority of organizations, employees can choose their working hours

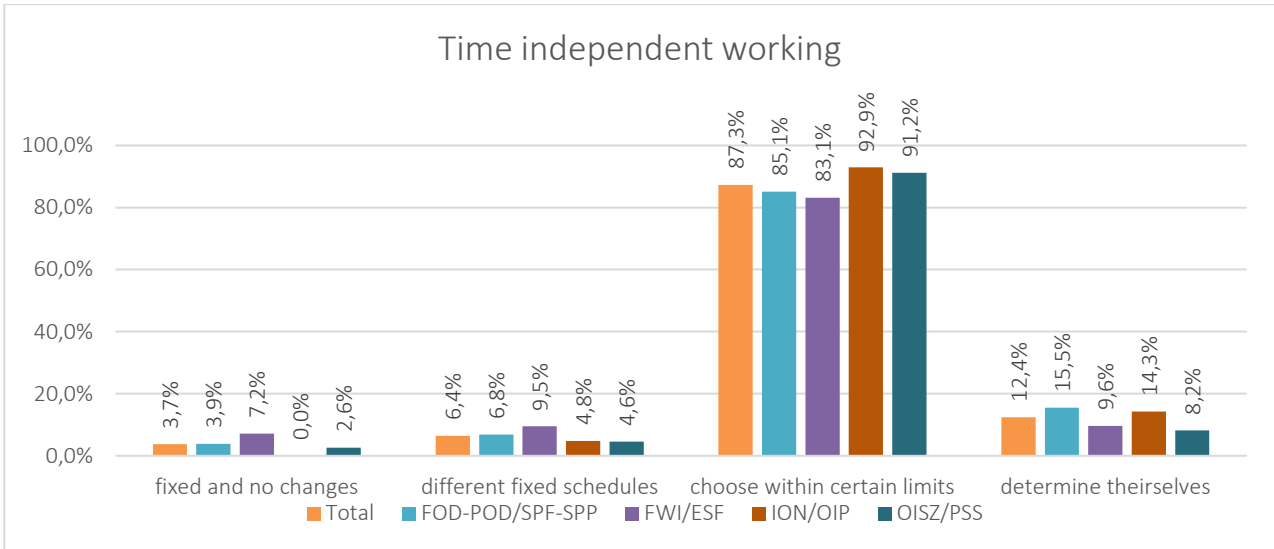


Figure 5: Descriptive results time independent working

2.4.3. PLACE INDEPENDENT WORKING

Figure 6 displays the results regarding telework for the overall sample which is broken down in frequency and type of telework. The first thing to notice is that homeworking is embedded in most organizations given the 91.2% of respondents that indicated telework is possible one day or multiple days a week. Secondly, we see that mobile working and working in satellite offices is used less frequently and more on an occasional basis (39.9% and 26.6%). Thirdly, only a minor number of respondents indicated that homeworking, mobile working or working from satellite offices is not allowed (1%, 5% and 4.7%). Lastly, respondents could also indicate the answer option 'not applicable in my organization' if a type of telework was not present in their organization. As regards mobile working and working from satellite offices this category 'not applicable' scores reasonably high (25.6% and 39.5% of respondents) which mean that these types of telework are not implemented very widely amongst the federal organizations.

homeworking is embedded in most organizations

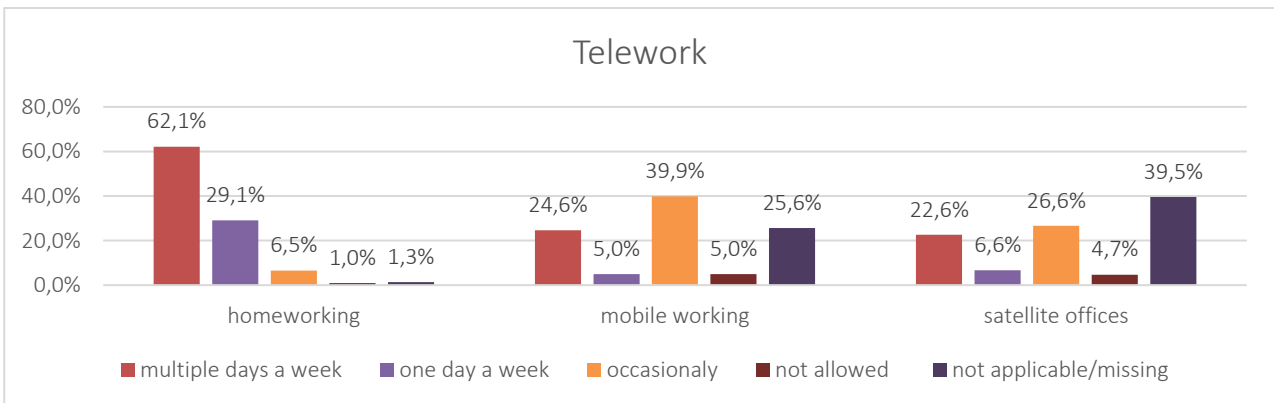


Figure 6: Descriptive results telework

The results broken down into the different types of organizations show about the same distribution with respect to respondents from FOD-POD/SPF-SPP-, ION/OIP- and OISZ/IPSS-organizations. However, as reported in Figure 6 the FWI-organizations show more deviating results. Whereas Figure 6 illustrates that more than half of the respondents indicated multiple days a week for homeworking, the majority of the FWI-respondents indicated more frequently one day a week and on an occasional basis for homeworking. Furthermore, a substantial number of respondents indicated that working in satellite offices is not applicable to their organization: 62.5% compared to the 39.5% for the overall sample. Nevertheless, these results can be explained by the nature of jobs present in these organizations (e.g. museums, libraries, archives...).

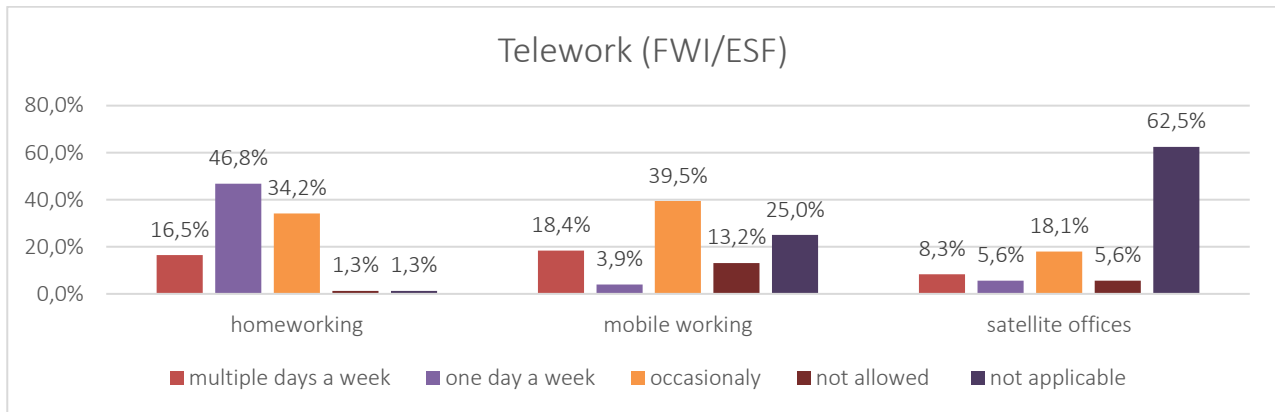


Figure 7: Descriptive results telework for FWI/ESF-organizations

2.4.4. MOTIVATIONS FOR IMPLEMENTING NWW

Finally, Figure 8 shows the percentages of respondents that indicated which were their main motivations for implementing NWW organization. Please note that respondents could indicate up to three answers. In general, we can deduce that the overall sample and the sample broken down in the separate organizations, roughly have the same outcome. The four most mentioned motivations are increasing employee well-being (mentioned by 81.8% of respondents), increasing productivity (45.9%), reduction of costs (39.5%), and reducing absenteeism and employee turnover (28.8%). However, only 8.4% of the FWI/ESF-respondents indicated 'reduction of costs' as a main motivation (see Figure 9). Moreover, a substantial number of FWI/ESF-respondents indicated 'increasing creativity and innovativeness of employees' as a motivation (19.3%) more likely than the respondents from other organizations (11.3% for the overall sample). Another deviating result is that respondents in both the FWI/ESF- and ION/OIP-organizations score higher on the answer option of 'stimulating collaboration with external partners from outside the organization' (8.4% and 9.5% against 4.3% for the overall sample). Especially this last finding could be interesting for further analyses: are (employees in) organizations more likely to collaborate for innovation when the organizations also implemented NWW for stimulating collaboration with external partners from outside the organization?

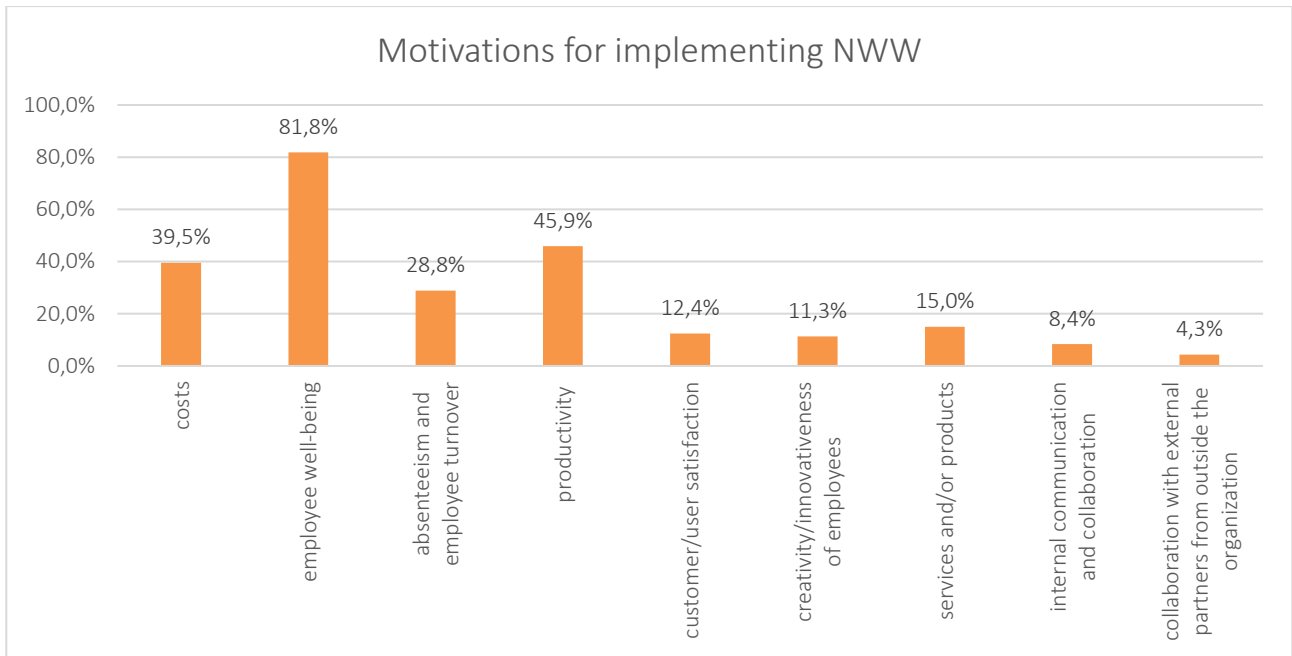


Figure 8: Descriptive results motivations for implementing NWW

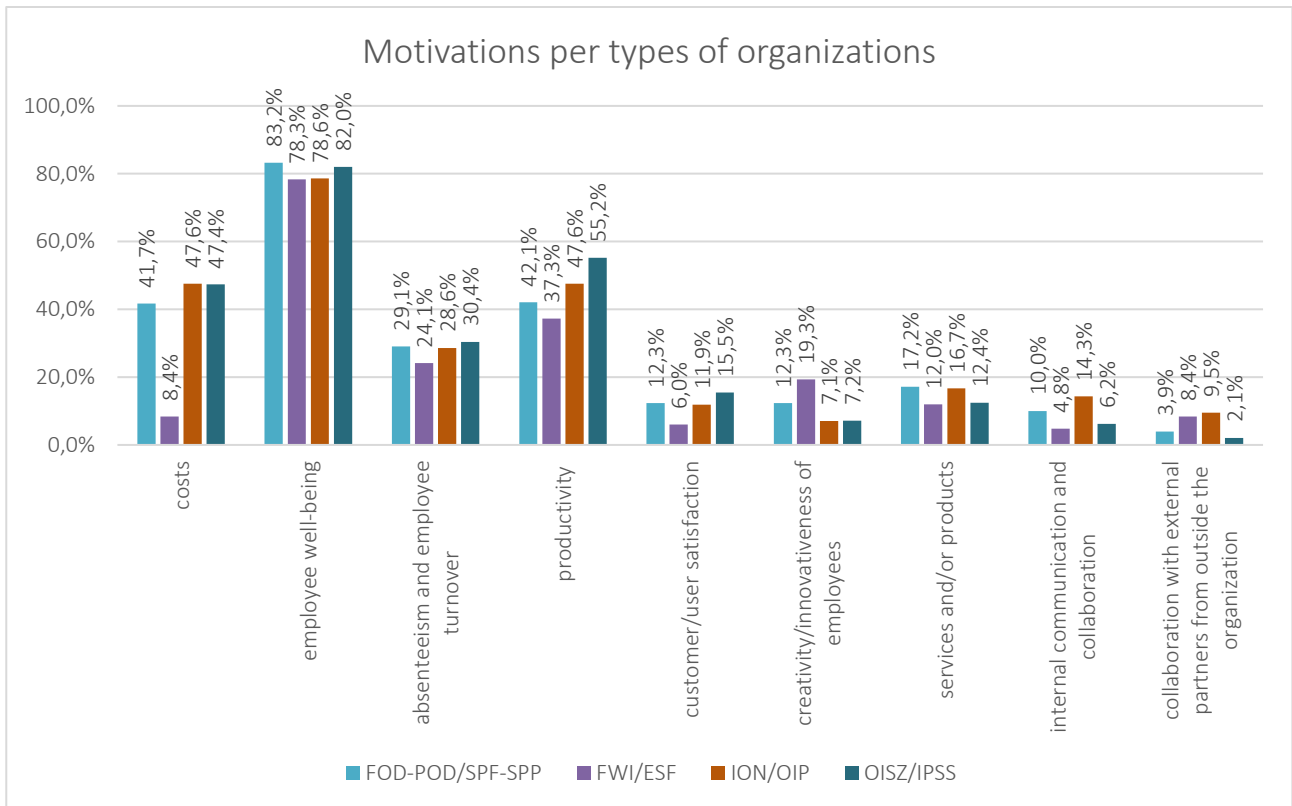


Figure 9: Descriptive results motivations for implementing NWW per types of organizations

2.5. THE EFFECTS OF NWW ON INNOVATION IN THE FEDERAL GOVERNMENT

In this section, we discuss how facilitating teamwork (TW) and resorting to New Ways of Working (NWW), as well as the different motivations to facilitate teamwork or NWW influence several innovation-related outcomes. Table 1 (see page 39) presents an overview of the capacities that appear to have a statistically significant effect on one or more of the innovation-related outcomes. Note that these models only contain one specific capacity, but also control for all control variables and organizational dummies. In doing so, we get a first insight in how isolated capacities influence the innovation-related outcomes. Furthermore, the cells in Table 1 only present the regression coefficients and the R²-values (i.e. the degree to which a model explains the variation in the outcome of interest) for models that have an overall significant influence and wherein the capacity of interest has a significant influence on the outcome of interest.

In what follows we will discuss the results of the bivariate regression analyses per dependent variable in more detail. Connected to that, we will briefly discuss the main findings of the combined models. These combined models are regression models with multiple independent variables from the same category (i.e. self-managing teamwork, time independent working, place independent working and motivations to implement NWW). Effects can remain or disappear when combining independent variables from the same category which can be relevant for identifying major or noticeable isolated effects. The combined models are not depicted in the report.

2.5.1. TYPES OF INNOVATION THAT WERE DEVELOPED

With regard to **teamwork**, Table 1 shows a positive influence in the development of technological and process innovations.

Team autonomy consists of seven elements which cover the different powers teams can decide for themselves. We did not find significant effects of the autonomy to choose a team leader and to have direct contact with internal and external customers/users on the different innovation types. Having autonomy about the working method, about the mutual division and planning of work and to take measures for improving the quality does have a significant positive effect on the development of process innovations. Additionally, Table 1 shows significant positive effects of the autonomy to choose a working method and to contact potential collaboration partners on the development of service innovations. Nevertheless, only the autonomy to decide on the mutual division and planning of work and the autonomy to contact potential collaboration partners

giving teams autonomy regarding their mutual division and planning of work has a positive effect on the development of technological and process innovations

positively influences the development of technological and policy innovations respectively. The positive effect of autonomy about the mutual division and planning of work on technological and process innovations is also confirmed when we combine the seven autonomy-related variables. Hence, giving teams autonomy regarding their mutual division and planning of work has a positive effect on the development of technological and process innovations in an organization.

We did not find any significant (isolated or combined) effects of **place independent working** on the development of different innovation types. However, for **time independent working**, we found a negative significant effect of having fixed schedules for everyone on the development of process innovations. Additionally, giving total autonomy regarding working hours for all employees seems to have a positive effect on the development of service innovations. The combined models, however, show slightly different results: a

negative effect of fixed schedules for everyone on the development of service innovations and a positive effect of total autonomy for everyone on the development of both service and process innovations. Given these – not so consistent – results we can carefully conclude that inflexibility regarding time independent working could hamper the development of process innovations while being highly flexible could facilitate service innovations.

inflexibility in time independent working could hamper the development of process innovations while being highly flexible could facilitate service innovations

As regards the **motivations for implementing NWW**, we did not find any significant isolated effects. Nevertheless, the combined models show positive effects of some motivations on the different innovation types, especially on the development of technological innovations. Unfortunately, there does not seem to be a clear explanation for this since it concerns different types of motivations. The results of the combined models, however, confirm the important role of Bytes (cf. of the three B's) as leverage for NWW. We found a positive significant effect of implementing NWW with the aim of improving internal communication on the development of technological innovations. Baane and colleagues (2010) already mentioned that improving the internal communication and collaboration, one of the four NWW working principles, should be facilitated by the use of new technologies and systems (Baane e.a., 2010). Our results, thus, confirm that organizations who want to improve their internal communication and collaboration, and therefore implement elements of NWW, are more likely to develop technological innovations.

2.5.2. ORIGIN OF THE INNOVATIONS DEVELOPED

Concerning the origin of the innovations developed, we did not find many effects of our independent variables. In both the isolates and combined models, there is no effect of **(self-managing) teamwork** on the origin of innovations, meaning the extent to which innovations are developed fully internally, inspired by others, or in collaboration with external actors.

less flexibility in working schedules can advance internal innovations and hamper collaborative innovation

Nevertheless, **the ability to work from home** seems to have a positive influence on innovations that are developed in collaborative arrangements. Furthermore, Table 1 indicates that the presence of fixed work schedules for all employees appears to negatively affect whether innovations are being developed in collaborative

arrangements. Additionally, both the isolated and combined models show a positive influence of fixed schedules for everyone on innovations that were totally developed in the own organization. This could mean that being less flexible in terms of **time independent working** is obstructive for collaborative innovation, yet conducive for internal innovations.

Regarding **the motivations for implementing NWW**, we only found a positive (isolated) significant effect of implementing NWW for the improvement of employee well-being on the development of innovations in collaborative arrangements. In the combined models, we also found negative effects of implementing NWW with the aims of productivity and innovation on the extent to which innovations were totally developed in the own organization. However, it is fairly unclear what the scheme behind these findings is: why do we find effects of these motivations, and why not of others?

2.5.3. SATISFACTION OF THE INNOVATIONS DEVELOPED

We can deduce from Table 1 that there is a significant influence of **the degree of (self-managing) teamwork** in the organization on the reported satisfaction of the respondents with these innovations. Respondents seem to be more satisfied with the innovations (from all origins) when they work in a team-based organization or when the organization gives their teams more autonomy regarding the working method and the management of the quality. This is partly confirmed in the combined models for the extent of teamwork on satisfaction with innovations of all origins and for the autonomy over their own working method for innovations that were partly inspired by external contributions and innovations that were developed in collaboration with external actors. We, thus, can conclude that belonging to a team-based organization or having autonomy over the working method has a positive influence on the satisfaction with innovations.

belonging to a team-based organization or having autonomy over the working method has a positive influence on the satisfaction with innovations

Concerning **place independent working**, Table 1 shows that respondents from organizations that allow homeworking report a higher satisfaction with innovations from all origins. However, the combined models only show a positive significant effect of homeworking on the satisfaction with innovations that were totally developed in the own organization. Nevertheless, the combined models also indicate that the ability to do mobile work has a positive influence on the satisfaction with innovations that were developed more externally.

We did not find any significant (isolated or combined) effects of **time independent working** on the satisfaction. As regards **the motivations for implementing NWW**, we found one positive isolated effect of the motivation ‘improving collaboration with external partners from outside the organization’ on the satisfaction with innovations that were partly inspired on external contributions. Nevertheless, we did find more significant effects in the combined models for the motivations ‘cut back on costs’, ‘improving employee wellbeing’, ‘improving internal process’ and ‘stimulating external collaboration’. While we did not find a clear pattern in these results, we did find confirmation for our expectations. Firstly, the motivation to improve the internal communication and collaboration has a positive effect on the satisfaction with innovations that were totally developed in the own organization. Secondly, we found positive effects of the motivation to stimulate collaboration with external partners on the satisfaction with innovations that were developed more externally. It makes sense that respondents are more satisfied with internal and external innovations if their organization also pays more attention to the internal processes and the collaboration with external partners respectively.

2.5.4. STATUS OF THE INNOVATIONS

As is clear from Table 1, we did not find many effects on the dependent variable ‘status of innovations’.

the degree of teamwork increases the likelihood of organizations experimenting with

Regarding **(self-managing) teamwork**, the isolated model shows a positive influence of the degree of teamwork and the autonomy to manage the quality on the extent to which innovations have been experimented with. The combined models confirm this and also show a positive effect of the autonomy about the mutual division and planning of work and the experimented-status.

We did not find any significant effects of **time and place independent working** and **the motivations for implement NWW** on the extent to which these innovations were tested and/or implemented.

Table 1: Individual influence of teamwork and NWW on innovation

| | Type of innovations that were developed | | | | Origin of these innovations | | | Satisfaction with these innovations | | | Status of innovations | |
|---|---|--------------------------------|-------------------------------|---------------------------------|----------------------------------|---|---|--|---|---|---|---|
| | Policy innovations | Technology innovations | Service innovations | Process innovations | Innovations internally developed | Innovations internally developed but inspired on external contributions | Innovations developed in collaborative arrangements | Satisfaction :innovations internally developed | Satisfaction: innovations internally developed but inspired on external contributions | Satisfaction: innovations developed in collaborative arrangements | Innovations have been experimented with | Innovations have been implemented already |
| Degree of teamwork | | 0.20* R ² = 0.16 | | 0.23** R ² = 0.17 | | | | 0.29*** R ² =0.17 | 0.28*** R ² =0.22 | 0.39*** R ² =0.18 | 0.37*** R ² =0.13 | |
| TW: Autonomy to choose leader | | | | | | | | | | | | |
| TW: Autonomy to choose method | | | 0.31* R ² =0.18 | 0.38** R ² =0.17 | | | | 0.28* R ² =0.14 | 0.36** R ² =0.21 | 0.46*** R ² =0.15 | | |
| TW: Autonomy to decide planning work | | 0.56** R ² =0.16 | | 0.51** R ² =0.17 | | | | | | | | |
| TW: Autonomy to manage quality | | | | 0.45** R ² =0.17 | | | | 0.48** R ² =0.15 | 0.45** R ² =0.21 | 0.46** R ² =0.14 | 0.70*** R ² =0.13 | |
| TW: Autonomy to contact clients | | | | | | | | 0.33* R ² =0.15 | | | | |
| TW: Autonomy to contact partners | 0.33* R ² =0.14 | | 0.30* R ² =0.18 | | | | | | | | | |
| TW: Autonomy to manage budget | | | | | | | | | | | | |
| PIW: Ability to work from home | | | | | | | 3.46* R ² =0.12 | 0.29** R ² =0.16 | 0.24* R ² =0.20 | 0.25* R ² =0.15 | | |
| PIW: Ability to do mobile work | | | | | | | | | | | | |
| PIW: Ability to work in satellite offices | | | | | | | | | | | | |
| TIW: Fixed schedule for everyone | | | | -0.69* R ² =0.16 | 15.16* R ² =0.16 | | -12.56* R ² =0.12 | | | | | |

| | Type of innovations that were developed | | | | Origin of these innovations | | | Satisfaction with these innovations | | | Status of innovations | |
|---|---|------------------------|---------------------------------|---------------------|----------------------------------|---|---|--|---|---|---|---|
| | Policy innovations | Technology innovations | Service innovations | Process innovations | Innovations internally developed | Innovations internally developed but inspired on external contributions | Innovations developed in collaborative arrangements | Satisfaction :innovations internally developed | Satisfaction: innovations internally developed but inspired on external contributions | Satisfaction: innovations developed in collaborative arrangements | Innovations have been experimented with | Innovations have been implemented already |
| TIW: Choice between fixed schedules | | | | | | | | | | | | |
| TIW: Choice between flexible schedules | | | | | | | | | | | | |
| TIW: Total autonomy | | | 0.42 * R ² = 0.29 | | | | | | | | | |
| Motivation: cut back on costs | | | | | | | | | | | | |
| Motivation: improving employee wellbeing | | | | | | | 6.68 * R ² = 0.16 | | | | | |
| Motivation: reducing sick leave | | | | | | | | | | | | |
| Motivation: improving productivity | | | | | | | | | | | | |
| Motivation: improving client-friendliness | | | | | | | | | | | | |
| Motivation: improving innovation | | | | | | | | | | | | |
| Motivation: improving service-delivery | | | | | | | | | | | | |
| Motivation: improving internal processes | | | | | | | | | | | | |
| Motivation: improving collaboration | | | | | | | | | 0.65** R ² =0.20 | | | |

Note: Cells display beta-coefficients, significance level (***p < 0.001, **p < 0.01, *p < 0.05) and R²-values for models that had an overall significant influence and wherein the variable of interest had a significant influence.

2.6. THE EFFECTS OF NWW ON COLLABORATION FOR INNOVATION

In this section, we discuss how facilitating teamwork (TW) and resorting to New Ways of Working (NWW), as well as the different motivations to facilitate teamwork or NWW influence several collaboration-related outcomes. Table 2 (see page 43) presents an overview of the capacities that appear to have a statistically significant effect on one or more of the innovation-related outcomes. Note that these models only contain one specific variable, but also control for all control variables (except ‘experience with collaboration’) and organizational dummies. In doing so, we get a first insight in how isolated variables influence the variables related to collaboration for innovation. Furthermore, the cells in Table 6 only present the regression coefficients and the R²-values (i.e. the degree to which a model explains the variation in the outcome of interest) for models that have an overall significant influence and wherein the capacity of interest has a significant influence on the outcome of interest.

In what follows we will discuss the results of the bivariate regression analyses per dependent variable in more detail. Connected to that, we will briefly discuss the main findings of the combined models. These combined models are regression models with multiple independent variables from the same category (i.e. self-managing teamwork, time independent working, place independent working and motivations to implement NWW). Effects can remain or disappear when combining independent variables from the same category which can be relevant for identifying major or noticeable isolated effects.

2.6.1. TYPE OF COLLABORATION

organizations with more teamwork are more likely to engage in collaborative arrangements for innovation

Regarding **teamwork**, we found a positive influence of the degree of teamwork on the engagement in collaboration for innovation in the last three years. Furthermore, concerning **autonomy of teams**, positive effects are found of autonomy about the mutual division and planning of work and the ability to manage the quality on the engagement in collaboration for innovation as well. This last one is also confirmed in the combined models.

Whereas we did not find any significant (isolated and combined) effects of **place independent working** on the type of collaboration, we did find a positive significant effect of total autonomy regarding **time independent working** on engaging in collaborative arrangements for other goals than innovation, which is also confirmed in the combined models.

In both the isolated and combined models, we found some effects of **the motivations for implementing NWW** on the type of collaboration. Nevertheless, given the incoherent distribution of these effects, a meaningful explanation for these results cannot be found.

2.6.2. ACTORS IN COLLABORATIONS FOR INNOVATION

Concerning **the degree of teamwork**, Table 2 shows that organizations with a higher degree of teamwork seem more likely to engage with citizens in collaborations for innovation.

When we have a closer look at the variables concerning the **autonomy of teams**, we find much less significant effects on the ‘collaborative innovation-variables’ than on the ‘innovation-variables’ (see Table 1). Only the autonomy to choose the team leader and to manage the budget are found to have a significant positive influence on the collaboration with knowledge and science institutions and citizens respectively. The combined

autonomy to choose the team leader can foster collaboration with governmental actors and some non-governmental actors

models also show a positive effect of the autonomy to choose a team leader on the collaboration with federal organizations in another policy domain and governmental organizations at regional or local level. Autonomy to choose the team leader, thus, seems to foster collaboration with governmental actors except for collaboration with

federal organizations in the same policy domain, as well as with some non-governmental actors. The combined models also showed negative effects of the autonomy to choose the working method on the collaboration with governmental organizations at regional or local level and the autonomy to manage the quality on the collaboration with European or international actors. However, we cannot find an explanation for these last findings.

Place independent working consists of the variables measuring the ability to work from home, the ability to do mobile work and the ability to work from satellite offices. Significant effects were mainly found for mobile work: the degree of mobile work positively affects the degree to which federal organizations in another policy domain, citizens and non-profit organizations are involved in collaborations for innovation. Additionally, a positive isolated effect of the ability to work in satellite offices on the engagement of citizens in collaborations for innovation can be observed. The combined models show a positive influence of mobile working on the collaboration with citizens and non-profit organizations. These two types of actors can ask a high degree of flexibility in terms of location which, thus, may be accommodated by mobile working. Lastly, we found a (combined) negative effect of the ability to work from home on the engagement of citizens in collaborations for innovation.

mobile work can foster the collaboration with federal organizations in another policy domain, citizens and non-profit organizations

Concerning **time independent working**, we found significant positive effects of the variable ‘choosing between different flexible work schedules’ on collaborations for innovations with federal organizations in another policy domain, knowledge and science institutions, private companies, and European or international actors. The combined models confirm these findings and also show a positive effect of the choice between different flexible schedules on the collaboration with federal organizations in the same policy domain. Furthermore, a negative (combined) effect of fixed schedules for everyone on the collaboration with federal organization in another policy domain was found. Finally, total autonomy in time independent working has a positive (isolated

a certain degree of flexibility regarding time independent working is conducive for the involvement of various governmental actors and private companies in collaborations for innovation

and combined) influence on the engagement of federal organizations in the same policy domain and European or international actors in collaborations for innovation. We can conclude from this that a certain degree of flexibility regarding time independent working is conducive for the involvement of various governmental actors and private companies in collaborations for innovation.

Lastly, we did not find a clear pattern in the (isolated and combined) results for the **motivations for implementing of NWW**: the effects are rather random dispersed across both the different motivations and actors which makes it hard to interpret these findings.

Table 2: Individual influence of teamwork and NWW on collaboration for innovation

| | Type of collaboration | | Actors in collaborations for innovation | | | | | | | |
|---|------------------------------|-------------------------------|---|--|------------------------------------|---|------------------|--------------------------|-------------------|----------------------------------|
| | Collaboration for innovation | Collaboration for other goals | Federal organizations in same policy domain | Federal organizations in another policy domain | Knowledge and science institutions | Other governmental organizations at regional or local level | Citizens | Non-profit organizations | Private companies | European or international actors |
| Degree of teamwork | 0.17* R2=0.19 | | | | | | 0.17* R2=0.17 | | | |
| TW: Autonomy to choose leader | | | | | 0.58* R2=0.38 | | | | | |
| TW: Autonomy to choose method | | | | | | | | | | |
| TW: Autonomy to decide planning work | 0.47* R2=0.19 | | | | | | | | | |
| TW: Autonomy to manage quality | 0.48** R2=0.19 | | | | | | | | | |
| TW: Autonomy to contact clients | | | | | | | | | | |
| TW: Autonomy to contact partners | | | | | | | | | | |
| TW: Autonomy to manage budget | | | | | | | 0.75* R2=0.18 | | | |
| PIW: Ability to work from home | | | | | | | | | | |
| PIW: Ability to do mobile work | | | | 0.25* R2=0.17 | | | 0.19* R2=0.20 | 0.19* R2=0.20 | | |
| PIW: Ability to work in satellite offices | | | | | | | 0.20* R2=0.21 | | | |
| TIW: Fixed schedule for everyone | | | | | | | | | | |

| | Type of collaboration | | Actors in collaborations for innovation | | | | | | | |
|---|------------------------------|-------------------------------|---|--|------------------------------------|---|----------|--------------------------|-------------------|----------------------------------|
| | Collaboration for innovation | Collaboration for other goals | Federal organizations in same policy domain | Federal organizations in another policy domain | Knowledge and science institutions | Other governmental organizations at regional or local level | Citizens | Non-profit organizations | Private companies | European or international actors |
| TIW: Choice between fixed schedules | | | | | | | | | | |
| TIW: Choice between flexible schedules | | | | 0.66* R2=0.15 | 1.00*** R2=0.38 | | | | 0.81* R2=0.17 | 0.70* R2=0.30 |
| TIW: Total autonomy | | 0.63** R2=0.18 | 0.49* R2=0.20 | | | | | | | 0.55* R2=0.30 |
| Motivation: cut back on costs | | | | | | | | | | |
| Motivation: improving employee wellbeing | 0.63** R2=0.20 | | 0.43* R2=0.20 | | | | | | | |
| Motivation: reducing sick leave | | | | | | | | | 0.40* R2=0.17 | |
| Motivation: improving productivity | | -0.34* R2=0.18 | | | | | | | | |
| Motivation: improving client-friendliness | | | | | | | | | | |
| Motivation: improving innovation | | | | | | | | | | |
| Motivation: improving service-delivery | | | | | -0.43* R2=0.38 | | | | -0.47* R2=0.17 | |
| Motivation: improving internal processes | | | | | | | | | | |
| Motivation: improving collaboration | | | | | | 0.93** R2=0.21 | | | | |

Note: Cells display beta-coefficients, significance level (***p < 0.001, **p < 0.01, *p < 0.05) and R²-values for models that had an overall significant influence and wherein the variable of interest had a significant influence.

2.7. CONCLUSION

SELF-MANAGING TEAMS

Our results showed that being a team-based organization creates good conditions for (collaborative) innovation. Firstly, the degree of teamwork in an organization has a positive impact on experimenting with innovations in an organization. Secondly, organizations that are more team-based are more likely to be involved in collaborations aimed at the development and/or implementation of an innovation. Thirdly, the degree of teamwork seems to have a positive effect on the engagement of citizens in collaborations for innovation. Lastly, belonging to a more team-based organization also has a positive impact on the satisfaction with innovations from all origins.

Our descriptive results showed that most federal organizations are team-based (77.5%), implying that more than half of the employees work in teams. This percentage is even higher for OISZ/IPSS organizations (88%) but lower for the FWI/ESF- and ION/OIP-organizations. Based on our findings, evolving to a more team-based organization could be advantageous for collaborative innovation in the federal government.

Regarding the different powers teams can have, our main finding is that especially powers related to the work organization (i.e. mutual division and planning of work, work method and taking measures for the quality improvement) positively influence the development of technological and process innovations. Furthermore, the autonomy to decide on the mutual division and planning of work and to take measures for improving the quality increases the extent to which organizations experiment with innovations and the extent to which they are involved in collaborations for innovation.

Whereas these powers seem to be given to most teams of team-based organizations, this is less the case for the autonomy to have direct contact with potential collaboration partners. However, this type of autonomy seems to have a positive effect on the development of service innovations and could, therefore, be a relevant team power to facilitate.

Lastly, the autonomy to decide the team leader seems to positively influence the involvement of governmental actors (except for federal organizations of the same policy domain). With only 9.9% of the teams having this autonomy, it might be interesting to explore the possibilities for expanding this power.

TIME AND PLACE INDEPENDENT WORKING

Furthermore, a large number of organizations (87.3% of respondents) allows their employees to choose their working hours within certain limits (i.e. flexitime). This is a positive finding in the context of collaborative innovation since we found that low flexibility in time independent working could hamper the development of process innovations. Conversely, high flexibility could facilitate the development of service innovations. However, flexibility increases an organizations inclination to develop innovations in collaborative arrangements, whereas inflexibility leads organizations to choose to innovate more in the own organization. Additionally, a certain degree of flexibility (instead of full flexibility to choose working hours) seems to be sufficient to foster engagement in collaborative innovations with various governmental actors and private companies.

The results showed that even though homeworking is embedded in most organizations, this is less the case for mobile working or working from satellite offices. However, our results suggested that greater flexibility in mobile work could foster cooperation with citizens and non-profit organizations in collaborative innovations

for innovation. More focus on mobile work could, therefore, be relevant for collaborative innovation with non-public actors.

MOTIVATIONS FOR IMPLEMENTING NWW

Our results confirm the advice of Baane, Houtkamp and Knotter (2010) that **NWW should be implemented for different reasons than solely cost savings**. In our findings the improvement of employee well-being and productivity were the two main motivations for implementing NWW, whereas cost savings came in third place. Although we did not find many relevant significant effects of the motivations for implementing NWW on collaborative innovation, we did find that implementing NWW to improve the internal communication is related to the development of more technological innovations. This is in line with the theory of NWW that states that the improvement of the internal communication and collaboration should be facilitated by the use of new technologies and systems (Baane e.a., 2010).

3. QUALITATIVE PART

Work Package 7 additionally aims to deepen the empirical understanding of the potential role of New Ways of Working in collaborative innovation in the public sector. Hence, we have also chosen a qualitative research design including an explorative multiple case study, which enabled us to examine two collaborative innovation projects in depth for the concepts ‘collaborative innovation’ and ‘New Ways of Working’ (NWW). In the following section we will discuss the methodology and findings of the qualitative part of Work Package 7.

3.1. METHODOLOGY

3.1.1. CASE SELECTION

Two cases of collaborative innovation involving the federal government were selected based on the following case selection criteria: ongoing collaboration projects aimed at some kinds of innovation involving multiple public actors. After an exploration phase in which we searched the internet and newspapers for collaborative innovation projects, five possible cases were identified. We then selected two with the best fit with the selection criteria: ‘Work Integration’ and ‘Domestic Violence’ (see *infra*). The cases included aimed at an innovation of a public policy or service by collaborating with different actors, namely federal, Flemish, local or regional governmental organizations, and non-profit organizations.

‘Work Integration’ (WI), was a project initiated by the Federal Agency for the reception of asylum seekers. The underlying idea of the project was that integration in society and the labour market are connected with each other. Bringing together all the public actors involved in the integration and naturalization of asylum seekers should allow them to enter the labour market earlier than before. There were four partner involved in the project: one federal organization, two Flemish organization and one foreign organization. The latter partner was not an active partner, but was involved to get inspiration and for exchanging experiences. The project tried to achieve this goal in two ways. On the one hand, they experimented with early screening for employment in order to take that into account, if possible, when assigning a reception centre to the asylum seeker. This early screening should make it possible to detect the possible competences, to collect the needed documents and to do the preparatory work. That way, the trajectory for helping asylum seekers to a job could be accelerated. On the other hand, the organizations in the project tried to coordinate as much as possible with each other by designing a customized trajectory. This should allow the asylum seeker to do all the compulsory training at the same time. The project lasted from July 2017 until November 2020.

‘Domestic Violence’ (DV) was initiated by a Justice Centre, which is part of the Flemish Department of Welfare, Public Health and Family. Justice Centres primary task is to provide first-line services such as informing citizens and assisting victims as well as perpetrators in their sentence execution. In 2017, a circular letter was published to realize case coordination in Flanders with regard to intra-family violence and child abuse. The aim of the case coordination is to stop family violence and to increase protective factors in the client system by providing a holistic approach. Moreover, the addition of article 458ter in the Criminal Code made it possible to share information, normally covered by professional secrecy, in the context of such case meetings. The overall aim of the project is that different organizations and services (justice, police, social service agencies and public administration) collaborate to tackle a complex and/or difficult domestic violence situation that needs a coordinated approach if the available options are insufficient.

The project meetings are held every two weeks in which new registrations of cases are reported and the progress of current cases is discussed. Whereas case coordination is already structurally embedded in other

provinces, the province concerned only started a one-year pilot project in September 2018. During one of the 'last' meetings, it was decided to extend the project. We contacted most of the core partners of the specific pilot project. Unfortunately, some other core partners could not be interviewed due to inaccessibility or time restrictions.

3.1.2. DATA COLLECTION

In each case, the project coordinator provided us with the names and contact details of the different organizations and people involved in the project. For WI, five interviews were conducted with all project participants. Given the extensive list of both public and non-public actors involved in the project of DV, we included five public organizations (two Flemish, one federal and two municipal) and one private organization (mainly subsidized by the Flemish government). We conducted twelve interviews with all individuals in these organizations who had an active role in the operational team of the project. An overview of the characteristics of all respondents can be found in Appendix 1.

The interviews were semi-structured and divided into four main components. First, respondents were asked to describe the project itself and their own position, both in their organization and related to the project. Also, they were asked whether they experienced the project as innovative and why. The second part of the interview concerned the collaboration: the role of their own organization in the project, how the collaboration was set-up and organized, and their personal experience with the collaboration. Thirdly, an information sheet on several applications of NWW (teleworking, time independent working, self-managing teams, job autonomy and ICT-tools) was provided and respondents were asked to indicate those ones applicable to their work organization. On this basis, they were questioned about the policy regarding these applications, how the policy translates into practice and their experience with them. Fourthly, they were asked if they felt these new working methods might have implications for the project (for both the collaboration and the innovation) and in which way. The same question was asked for the use of NWW practices by the other partners involved in the collaborative project. Finally, the respondents were asked whether they thought NWW generally can be beneficial, harmful or was seen as not important for the collaboration and innovation in such collaborative projects.

3.1.3. DATA ANALYSIS

All interviews were transcribed, coded and analysed using NVivo12 qualitative analysis software. In a first round, the interviews were coded following insights from the theoretical framework. During the process, the initial coding scheme was adjusted as new (sub)categories arose. As a result of this, new (sub)codes were added through phases of open and axial coding. The final coding scheme can be found in Appendix 2.

3.2. FINDINGS

3.2.1. NWW IN THE OWN ORGANIZATION

For the case of WI, the three organizations involved differed considerably in terms of NWW. Whereas one organization has implemented NWW in a rather advanced way – in the sense that they have introduced various elements of NWW in an advanced way – this was less the case for the other organizations. In the case of DV, there was no organization that implemented NWW in such an advanced way. Nevertheless, we can place the organizations included in DV on a continuum going from having a rather traditional way of working to being relatively advanced in NWW (having implemented various elements to a limited extent).

Overall for both cases, we can conclude that most of the respondents have access to at least one of the different NWW practices: job autonomy, time and place independent working and ICT-tools. However, self-managing teams was less discussed during the interviews since respondents did not perceive that this was applicable for them. Yet, most respondents mentioned some elements of self-managing teams such as no controlling supervisors, versatility of team members and mutual division and planning of work (WI3; WI4; WI5; DV1; DV2; DV3; DV5; DV6; DV7; DV8; DV9; DV10; DV11; DV12) (see also infra). Nevertheless, respondent WI5 who is a supervisor mentioned that there are sometimes limits to self-management:

“I do notice that you have to intervene once in a while, therefore not necessarily in the content or in what they do, but in the way they do it. I notice that from the moment the concept starts to live in a self-directed manner: it is essential that everyone helps to draw up the consensus, otherwise it will not work. Then I have to indicate ‘leaders’.” (WI5)

In what follows, we will therefore focus on findings concerning job autonomy, time and place independent working and ICT-tools.

3.2.1.1. JOB AUTONOMY

All respondents indicated that they experience enough job autonomy to plan and do their own work, which they considered very important: *“Yes, job autonomy is very important to me; it also gives comfort in life”*(WI3). Although all respondents are from organizations with a hierarchical structure and/or with some established rules and procedures, they do not perceive this as hampering their work because of the job autonomy that they experience, despite the hierarchical structure (WI2; WI4; DV6; DV7; DV12):

“...that I still have quite some job autonomy in my work with clients. Especially in this because there are already enough rules. But that I can do my thing, that I still feel that I have autonomy in this: that is important to me.” (DV7)

Especially the management style of the supervisor seems to be crucial hereby. Although respondents did not work in self-managing teams, they perceive that their supervisor entrusts great responsibilities to their team. The supervisors seem to take on a more coaching and supporting role instead of controlling which gives the necessary autonomy to employees. Many respondents, therefore, perceive a **‘management by results’**-style in which they are given enough freedom to plan and do their work as they wish without having to report back to their supervisor (WI4; DV1; DV3; DV6; DV12). One respondent, herself in a supervisory position, described her management style as follows:

“I will not sit next to my employees to see how they conduct a conversation or which conversation techniques they use, as long as they achieve their objectives. They know I am here for coaching and

support: they can just enter, my door is open when they want to ask for advice or if they want tips and tricks. But they do work more independently.” (DV5)

Respondent DV6, who works under the direction of DV6, confirmed throughout the interview that she experiences the same management style that DV6 described. Nevertheless, one respondent from a managerial position indicated that not all supervisors are in favour of job autonomy for all their employees

“I do think there should be a degree of job autonomy. If we have a new project, I actually think that frontline employees also need to have a say in it. But I know that many colleagues are going to contradict me too.” (WI5)

This shows that also supervisors struggle with allowing a certain degree of autonomy to different types of employees in terms of job content.

3.2.1.2. TIME INDEPENDENT WORKING

Concerning time independent working amongst the respondents, we can identify three different systems: (1) a fixed work schedule (DV10), (2) a flextime system⁸ with core and bandwidth periods (WI1; WI2; WI5; DV4; DV11), and (3) a flexible system in which employees can work freely between a start and end time (DV1; DV2; DV3). However, this third system can be more or less flexible for some respondents since some of them need to be reachable during the service hours (WI3; WI4; DV5; DV6; DV7; DV8; DV9; DV12): *“The service delivery must be guaranteed”* (WI4). The choice for one or another system is mainly job-related; especially respondents who have direct contact with citizens seem to work in less flexible time systems. Additionally, some respondents mentioned that time independent working is not suitable for every person since person related issues such as self-discipline should be taken into account (WI4; WI5; DV1; DV4): *“I am in favor of a very free system, but I notice that some employees cannot handle that. They need something to hold on”* (WI5).

Time independent working is mainly seen as **advantageous for various reasons**. It, firstly, makes it possible to combine private life with work (WI5; DV6; DV12):

“And, for example, if you really have to go to the doctor: earlier you had to take half a day off for something that takes half an hour. So this flexible system is definitely positive for things like that.” (DV6)

Secondly, it not only benefits the work-life combination but also the coordination of work: *“We can individually determine our working hours according to the needs of the clients”* (DV8). Lastly, time independent also takes away some stress that was related to train hours and the punch clock (WI3).

A second distinction we can make is whether or not respondents have to register their working hours. Whereas most respondents do not need to register, a few respondents indicated that they (or their subordinates) do have to register (WI1; WI2; DV4; DV5; DV6; DV7; DV8). Although this mostly comes down to a virtual punch clock, respondents prefer the wording ‘**time registration**’ instead. When asking about their experiences with this, we find some mixed opinions. For example, respondent DV4s’ organization shifted from a no registration policy, including more flexibility regarding time independent working, to a more rigorous time registration system. However, he preferred the previous system because he found that the current one involves a lot of hassle and even red tape. Moreover, he describes time registration as:

⁸ In Dutch : systeem met stam- en glijtijden.

"...no new way of working [...] that is based on the philosophy of seeing when someone is not working. Time registration is not so much to see if you are actually working; it is just to see if you are present." (DV4)

This is indeed an important principle of time (and place) independent working: steering on results instead of on presence. WI3 confirms that time independent working requires a change of mentality for both supervisors and colleagues:

"Two years ago, it was always crowded here and you could perfectly see who was present: "okay, he is not present, she is, ah he arrives now, oh why is she already leaving?". Whereas now it is the complete opposite." (WI3)

Surprisingly, two respondents from a managerial position mention that they do give **trust** to their employees when it comes to time registration but they also mention that there is a need for some kind of **control** (WI4; WI5; DV5; DV9). However, the trust they refer to is trusting that the employees register correctly and that they do not misuse the system by saving up for a holiday period or registering more than actually performed. Remarkable is thus that time registration itself entails more need for control to maintain it whereas supervisors admit there will always be employees slipping through the net (WI5; DV9): *"Because you can work with fixed hours or a punch clock and an employee can still perform less"* (WI5).

Additionally, DV8 first experienced the introduction of time registration as *"controlling and threatening"*, yet it offers some kind of protection against too much overtime.

"But in the end, that time registration is an enormous added value. Certainly for us, driven care providers. We easily have overtime because we work with people so we cannot say "sorry this has to wait". Time spend on issues like that woman in crisis this morning would not be registered, while now it is." (DV8)

It is indeed the compensation of working time (for having both minus or plus hours) that is seen as an advantage of time registration (WI5; DV1; DV4; DV8; DV9; DV12). Respondent DV1 mentioned that even though she works in a time independent system, she registers her working hours for herself:

"We do not have to register, but I keep an Excel file in which I record the hours of when I start, finish and take my lunch break. I register for myself because that way I know at the end of the month if I am safe or if I have worked too much." (DV1)

Also respondent DV12, who works time independent, says she compensates her overtime herself. Associated with this, we found that it was mainly respondents who work in a flexible system that indicated to continue working/do overtime at home (DV1; DV6; DV12). Nonetheless, they see this as an advantage of their system.

3.2.1.3. TELEWORKING

Most respondents are allowed to work from home one or two day(s) per week or from the customer's location (WI1; WI2; WI3; WI4; DV1; DV2; DV3; DV4; DV5; DV6; DV9; DV12). A few respondents indicated that working from different locations (satellite offices or regional offices) is allowed (WI1; WI5; DV1; DV2; DV9) or is even the ordinary course of business (WI3; WI4). **Job-related reasons** are the main reasons why some respondents are not allowed to telework (DV7; DV8; DV10; DV11) or do not want to telework (DV3); most job responsibilities of police officers or caregivers are difficult to execute from a different location.

Teleworking or place independent working offers many advantages according to the respondents. The most frequently mentioned ones are: decreased commute time (WI2; WI3; WI5; DV1; DV4; DV12), improved concentration (WI4; DV1; DV6; DV10; DV12) and increased productivity (DV1; DV4; DV6):

“I work more at home because I can then really work concentrated while not being as disturbed as here by for example something I hear in the hallway for example, or when colleagues ask you to join for a coffee, or the fixed lunch break with everyone. Whereas when you work at home alone, you can take a break when you are done. [...] At home I do not hear or see anyone and the work progresses smoothly.” (DV6)

Working from home, therefore, makes it possible to maintain a certain workflow, which benefits the **productivity**. Furthermore, teleworking allows to “work in the ideal circumstances for a specific task” (DV1). Indeed, matching the work location to the task is a much-predicted advantage of place independent working (Baane e.a., 2010).

However, some respondents mentioned the importance of working at the office. Especially **social contact** with colleagues is seen as important, especially in terms of work efficiency: “Sometimes it is good to be here. If there is an urgent file, you then can discuss it immediately which is more difficult when you are teleworking” (DV4), or for capturing signals on the workplace: “You hear a lot in the corridors when you are present” (WI4).

3.2.1.4. ICT TOOLS

Related to teleworking, a few respondents mention some preconditions that make teleworking possible. This can mainly be associated with the three B’s of Baane, Houtkamp and Knotter (2010), and more specifically the Bytes. The organization needs to have **a certain extent of digitization** (i.e. the transition of information to a digital form that can be used by electronic devices such as computers). Having access to (enough) laptops is a first condition; some respondent either do not have their own laptop or do not have access to a shared laptop (DV6; DV10; DV11) (see also infra). Within one organization, four shared laptops were available for 32 employees, making a fixed telework day impossible. In practice, therefore, it appears that those laptops are mostly used by employees who have a longer commuting time (DV5; DV6). Also working in highly paper-based organizations entails some obstacles:

“It seems less interesting to me because we still have to work with paper files. So maybe with digital files that can work. It is a possibility to telework but then you have to drag everything around.” (DV4)

Furthermore, some respondents also mentioned the importance of **ICT tools** for enabling (time and) place independent working (WI3; WI4): “The available ICT tools support the way of working, otherwise you cannot go as far in your time and place independent working as we now do.” (WI3). Moreover, from the interviews it is clear that there is one organization (i.e. WI3 and WI4) that has a strong focus on the use of ICT tools. The organization provides different kinds of tools (e.g. Google Meet, conference rooms with big screens and a Jabra⁹) to facilitate conference meetings which are also widely used. This also required a change of mentality in the organization: “I think that is because they have grown as an organization and the possibilities to communicate with each other have improved as well” (WI3). Another respondent also saw the potential of the use of videoconferencing and mentioned room for improvement: “The only thing I sometimes miss is skype meetings, sometimes we have a meeting in Brussels with people from West Flanders and Limburg that could easily be done via Skype” (WI5).

⁹ A Jabra is a portable speakerphone that amplifies the sound during a conference meeting.

Some respondents indicate to have access to internal tools that facilitate the collaboration between colleagues and the information and knowledge sharing in the organizations (WI4; DV2; DV7; DV8; DV9). Nevertheless, two respondents mentioned the importance of **digital literacy** of employees; only then can ICT tools be used in an efficient and effective way (DV2; DV11):

“The organization does make an effort but the transfer of the ICT knowledge is sometimes difficult for me. It is not always easy to learn new things. I am not old but I am slightly older and I sometimes have the feeling of “what are they coming up with now?”. And if that are things with which I work on a daily basis, then that is not so bad, then I will learn quickly, even with new things. But if it is one of those things that I only have to use every once in a while: that is pretty hard for me. And I notice that younger colleagues get away with it quicker.” (DV11)

The other respondent, therefore, sees an important role for the IT-department of the organization in providing training on the spot:

“Many people still use their computer as a typewriter because they actually do not know how to use such a tool efficiently. I firmly believe that there needs to be a coach walking around on the work floor who literally comes to your screen and will guide you step by step, and that for six months long. I think the digital literacy then would improve on many work floors.” (DV2)

3.2.2. THE IMPACT OF NWW ON COLLABORATIVE INNOVATION

Rather than having crucial importance in the process of collaborative innovation, NWW – or some aspects of it – can play a facilitating role in the process of collaborative innovation. We can distinguish between NWW-applications that primarily affect the organizational structure and infrastructure (i.e. self-managing teams), and NWW-applications that offer more flexibility for the individual employee (i.e. teleworking, time independent working, ICT tools and job autonomy). Whereas the former shows to be less relevant for collaborative innovation, the latter can be meaningful for collaborative innovation. The following paragraphs discuss each of these latter NWW-applications and their perceived impact on collaborative innovation.

3.2.2.1. JOB AUTONOMY

The first important aspect of NWW affecting collaborative innovation is job autonomy. Job autonomy can be described as the extent to which employees have an influence on the planning and management of their own work (Bourdeaud’hui & Delagrangé, 2017). Different respondents perceive job autonomy as necessary in order to manage their work in an effective and efficient way (WI2; WI5; DV6; DV11). For most respondents, participation in the project comes extra, on top of their regular job responsibilities. It demands substantive time and effort, without job revisions compensating for this. This means that respondents need the flexibility to shift their work tasks to find the time to work for the collaborative project. A respondent indicates that, if job autonomy is granted, *“you simply have many more possibilities for making good arrangements with your work”* (WI2).

Extending the definition of job autonomy as described above, some respondents also mentioned another element of job autonomy: namely **receiving a full mandate** from the home organization (WI2; WI5; DV4; DV5; DV7):

“I think that job autonomy can have the most influence on such a project. If you are there and you get the mandate from your organization to do, say, share things there. [...] I think you are blocked if you

participate in such a project without job autonomy. [...] If you have to keep checking what you can do, then it will not work.” (DV5)

Getting the full responsibility to participate in the project without having to ask for permission or having to give accountability for your coming and goings, is perceived by respondents to be crucial for an efficient way of working. It is, therefore, important to be able to act freely within a certain framework. Otherwise, as a respondent states, it is like *“pushing a pause button”* (DV4) on the projects’ process until the next meeting.

3.2.2.2. TIME INDEPENDENT WORKING

The second aspect of NWW that was mentioned by some respondents is time independent working. This can be described as working without being bound to a fixed work schedule; employees can have flexible working hours which can vary depending on the permitted flexibility (Delagrangé, 2016). Time independent working especially is perceived to be useful, again, for **managing different work and project responsibilities** (DV1; DV6; DV7):

“Because suppose it is Thursday evening and I still have a few things to do for the project meeting tomorrow, so I really have to work a little longer today, then that is certainly not a problem. Or suppose I say it has been a tiring project meeting, I quickly go to the office to see if I have any emails and then I go home for example, then that is no problem.” (DV6)

Whether it affects peoples’ engagement in the collaborative innovation project, depends on the degree of inflexibility that is provided regarding time independent working. Whereas respondent WI2 states that *“in such projects, time independent working is less important because we still work during office hours”*, respondent DV4 sees more advantages in time independent working. Both respondents need to register their working hours and thus work with a semi-flexible work schedule. However, the organization of DV4 shifted from a no registration policy, including more flexibility regarding time independent working, to a more rigorous time registration system (see supra):

“That is also a difficult thing, because for example you have a meeting from 9 to 11 am, at 11:30 am you will be here again, but you can only register time from 12:30 pm. Then you either have to eat something or walk around a bit. Or you already come to work here but that will not be registered.” (DV4)

The respondent indicates that this is not really hampering participation in meetings outside the office, but it does not make it easier neither.

3.2.2.3. TELEWORKING

A third important aspect of NWW is teleworking, or the ability to work from any place suitable for work. This means that employees can work from different places outside the standard office workplace (Baane e.a., 2010; Huws & O’Regan, 2001). Teleworking offers several respondents the needed flexibility to manage their work for the project and their regular work responsibilities (WI2; DV1; DV6; DV7; DV10). It allows respondents to continue working at the location where a meeting was held, so they do not have to make an **unnecessary commute via the standard workplace**. Additionally, the possibility to work from home to prepare for the project in full concentration is perceived as beneficiary (DV1; DV6). One respondent (DV10), was not allowed to work from home but perceived teleworking as something that, if granted, could facilitate her participation

in the project. According to her view, she manages as it is now (without teleworking), but teleworking would make things easier:

“For example if you were able to work at home then you can do focus on your work [of the project], but if you come here there is always something else to do, either there are still files to work on, or those phones ring here all the time, colleagues walk around here... I am not someone who will chat and act all day but yes your colleagues are also here. But if they would say [...] every week you get two hours and you can work on the project at home... And yes it is of course difficult to check, but that is of course a matter of trust. I think that it could be something the organization gives in return for my engagement in the project which comes on top of my normal job responsibilities. I would find it normal if the employer allows me to work two hours or so on the project from home.” (DV10)

The possibility to work at home specifically for the project would thus, according to the respondent’s view, facilitate her engagement in the project and could also allow her to better manage her normal job responsibilities with the project (see supra).

3.2.2.4. ICT TOOLS

The access to and use of various ICT tools is a last important facilitator in projects aimed at collaborative innovation. Especially having a **laptop** that one can use during the project meetings is perceived as facilitating an efficient way of working since it allows to look up certain information on the spot. This could enhance the information sharing within a project itself (DV10; DV11): *“It would be very easy if everyone can search [in their databases], but now they ask to look at it by the next meeting [...] While that should actually happen there [in the meeting]”* (DV10). This means that the collaboration process could be accelerated if everyone can use a laptop to search for the necessary information during the project meetings (DV11).

Additionally, some respondents see the potential of using **videoconferencing** in the physical meetings. Especially when someone who is not fully involved in the project needs to give a short explanation or when working with an international partner. Although this is sometimes already being done in the case of ‘Work Integration’, and more specifically within the organization of VDAB, this is not the case for the project of ‘Domestic Violence’. Nevertheless, different respondents see the potential benefits of using videoconferencing such as Skype or Google Meet for that purpose (WI3; WI4; DV4; DV10; DV11): *“We have never discussed this before, but I see some opportunities though. [...] they can then explain that once via such a videoconference instead of commuting for an hour to explain this [in person] because they do not follow the rest of the meeting”* (DV4). However, according to respondents it is not clear if this digital way of sharing information is allowed by Article 458ter of the Criminal Code. Although this article provides projects like this an exception to professional secrecy, it is unclear whether this also applies to non-physical information sharing.

Furthermore, some respondents also emphasized the enhancement of **information exchange tools**, such as SharePoint, for the collaborative innovation process (DV1; DV3; DV4; DV5; DV6; DV8; DV10; DV12; WI2; WI5). Additionally, these tools are not only beneficial for information sharing, but also for maintaining the collaboration between the physical project meetings: *“That is for in between; we do not see each other for 14 days so that is an instrument that works in a binding way”* (DV8). Nevertheless, respondents mention that the success of these tools hinges on various technological pitfalls such as the (in)compatibility between systems used in the organizations involved (i.e. Windows vs Google), the need to get full access to another organization’s system (and knowing how to work with it), and digital literacy (WI5; DV2; DV3).

Despite the many potential benefits of ICT in the own organization and the project, most respondents emphasize the importance of **face-to-face meetings** (WI4; WI5; DV1; DV2; DV3; DV4; DV5; DV7; DV8; DV9; DV10; DV11; DV12). We can distinguish four different reasons for this. A first reason arises from the nature of collaboration. This is especially for the case of ‘Domestic Violence’ in which partners deal with complex situations of domestic violence while sharing sensitive information with each other. There are no straightforward answers to these complicated issues requiring lively discussions and brainstorming; respondents therefore experience face-to-face contact essential for this (DV1; DV2; DV9):

“Because it is not as straightforward as “this are the facts so that is the plan of action”. Then you have again that one-size-fits all approach. And that is the important thing in the project: that a whole group of people start thinking together and you cannot do that digitally.” (DV9)

A second important reason relates to the completeness of information in face-to-face contact versus videoconferencing. Respondents fear that body language and other non-verbal communication are more difficult to detect via videoconferencing. Given the sensitive issues they are dealing with, respondents believe that these types of communication are crucial since they reflect someone’s feeling about a particular case (DV4, DV8; DV9; DV11):

“Because the project deals with really sensitive matters and I think you lose a lot information or feelings with videoconferencing. Because often it is also about the feeling you have with a certain file. And I think that might be a little less present [digitally].” (DV4)

“Because I think the personal contact is important; the feeling and the non-verbal communication sometimes plays an important role, and that way you can notice some things in another person.” (DV11)

Thirdly, some respondents also fear that holding meetings via videoconferencing could decrease the focus during the project meetings (DV4; DV12):

“I imagine I am sitting in my office with the videoconference and then you get a phone so automatically you would take it and then your focus is with that and not with what is going on in the meeting. So no I would not think that is a good idea.” (DV12)

Lastly, one respondent also mentions the importance of informal moments associated with face-to-face meetings:

“I also think it is good to be together physically. Because in the break you also talk. For example at the coffee machine: everyone takes coffee and there is a more relaxed atmosphere. And that is a good thing that those moments are also there. [...] I think that these are moments that strengthen those ties as well as the moments related to the project itself. [...] Informal moments are just as important as those moments when you are sitting at the table together.” (DV10)

Consequently, holding face-to-face meetings also has some advantages for the collaboration in the process. This allows project participants to not only get to know each other, but also each other’s way of working and thinking (DV4; DV5; DV7; DV9):

“I think that that is also an added value of sitting together every fortnight: that you see more of how that partner thinks and reasons and how they respond to something. And they can also see that of us. In addition, you also learn each other's way of thinking and looking at a problem.” (DV7)

This also benefits the **trust and familiarity** between partners (DV1; DV4; DV8; DV12): *“Gradually, the trust also grows when you sit together with the same group of people”* (DV1). Additionally, face-to-face meetings remove some barriers and distance between project participants and increases the familiarity (WI4; WI5; DV4; DV5):

“Working face-to-face does make it easier for you to bridge barriers in order to work together more easily and to look at the possibilities” (WI4).

According to many respondents, these positive outcomes of face-to-face contact could then facilitate virtual contact (i.e. mail or telephone) with the project partners (WI4; DV5; DV7; DV8; DV9; DV10; DV11; DV12). They acknowledge that there is a need for a strong relation based on face-to-face contact that makes partners find each other faster via phone or mail, also with non-project related matters:

“You take the phone much easier than in other files with the idea of “what can we exchange here?”. [...] In such a way that you still think of each other more quickly in other situations or other work areas.” (DV7)

Accordingly, some respondents think digital meetings could offer some opportunities, such as alternating digital with face-to-face meetings or holding digital meetings between two physical meetings to keep track of the project process (WI5; DV2; DV3; DV5; DV9): *“You have to use all possible tools to meet and meeting is more than just physical, but it should not repress or exclude the physical”* (DV9). Furthermore, the alternation can be optimized if considering when it is necessary to meet face-to-face and when things can be discussed in a digital meeting: *“Because, the motivation and enthusiasm will also plummet if you notice that you have to meet monthly even if it is not always necessary, but it is still expected to be there physically”* (WI5).

3.2.2.5. DISCUSSION

Above we have discussed the various NWW-applications that could be relevant for collaborative innovation. Nevertheless, some respondents also mentioned another relevant aspect related to NWW, namely having a **flexible mindset** (WI2; WI5; DV5; DV9): *“I think you take something of that flexibility with you because you are flexible with clients and with where you work. I think that is a flexibility that you take in your head in totality”* (DV5). The presence of (some elements of) NWW in the organization could therefore lead to a change of mentality resulting in a more flexible way of thinking. Respondent WI5 mentioned that this could also benefit the innovation of such collaborative projects: *“I think you have to have certain flexibility and that you have to be able to adapt. Otherwise, you run the risk of not being innovative because you do not try new things”* (WI5). Another respondent also indicated that it is important to deal flexibly with the flexibility obtained:

“As long as people not use it solely for their self-interest. If people would say “That day I usually work from home so I cannot meet on that day”, then it will be difficult of course. But if people are flexible in that, it can be quite a big advantage in my opinion.” (WI2)

According to most respondents, NWW can play a facilitating in collaborative innovation by providing the necessary freedom and flexibility to manage their different job responsibilities. Especially job autonomy, time and place independent working and the use of ICT tools seemed to be facilitating for respondents' engagement in collaborative innovation projects. However, some respondents' opinions nuance this finding. Firstly, two respondents were convinced that the presence or absence of NWW-applications would not make a difference for collaborative innovation projects (DV3; DV12). Respondent DV3 hereby mentioned the own logic of a project: *“A project has its own logic and NWW does not have that much influence on that logic of something project-based. I think that a project has its own dynamics over which NWW does not have much influence”* (DV3). Additionally, the opinion of respondent DV5 is consistent herewith since she mentioned that most

project agreements about time and place of the meetings are fixed and therefore she does not require that much flexibility. Nevertheless, she also states that collaborating with a less flexible partner is no obstacle. The collaboration could be better if that partner would be more flexible, but it does not cause too negative consequences. Respondent WI3 concluded as follows:

“I notice that if you work with a partner who has actually already evolved well in time and place independent working, you will also find each other easier that way. Whereas when you collaborate with a partner who actually did not make that choice, it is also more difficult for them to go along with my story. So I will adjust and come to the meeting while it could perfectly happen via the digital way.” (WI3)

Related to this, some other respondents also indicated that not noticing whether or not project partners have access to NWW-application can be a good thing as well (WI2; DV4; DV7): *“Well, if it does not bother you or it does not stand out then that is good, then it works”* (WI2).

Secondly, although some aspects of NWW can be facilitating, the data collection was focused on (subjective) perceptions (both experiences and expectations) of respondents. Respondents often talked about the benefits of NWW, as something they expected or presumed rather than as actually experiencing it themselves. This was because most respondents did not have access to all NWW-applications and/or did not have access to these in an advanced way. They therefore thought about *how it could be* when having (more or less) flexibility in terms of NWW instead of *how it is*. Nevertheless, some respondents also spoke from experience since their organization changed its way of working in the past. Respondent DV4 who experienced a shift from a high to a low flexibility in terms of time independent working is a good example of this. The combination of data based on perceptions and experiences can, however, also be seen as favorable since issues as well as success stories regarding NWW could be exposed. Moreover, it provides insight into how respondents would otherwise participate in collaborative innovation projects when they had the choice or means to do so.

In addition to this last limitation, we must point out the limited generalizability of these results as well. Whereas the quantitative study as part of WP7 deliberately researched NWW as comprehensive as possible in all federal ministries and agencies, the qualitative study solely focused on two cases in which nine organizations were involved (i.e. of which two at the federal level). These cases were not specifically selected for the presence of NWW which means that we cannot deduce from this that the extent to which NWW occurred in these organizations is representative for federal government organizations.

3.3. CONCLUSION

Overall, most respondents of the studied cases had access to at least one of the different NWW practices, including job autonomy, time and place independent working and ICT tools. Accordingly, a variation in the degree of NWW in the organizations involved was observed in the different cases. In the case of WI, one organization had implemented NWW in a rather advanced way compared to the other two organizations. In the case of DV, the organizations could be placed on a continuum from a rather traditional way of working to a more advanced way in terms of NWW. Nevertheless, this dissimilarity in work organization and allowed flexibility in the home organizations does not seem to be obstructive for the collaboration as part of these projects since more flexible partners seem to adapt their selves to the less flexible partner. Yet, similarity in NWW and flexibility could make collaboration easier.

The results of the interview data showed that NWW does not have crucial importance in the process of collaborative innovation; the project is not completely reliant on the presence or absence of NWW. This may be because collaborative innovation projects often have their own logic and dynamic which do not require a

lot of flexibility in terms of NWW: project meetings are mainly during working hours and on locations that are accessible to everyone. Additionally, the way of working in the project itself usually differs from the way of working in the home organizations because of the innovative aspect of it. Nevertheless, some aspects of NWW can be facilitating in the process of collaborative innovation. In particular, access to sufficient job autonomy, and time and place independent working can offer flexibility to participants which facilitates their participation in collaborative innovation projects. Since most respondents indicated that collaborative innovation project came in addition to their regular job responsibilities, these NWW-elements enable them to manage their regular and project work in an effective and efficient manner. Additionally, receiving a full mandate from the organization to participate in the project, without having to ask for permission, was perceived as important.

Another NWW-element that strongly emerged from the interview data was ICT. The use of ICT tools can facilitate information sharing both inside and outside the project meetings. Being up-to-date in the digitization story (i.e. having an own laptop and digital literacy) seems to be difficult, yet essential for collaborative innovation meetings. This confirms our expectation that implementing NWW in the own organization accompanied by the implementation of ICT, can facilitate information sharing both inside and outside the organization. Additionally, our findings confirm the premise of *“a physical minimum for a virtual optimum”* (Baane e.a., 2010, p. 60). Whereas video conferencing was seen as an opportunity for efficient project meetings, face-to-face meetings were perceived to be essential for collaborative innovation due to trust and relational learning. Respondents, however, admitted that face-to-face meetings are beneficial for having virtual contact with the project partners, whether or not related to the project. Both having face-to-face contact and using ICT tools in collaborative innovation are thus of great importance for the individual conditions of collaborative innovation.

Important to mention is that this data was collected before the COVID-19 crisis. This crisis impacted not only our normal way of living but also our normal way of working. The outbreak of the Coronavirus can be seen as a wicked problem and entails many challenges. This sudden and disruptive change of our way of working also has implications for collaborative innovation projects like the ones studied. Whereas respondents were convinced that face-to-face meetings are crucial and videoconferencing is more occasionally, the COVID-19 crisis obliged them to continue the project in a virtual way. It would, therefore, be interesting to examine the long term impact of this COVID-19 crisis on the implementation of NWW in organizations on the one hand, and on the way of collaboration in collaborative innovation projects on the other hand: Can we expect that, in two years from now, time and place independent indeed will be more embedded in organizations? Will face-to-face contact then still be the basis for collaborative innovation projects? And what are the evolutions to be expected in terms of ICT and tools for information sharing?

OVERALL CONCLUSION

The aim of this report was to explore the potential impact of New Ways of Working (NWW) on collaborative innovation. The central research question therefore was: *to what extent do new practices of organization and HRM like New Ways of Working in the federal ministries and agencies of Belgium hamper or foster (the conditions for) collaborative innovation?*. The aim of this Work Package was (1) to identify the implementation of New Ways of Working in the Belgian federal government and (2) to determine the effect of New Ways of Working on collaborative innovation. We started with a literature review in which we explored the potential direct and indirect effects of NWW on (collaborative) innovation. Although we found many effects of NWW on the individual level and the employee well-being, research on the potential contribution of NWW to collaborative innovation is limited. Therefore, we not only searched for direct effects of NWW on (collaborative) innovation but also for indirect effects (i.e. via the conditions for collaborative innovation). Whereas the literature did not show many direct effects, we did find indications of indirect effects such as on knowledge and information sharing, trust, organizational culture, red tape and leadership. Based on this, we conducted a quantitative survey amongst the highest levels of federal civil servants and a qualitative case study as part of our mixed methods research design. By combining the results of these two methodologies we aspired to deepen the empirical understanding of the potential role of NWW for collaborative innovation.

MAIN FINDINGS

Regarding the quantitative results we can conclude that there is a direct effect of NWW on collaborative innovation. Especially the degree of teamwork and the different powers team can have seem to be the most relevant for (collaborative) innovation. We found that **the degree of teamwork** in an organization can advance the experimenting of innovations, the involvement in collaborations for innovations and the satisfaction with the innovations developed. Further, not all types of autonomy for teams are relevant to the same degree for collaborative innovation: **autonomy related to the own work organization** (mutual division and planning of work, work method and quality control) can enhance the development of technological and process innovations. Additionally, the involvement of governmental actors (except for federal organizations of the same policy domain) in collaborations can be advanced **by the autonomy of teams to choose their team leader**. As **regards time independent working**, we found that low flexibility can hamper the development of process innovations, while high flexibility can enhance service innovations. Nevertheless, low flexibility is not detrimental for all innovations since it can foster those innovations that are being developed without collaboration. Moreover, a moderate degree of time flexibility is conducive for the involvement of various governmental actors and private companies in collaborative innovations. Finally, for place independent working our results showed that the involvement of citizens and non-profit organizations can be advanced by the ability to do **mobile work**.

Whereas the quantitative findings provided direct influences of the NWW-elements, the qualitative findings explain the (underlying) indirect impact of NWW on collaborative innovation. Having a moderate to high degree of job autonomy and having a certain flexibility in time and place independent working can offer participants of collaborative innovations sufficient flexibility with which they can manage their regular job responsibilities with those of the project. This could therefore advance their engagement in the collaborative innovations project. We also found that the use of ICT tools (i.e. having an own laptop and information sharing tools) is enhancing for the process of collaborative innovation. Although face-to-face contact is perceived as crucial for the process of collaborative innovation, supplementary virtual contact or the occasional use videoconferencing could be facilitating as well.

Main findings

- NWW has both a direct and indirect effect on collaborative innovation. The direct effects are mainly on the development of innovations and the extent to which organizations collaborate with external actors.
- Teamwork and teams having autonomy over work-related matters seems to have the most important direct positive impact on collaborative innovation.
- Time and place independent working have both direct and indirect effects on collaborative innovation. The direct effects showed a negative effect of low time flexibility on the development of process innovations, and on innovations which are developed in collaboration. Nevertheless, low flexibility does not seem to hamper the process of collaborative innovation itself. Additionally, high time flexibility could foster the development of service innovations. A certain degree of flexibility regarding time independent working is conducive for the involvement of various governmental actors and private companies in collaborations for innovation.
- Place independent working can have a direct effect in terms of mobile work on the involvement of collaboration partners such as citizens and non-profit organizations, as well as public organizations in other policy domains.
- However, having little flexibility in terms of time and place independent working does not seem to hamper collaborative innovation, but it can be beneficial if one can make use of time and place independent working .
- The indirect effects of job autonomy and time and place independent working can be explained by the ability of participant to manage their different job responsibilities, which allows them to engage better in the project.
- Being able to use an own laptop or to have access to information sharing tools seems to be advantageous for the process of collaborative innovation, which can be seen as an indirect effect on collaborative innovation as well.

OUR FINDINGS COMPARED WITH THE LITERATURE EXPECTATIONS

In our literature review (Part 1), we identified two potential direct effects. We expected that NWW could foster the individual innovative work behaviour of employees and that time and place independent working could facilitate working at the location of collaboration partners. Both outcomes could, therefore, foster the engagement of employees in collaborative innovation projects. Our findings confirm that **having spatial flexibility indeed can be beneficial to manage work efficiently and effectively.**

Given the limited direct effects we found in the literature, we additionally examined the potential indirect effects of NWW on collaborative innovation via the individual and organizational conditions. Regarding the individual conditions, we wondered if NWW has the same effect on knowledge sharing and trust in collaborative innovation as it has inside organizations. Our results showed that **when a partner organization has already implemented the use of an ICT tool aimed at information sharing, it is also more easily used in the project to facilitate information sharing between project partners.** As already mentioned, the respondents also emphasized the importance of face-to-face contact for trust and virtual contact. Concerning the organizational conditions, we assumed that a similar degree of NWW between the different partner

organizations could be important for collaborative innovation. However, we can conclude **that dissimilarity in the flexibility of organizations does not have a real (negative) influence such as hampering the collaboration since project partners will adapt to the less flexible ones.** Nevertheless, similarity in flexibility can offer some opportunities for collaboration.

OUR FINDINGS COMPARED TO THOSE OF WORK PACKAGES 3 AND 4

Although the role of NWW in collaborative innovation was mainly intended to be researched in Work Package 7, we cannot interpret these findings separately from the previous Work Packages 3 and 4.

In Work Package 3 (WP3), nine in-depth case studies were conducted in which both qualitative interview data and quantitative survey data were being analyzed. This Work Package mainly focused on the conditions of collaborative innovation. As regards the individual condition for collaborative innovation, WP3 showed that exchange of new information between project partners outside the meetings is higher when they do not frequently interact with each other: *“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”* (Langbroek e.a., 2018, p. 109). However, based on the results of WP7, we must nuance this finding. In the case of DV, every two weeks there was a (physical) project meeting supplemented with information sharing via the information sharing tool ‘SharePoint’. All respondents indicated to be satisfied with the collaboration in the project and most complaints regarding information exchange could be linked to communication and information red tape due to privacy and confidentiality issues, which also confirms the findings regarding red tape in WP3. Moreover, respondents also indicated that having such an intense collaboration (with frequent contact) increased the contact with project partners outside the meeting both related and non-related to the project. Nevertheless, the results of WP3 emphasized the importance of trustworthiness of participants for relational learning (i.e. learning about others’ resources and interest). The WP7 results show that due to face-to-face contact, participants indeed get to know each other and each other’s way of working better. Face-to-face contact, thus, could be a moderator in the effect of trustworthiness on relational learning.

Finally, the results of WP3 emphasized the importance of hands-on support from supervisors for collaborative innovation. This means that employees are *“also supported in practice by their superiors to engage in collaborative innovation through trainings or by receiving back-up and support in case of failure”* (Langbroek e.a., 2018, p. 89). Based on the WP7 results, we can add that providing enough autonomy and giving employees a full mandate for their participation in the project is an important aspect of an enhancing leadership style for collaborative innovation.

Work Package 4 (WP4), in which a Delphi study was conducted, included some results on the role of NWW in collaborative innovation. The main findings from this report regarding NWW were that NWW could support collaboration. Nevertheless, as the WP7 results showed, face-to-face contact was perceived as important. Here too, body language, informal contacts and interpersonal contacts were mentioned as essential aspects that could get lost during virtual contact. The results of the Delphi-study showed that respondents mostly perceived NWW having effect on their own way of working (i.e. better time management, work-private balance and concentration), which is also confirmed by our results. Lastly, WP4 mentioned that a high degree of job autonomy could be beneficial for the commitment and ownership towards the project. The WP7 results confirm this positive effect of job autonomy on the involvement of participants in collaborative innovation projects.

DISCUSSION AND FURTHER RESEARCH

Although some interesting findings emerged from this research, providing us a better insight into the relationship between NWW and collaborative innovation, there are some limitations as well. The first limitation is related to the quantitative part. We did not find many significant and meaningful effects from the survey data, and it is important to point out the low explained variance or R^2 which was mostly around 20%. Furthermore, we currently resorted to classic OLS regression with robust standard errors, but more advanced research techniques should be used to refine the explanatory quantitative findings of this report. A second limitation has to do with the survey population, being top-level civil servants rather than work floor employees. Since NWW is something that mostly affects individual employees, the reporting by managers may differ from how NWW is experienced by employees on the work floor. The survey results can thus entail a discrepancy with reality, but we still believe that the organizational managers are, to some extent, able to provide an accurate overview of how NWW is implemented in their organization. Future research should nonetheless, include employees at lower levels of the organizations to compare their answers with those of their supervisors. This would allow us to better measure the impact of NWW on collaborative innovation.

A third limitation is related to the qualitative part of the research, namely the fact that only two cases were examined for the qualitative part. In order to increase the generalizability of our results, more cases should be studied. These two cases studied allowed us to examine the role of NWW in collaborative innovation which can be seen as a first step in deepening the empirical understanding of this rarely explored relationship. Nevertheless, we suggest to systematically examine NWW-aspects in future qualitative research on collaborative innovation.

In the fourth place, as we mentioned earlier, a limitation of our study is that the findings of the qualitative part are mostly based on the (subjective) perceptions of respondents related to both their experiences with NWW as well as their expectations or how they thought it could be when having more (or less) flexibility in terms of NWW.

Finally, our research took place before the COVID-19 crisis which since then has radically impacted our normal way of working. As a result of this, our results present the situation of the pre-COVID-19 era. An interesting research question, therefore, is to what extent the COVID-19 crisis will have a long term impact on NWW in organizations and collaborative innovation in the public sector. It would thus be interesting to analyze not only the immediate changes happening during this crisis, but also to follow-up in how far in the longer term new ways of working become a habit in organizations, including in the federal ministries and agencies.

RECOMMENDATIONS

Based on the conclusions of this study, we deduce twelve recommendations for policymakers in the federal government and for management in the federal ministries and agencies.

- **Commit to more team-based organizations.** Organizations in which more than half of the employees work in teams seem to have a fostering climate for the development of innovations as well as the satisfaction and experimenting with it. Furthermore, working in teams could also advance the engagement in collaborations aimed at innovations and in collaborations with citizens.
- **Reflect on which types of decision making autonomy could be allocated to teams.** The autonomy to choose a team leader could enhance collaboration with governmental actors. However, this is a power that not many teams in the federal government have and thus it could be considered whether this is something teams could decide on for their selves. Team-based decision making powers related to the work organization (i.e. mutual division and planning of work, working method and quality management) are already assigned to many teams. Granting these decision making powers to teams seem to be positive for the development of technological and service innovations, the experimenting with innovations and the involvement in collaborations for innovation.
- **Stay committed to allowing enough flexibility in terms of time independent working.** Time independent working could facilitate the development of service innovations and innovations that are being developed more externally. Moreover, time independent working can offer employees the needed flexibility for their participation in a collaborative innovation project.
- **Weigh up the advantages and the disadvantages of time registration.** Time registration can entail advantages (i.e. controlling for too much overtime and compensating) yet also brings with it disadvantages (i.e. administrative burdens and sense of distrust). Engage in conversation with your employees on their needs and their opinion about whether or not to register working hours.
- **Accommodate the legislation to the current needs of employees and employers.** In May 2019, the European Court of Justice clarified the interpretation of the European directive regarding working and resting times. It said that member states should impose an obligation on employers to provide a system which records daily working time. This system should guarantee the legal working and resting times of employees. However, such a system would imply a restriction on time independent working without time registration. This shows that the legislations regarding working times are not in line with the principles of time independent working. We, therefore, recommend assessing how legislation can protect employees in (precarious) jobs both in the private and public sector while at the same time taking into account the current needs of employees and employers more broadly.
- **Strengthen the ability to do mobile work.** Mobile work includes working from different locations such as telecommuting or from other locations than home or satellite offices. Mobile working is not yet highly applied in the federal government. Nevertheless, it could advance the collaboration with non-public actors such as citizens and non-profit organizations, as well as with public organizations from other policy domains.
- **Consider the ability of homeworking in the context of collaborative innovation projects.** The ability to work from home was perceived as facilitating for the engagement of participants in collaborations projects aimed at collaborative innovation. According to the respondents, this allowed them to manage their responsibilities for both their normal job and the project efficiently and effectively.

- **Apply NWW as a tool for managing tensions between project responsibilities and regular job responsibilities.** The engagement in collaborative innovations projects often comes extra, on top of the regular job responsibilities. The flexibility and freedom accompanied by job autonomy and time and place independent working offers the necessary flexibility to deal with the tensions this brings about.
- **Assign part of the employees' working time to their participation in collaborative innovation projects.** Many respondents mentioned the conflict of investing enough time in the collaborative innovation project while maintaining their regular job responsibilities. Whereas they emphasize the importance of combining the project with their normal job, a good balance between the two is only achievable when reviewing the normal task package in order to allocate a part of the working time to the collaborative innovation project.
- **Give employees a mandate for their engagement in collaborative innovation.** Not having to ask consent by superiors for actions planned and decisions taken in the project itself, is perceived as essential for the efficient process of collaborative innovation. Job autonomy thus not only applies to participants' performance inside the own organization but also in collaborative innovation projects. This mandate should set the boundaries within which the employees act in the way they see fit in such collaborations.
- **Invest in (further) digitization.** ICT is one of those indispensable NWW elements which is also of great importance for the process of collaborative innovation. Efforts to further implement or maintain the digitization (i.e. providing employees an own laptop) of federal ministries and agencies are needed. This, additionally, includes training of employees aimed at increasing digital literacy.
- **Use of information sharing tools.** The use of an ICT tool aimed at sharing information outside project meetings is perceived as facilitating for the collaborative innovation process. With this tool, information can be exchanged in an organized and efficient way outside the project meetings. However, communication and information regulations (i.e. privacy and confidentiality) need to be taken into account when introducing information sharing tools.
- **Find the optimal balance between face-to-face and virtual contact.** Our research confirms the premise that a minimum of face-to-face contact is crucial for trust building and information sharing between project participants. Additionally, this facilitates people's collaboration on issues not related to the project which, in turn, increases the *interconnectedness* of organizations within the federal government as well with other (governmental) actors. Nevertheless, virtual communication should be used to stay connected next to the physical meetings.

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APPENDICES

APPENDIX 1: CHARACTERISTICS RESPONDENTS

| Person | Case | Function | Gender | Level of administration | Role organization | Interview taken |
|--------|-------------------|----------|--------|-------------------------|--------------------------|-----------------|
| WI1 | Work Integration | Employee | Female | Federal | Coordinating + Executive | 14/05/2019 |
| WI2 | Work Integration | Employee | Female | Federal | Coordinating + Executive | 24/05/2019 |
| WI3 | Work Integration | Employee | Female | Flemish | Coordinating + Executive | 07/06/2019 |
| WI4 | Work Integration | Employee | Female | Flemish | Coordinating + Executive | 14/06/2019 |
| WI5 | Work Integration | Leader | Female | Flemish | Associated | 02/12/2019 |
| DV1 | Domestic Violence | Employee | Female | Flemish | Coordinating | 15/05/2019 |
| DV2 | Domestic Violence | Employee | Male | Flemish | Coordinating | 14/06/2019 |
| DV3 | Domestic Violence | Employee | Male | Flemish | Executive | 27/06/2019 |
| DV4 | Domestic Violence | Employee | Male | Federal | Executive | 20/08/2019 |
| DV5 | Domestic Violence | Leader | Female | Municipal | Executive | 09/08/2019 |
| DV6 | Domestic Violence | Employee | Female | Municipal | Executive | 09/08/2019 |
| DV7 | Domestic Violence | Employee | Female | Private sector | Executive | 05/08/2019 |
| DV8 | Domestic Violence | Employee | Female | Private sector | Executive | 09/08/2019 |
| DV9 | Domestic Violence | Leader | Female | Private sector | Coordinating | 09/08/2019 |
| DV10 | Domestic Violence | Employee | Female | Municipal | Executive | 12/11/2019 |
| DV11 | Domestic Violence | Leader | Male | Municipal | Executive | 12/11/2019 |
| DV12 | Domestic Violence | Leader | Female | Federal | Coordinating + Executive | 25/11/2019 |

APPENDIX 2: CODING SCHEME

| NWW in the own organization | NWW and collaborative innovation | Information on the project itself |
|--|--|---|
| <ul style="list-style-type: none"> ▪ ICT tools <ul style="list-style-type: none"> ○ ICT – limited ○ ICT – moderate ○ ICT – high ▪ Job autonomy <ul style="list-style-type: none"> ○ Job autonomy – moderate ○ Job autonomy – high ▪ Management by results <ul style="list-style-type: none"> ○ MBR – moderate ○ MBR – high ▪ Teleworking <ul style="list-style-type: none"> ○ Tele – not ○ Tele – yes semi flexible ○ Tele – yes flexible ▪ Time independent working <ul style="list-style-type: none"> ○ Time – not flexible ○ Time – semi flexible (i.e. flextime) ○ Time – flexible ▪ Self-managing teams <ul style="list-style-type: none"> ○ SMT – not ○ SMT – semi ○ SMT – yes | <ul style="list-style-type: none"> ▪ General opinion <ul style="list-style-type: none"> ○ General – neutral ○ General – positive ▪ NWW used by the own organization <ul style="list-style-type: none"> ○ Own – neutral ○ Own – positive ▪ NWW used by the partner organizations <ul style="list-style-type: none"> ○ Partner does use NWW <ul style="list-style-type: none"> - Partner no – negative - Partner no – neutral ○ Partner does not use NWW <ul style="list-style-type: none"> - Partner yes – positive ○ Unaware of NWW in partner organization <ul style="list-style-type: none"> - Partner unaware – neutral - Partner unaware – positive ○ Similar use of NWW own and partner organization ▪ NWW used in the project itself <ul style="list-style-type: none"> ○ ICT tools <ul style="list-style-type: none"> - Experience - Potential ○ Meetings <ul style="list-style-type: none"> - Virtual - Face-to-face | <ul style="list-style-type: none"> ▪ Experiences project <ul style="list-style-type: none"> ○ Experienced issues <ul style="list-style-type: none"> - Aims - Central vs decentral jobs - Collaboration with partners - ICT - Labor intensive (normal job responsibilities vs project responsibilities) - Mandate - Operational - Collaborating with other government - Political - Privacy - Regulatory ○ Experienced benefits <ul style="list-style-type: none"> - Collaboration with partners - Future perspectives - Getting to know the other partners - Innovation as output - Trust ▪ Participation in project and normal job responsibilities <ul style="list-style-type: none"> ○ On top of normal job responsibilities ○ Part of normal job responsibilities |